Conservation Commission
AGENDA

Thursday, February 12, 2026 - 6:00 PM

Regular Meeting
Agawam Senior Center
954 Main Street
Agawam, MA 01001

A. Conservation Commission

1) 6:00PM PUBLIC HEARING-Amendment to Order of Conditions-56 Forest Ridge and 248 River Road-Nakhabenko

2) PUBLIC HEARING CONT.-NOTICE OF INTENT-38 Tuckahoe Drive-Town of Agawam

3) REQUEST FOR DETERMINATION CONT.-769 Silver Street-Agawam Energy Center, LLC (Previously continued to February 26, 2026)

4) Request for Certificate of Compliance-Suffield Street-Tennessee Gas Pipeline, LLC

5) Request for Certificate of Compliance-Still Brook Park

6) Request for Certificate of Compliance-233,265 & Lot 6 Main Street-HP Hood, LLC

7) APPROVAL OF MINUTES-January 22, 2026

8) Correspondence and Complaints

Amended Order of Conditions (DEP File #087-0706)

Under Massachusetts Wetlands Protection Act 310 CMR 10.00

Proposed Compensatory Flood Storage

Project Location:

56 Forest Ridge Lane (Lot 14-B)
Agawam, Massachusetts 01001
(A portion of Parcel ID: L6-5-26)

Submitted To:

Town of Agawam Conservation Commission
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant & Property Owner:

Serge Nakhabenko
242 River Road
Agawam, Massachusetts 01001

RLA Project File No. 240505
January 6, 2026

R LEVESQUE ASSOCIATES, INC

A LAND PLANNING SERVICES COMPANY

40 School Street, Westfield, MA 01085

p 413.568.0985 · f 413.568.0986 · www.rlaland.com

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APPENDIX A: SITE PLAN

I. REQUEST TO AMEND ORDER OF CONDITIONS

R LEVESQUE ASSOCIATES, INC.
40 School Street, P.O. BOX 640, Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

January 6, 2026

Henry A. Kozloski, Chairman
Town of Agawam Conservation Commission
1000 Suffield Street
Agawam, Massachusetts 01001

RE: Request to Amend Order of Conditions (DEP File #087-0706)
56 Forest Ridge Lane (Lot 14-B)
Agawam, Massachusetts 01001
(A portion of Parcel ID: L6-5-26)
RLA Project File No. 240505

Dear Chairman Kozloski and Commissioners:

On behalf of the applicant, Serge Nakhabenko, please find the requisite number of copies of a Request for Amended Order of Conditions and associated documentation for the above-referenced property. The applicant previously received an Order of Conditions from the Town of Agawam Conservation Commission (DEP File #087-0706) for a proposed residential addition at 248 River Road with off-site compensatory storage to be located at 56 Forest Ridge Lane. 56 Forest Ridge Lane has since been subdivided, shown on "Plan of Land in Agawam, Massachusetts" prepared by R Levesque Associates, Inc. recorded in the Hampden County Registry of Deeds Plan Book 403, Page 121. The parcel was subdivided so that the existing house was separated from the compensatory flood storage parcel, and the applicant now owns the compensatory flood storage parcel, know as Lot 14-B, located at the end of Redwood Drive.

The Applicant is requesting to amend the Order of Conditions to allow for additional compensatory storage on Lot 14-B to be excavated, in excess of what is required for the previously approved project. The intent of this request is to "bank" the excess compensatory storage volume for future use in other projects on River Road, which are under consideration by the applicant.

At this time, the future River Road project(s) remain in the schematic phase of design, and detailed engineering plans have not yet been developed. As such, no new construction is proposed under this amendment. Any future work associated with other projects on River Road will be subject to a separate filing and review and approval by the Commission in accordance with the Massachusetts Wetlands Protection Act (WPA) 310 CMR 10.00.

The Applicant is requesting this amendment at this time to allow additional compensatory storage

R LEVESQUE ASSOCIATES, INC.
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excavation to occur concurrently with the previously approved work at 56 Forest Ridge Lane. Completing the excavation now, while the site is already disturbed and construction activities are underway, will minimize the need for future disturbance, reduce construction-related impacts, and improve overall project efficiency. The proposed additional excavation will be located within the same general area as the previously approved compensatory storage, and will expand away from the wetland resource areas. The compensatory flood storage area will be replanted and the proposed replanting schedule has been increased to accommodate the larger area proposed.

The amended Order of Conditions would clearly document the total volume of compensatory storage created on Lot 14-B, distinguish between the volume required for the currently approved project and the excess volume proposed to be "banked", and confirm that use of any "banked" storage for a future project would require separate Commission approval. No changes are proposed to the residential addition, limit of work, or mitigation measures at 248 River Road previously approved under the existing Order of Conditions.

The Applicant respectfully submits that approving this amendment at this time is reasonable and consistent with the intent of the Wetlands Protection Act and the Wetlands Program Policy 85-4: Amended Orders, as it allows mitigation to be constructed proactively, streamlines resource area disturbance into one phase, and does not propose any new or additional impacts to wetland resource areas since the creation of compensatory flood storage does not count towards Riverfront Area alteration calculations.

As required, a copy of this Request for Amended Order of Conditions has been submitted electronically via email to the Town of Agawam Conservation Commission and MassDEP. We are requesting to be placed on the Commission's next available agenda. Should you have any questions or comments regarding this filing, please do not hesitate to contact our office at your earliest convenience.

Sincerely,
R LEVESQUE ASSOCIATES, INC.

Ryan Nelson
Wetland/Soil Scientist & Project Manager

2. COPY OF PREVIOUS PERMIT

2.1 ORDER OF CONDITIONS – 087-0706

Doc:240,068 07-07-2025 3:46
Ctf#:40775
HAMPDEN COUNTY LAND REGISTRATION
Bk 25932 Pg167 #30659
07-07-2025 @ 03:52p

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

A. General Information

1. Conservation Commission: AGAWAM
2. Issuance: a. ☑ OOC b. ☐ Amended OOC

3. Applicant Details

a. First Name	SERGE	b. Last Name	NAKHABENKO
c. Organization			
d. Mailing Address	242 RIVER RD.		
e. City/Town	AGAWAM	f. State MA	g. Zip Code 01001

4. Property Owner

a. First Name	SERGE; BRYAN	b. Last Name	NAKHABENKO; HUNT
c. Organization			
d. Mailing Address	248 RIVER RD.; 56 FOREST RIDGE LN.		
e. City/Town	AGAWAM	f. State MA	g. Zip Code 01001

5. Project Location

a.Street Address	248 RIVER RD. & 56 FOREST RIDGE LN.		
b.City/Town	AGAWAM	c. Zip Code	01001
d. Assessors Map/Plat#	L6, L6	e. Parcel/Lot#	10/3, 5/26
f. Latitude	42.05228N	g. Longitude	72.60845W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
HAMPDEN	40775		
HAMPDEN		10888	523

7.Dates

a. Date NOI Filed : 4/24/2025 b. Date Public Hearing Closed: 6/26/2025 c. Date Of Issuance: 7/7/2025

8.Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
"CONSERVATION FILING PLAN 248 RIVER ROAD & 56 FOREST RIDGE LANE PARCEL ID: L6-10-3 & L6-5-26 AGAWAM, MA"	R. LEVESQUE ASSOCIATES	ROBERT M. LEVESQUE	6/20/2025	AS NOTED

B. Findings

1.Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
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Check all that apply:

a. ☑ Public Water Supply	b. ☐ Land Containing Shellfish	c. ☑ Prevention of Pollution
d. ☑ Private Water Supply	e. ☑ Fisheries	f. ☑ Protection of Wildlife Habitat
g. ☑ Ground Water Supply	h. ☑ Storm Damage Prevention	i. ☑ Flood Control

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

a. ☑ The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

b. ☐ The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act , and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts:Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a). a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☐ Land under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☑ Bordering Land Subject to Flooding	6761 a. square feet	6761 b. square feet	4500 c. square feet	6200 d. square feet
Cubic Feet Flood Storage	87	131	97	186

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	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8.☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.☑ Riverfront Area	6761 a. total sq. feet	6761 b. total sq. feet		
Sq ft within 100 ft	3120 c. square feet	3120 d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	3641 g. square feet	3641 h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10.☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11.☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12.☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13.☐ Coastal Beaches	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14.☐ Coastal Dunes	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15.☐ Coastal Banks	a. linear feet	b. linear feet		
16.☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17.☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18.☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19.☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20.☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			

Massachusetts Department of Environmental Protection
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c. c/y dredged d. c/y dredged

21. ☐ Land Subject to Coastal Storm Flowage

a. square feet b. square feet

22.

☐ Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

a. square feet of BVW b. square feet of Salt Marsh

23.

☐ Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered

land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP"]
File Number :"087-0706"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) ☐ is not (2)☑ subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been

removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.*. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

g) The responsible party shall:

1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

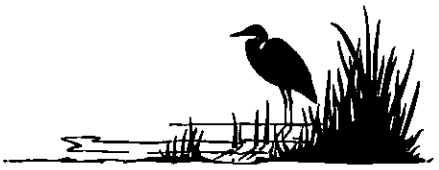
i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:
SEE ATTACHED



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
ORDER OF CONDITIONS

DEP File #087-0706 | 248 River Road & 56 Forest Ridge Lane | Nakhabenko

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the applicant shall be responsible for maintaining a copy of these Orders at the site. The applicant shall be responsible for compliance with the conditions of these Orders.

4. Prior to the start of construction, adequate erosion and sedimentation control measures shall be implemented, and shall be maintained throughout the entire construction phase and until the site has become stabilized with permanent vegetative cover.

5. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

6. The Commission shall be notified when the erosion control measures are in place to enable the Commission to ensure compliance with these Orders.

7. There shall be no discharge or spillage of oil, fuel, any petroleum product or any other pollutant into any area of statutory interest.

8. At no time shall any construction materials, soils, fills, sediments, dredging or any other substances be stockpiled or stored in any area of statutory interest.

9. All work within the area of statutory interest shall be performed so as to create minimum disturbance to the existing vegetative cover and contours.

10. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

11. If any alteration of the wetland/resource area does occur, the Commission shall impose such measures as it finds necessary to protect and restore the areas of statutory interest.

12. Only tagged trees shall be removed. All limbs, branches, slash and deadwood shall be

removed from the areas of statutory interest.

13. Whether from on-site or off-site, any fill used in connection with this project shall be clean fill as described here:

    The fill material shall be clean coarse washed sand or other clean granular material essentially free of clay, fines, dust, organic matter, large stones, masonry, stumps, frozen clumps of earth, wood tree branches and waste material. Before the fill is put in place, all trees, brush and stumps shall be removed from the area to be filled. Topsoil, peat and other impervious materials shall be removed from all areas to be filled prior to the placement of the fill material.

14. No liquid or solid chemical lawn fertilizers, pesticides, herbicides or chemical or petroleum dust control agents shall be applied within the area of statutory interest or anywhere that the surface drainage is discharged into an area of statutory interest. Also no petroleum or liquid or solid chemical storage is permitted in any areas of statutory interest.

15. Parcels abutting or containing wetland or resource areas shall carry the following restrictions, and a covenant so noted on each deed:

    "This lot contains certain areas or abuts areas protected by Chapter 131, Section 40 of the General Laws of Massachusetts known as the Wetlands Protection Act and comes under the jurisdiction of the Agawam Conservation Commission. No cutting of trees, clearing of brush, digging, filling in with soil or debris, or the building of bridges is permitted within one hundred (100) feet of the designated wetland areas or within 200' of any designated river without specific approval granted by the Conservation Commission."

16. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

17. This order shall apply to all successor or assignee in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this order is recorded.

18. The petitioner shall have recorded in the Hampden County Registry of Deeds an "Order of Conditions Form" provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

19. Prior to construction, the Commission shall be given notification of NHESP approval of final approved plans.

20. Mitigation plantings shall be completed in the Fall 2025 (Sept) or Spring 2026 (May)

growing season. Notify the Commission once completed so an inspection may be made. A follow-up inspection will be made one year after plantings were completed to ensure compliance.

21. Once all conditions of this Order are met, the applicant shall request a Certificate of Compliance.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1.Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☑ No

2.The Conservation Commission hereby(check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
087-0706
MassDEP File #

eDEP Transaction #

Agawam
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

7/7/25
1. Date of Issuance

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
Jill Ward	JILL WARD
Frank McGagher	FRANK MCGAGHER.
Henry Kozloski	Henry Kozloski
S. Pay Fallon	S. Pay Fallon

☒ by hand delivery on

July 7, 2025
Date

☐ by certified mail, return receipt requested, on

Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

7/7/2025
1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

S. Page Fallon

Henry Kozloski

Jill Ward

Frank Meagher

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

AGAWAM
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

AGAWAM
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

248 RIVER RD. & 56 FOREST RIDGE LN.
Project Location

087-0706
MassDEP File Number

Has been recorded at the Registry of Deeds of:

County Book Page

for:

Property Owner SERGE; BRYAN NAKHABENKO; HUNT

and has been noted in the chain of title of the affected property in:

Book Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Rev. 4/1/2010

CHERYL A. COAKLEY-RIVERA, ESQ.
HAMPDEN COUNTY REGISTRY OF DEEDS

CHERYL A. COAKLEY-RIVERA, ESQ.
HAMPDEN COUNTY REGISTRY OF DEEDS

3. FIGURES

3.1 FIGURE 1 – USGS TOPOGRAPHIC MAP
3.2 FIGURE 2 – FEMA FLOODPLAIN MAP
3.3 FIGURE 3 – NRCS SOILS MAP

USGS Topo - 56 Forest Ridge Ln. Agawam



NHESP Priority Habitats of Rare Species

Areas of Critical Environmental Concern ACECs

Property Tax Parcels

USGS Topographic Maps

National Flood Hazard Layer FIRMette

72°37'5"W 42°3'31"N



72°36'28"W 42°3'5"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/24/2025 at 2:31 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Soil Map—Hampden County, Massachusetts, Central Part
(Soil Map - 56 Forest Ridge Ln. Agawam)



Map Scale: 1:1,790 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 18, Aug 27, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
96A	Hadley very fine sandy loam, 0 to 3 percent slopes	0.7	24.5%
98A	Winooski silt loam, 0 to 3 percent slopes, occasionally flooded	1.0	33.7%
255D	Windsor loamy sand, 15 to 25 percent slopes	0.6	22.2%
718A	Saco Variant silt loam, frequently ponded, 0 to 2 percent slopes, frequently flooded	0.6	19.6%
Totals for Area of Interest		**2.8**	**100.0%**

4. ADMINISTRATIVE FORMS

5.1 ABUTTER LIST – 100'

5.2 ABUTTER NOTIFICATION LETTER

L7 1 19
BOLDUC DANIEL R
103 FLORIDA DR
AGAWAM, MA 01001 3565

L6 2 1
BUISO RANDY J
55 CHARLES ST
AGAWAM, MA 01001 3544

L7 1 2
CARRIER LAURA L
84 REDWOOD DR
AGAWAM, MA 01001 3527

L7 1 17
CBATTS PROPERTIES LLC
91 ELIZABETH ST
FEEDING HILLS, MA 01030

L6 5 25
CORLISS NANCY M
105 CHESTNUT LN
AGAWAM, MA 01001 3511

L7 1 31
CORTESE DONIMICK J
80 FOREST RIDGE LN
AGAWAM, MA 01001 2541

L6 5 27
COUGHLIN WILLIAM P
64 FOREST RIDGE LN
AGAWAM, MA 01001 2541

L6 5 23
GRAVEL ADAM
85 CHESTNUT LN
AGAWAM, MA 01001

L7 1 35
HARDCASTLE SHIRLEY M
63 FOREST RIDGE LN
AGAWAM, MA 01001 2574

L6 5 26
HUNT BRYAN A
56 FOREST RIDGE LN
AGAWAM, MA 01001

L6 5 26
HUNT BRYAN A
56 FOREST RIDGE LN
AGAWAM, MA 01001

L6 2 4
KING HILARY CO-TR
15 ALFRED CR
AGAWAM, MA 01001

K7 4 27
LANZA REBECCA L
47 FOREST RIDGE LN
AGAWAM, MA 01001 2574

K7 4 29
LAPOLICE MICHAEL A
55 FOREST RIDGE LN
AGAWAM, MA 01001 2574

L6 5 24
MATEUS AVELINO
95 CHESTNUT LN
AGAWAM, MA 01001 3509

L7 1 16
MHI PROPERTIES LLC
81 FLORIDA DR
AGAWAM, MA 01001

L6 2 2
O`DRISCOLL WILLIAM J
3 ALFRED CR
AGAWAM, MA 01001 3550

L7 1 18
PARSONS DEREK G
97 FLORIDA DR
AGAWAM, MA 01001 3517

L6 2 6
PAYE DAVID M
25 ALFRED CR
AGAWAM, MA 01001

L6 2 5
PETERS DONALD A
21 ALFRED CR
AGAWAM, MA 01001

L7 1 30
POOLER CHERYL A TR
72 FOREST RIDGE LN
AGAWAM, MA 01001 2541

L7 1 34
ROBBINS CHRISTOPHER W
71 FOREST RIDGE LN
AGAWAM, MA 01001

L7 1 20
RONNAU NORA D
111 FLORIDA DR
AGAWAM, MA 01001 3565

L6 2 3
SCIARTELLI ANTHONY
9 ALFRED CR
AGAWAM, MA 01001

L6 5 22
SUBOTIN CHRISTINE A
77 CHESTNUT LN
AGAWAM, MA 01001 3509

K6 7 9
SURREIRA JASON A
35 CHARLES ST
AGAWAM, MA 01001 3544

K6 7 10
SWINICKI THOMAS J
41 CHARLES ST
AGAWAM, MA 01001 3544

L7 1 7
TOWN OF AGAWAM
36 MAIN ST
AGAWAM, MA 01001 1825

Abutter List - 100'
56 Forest Ridge Lane, Agawam
Source: Agawam GIS
Generated on: 01/05/2026

Notification to Abutters

By Hand Delivery, Certified Mail (return receipt requested), or Certificates of Mailing

This is a notification required by law. You are receiving this notification because you have been identified as the owner of land abutting another parcel of land for which certain activities are proposed. Those activities require a permit under the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act, and 310 CMR 10.05(4)(a) of the Wetlands Regulations, you are hereby notified that:

A. A Request for Amended Order of Conditions was filed with the Town of Agawam Conservation Commission on or about January 6, 2026 seeking permission to remove, fill, dredge, or alter an area subject to protection under M.G.L. c. 131 §40. The following is a description of the proposed activity/activities:

The proposed project consists of additional compensatory flood storage at 56 Forest Ridge Lane (Lot 14-B), Agawam.

B. The name of the applicant is: Serge Nakhabenko

C. The address of the land where the activity is proposed is: 56 Forest Ridge Lane (Lot 14-B) Agawam, MA 01001 (A portion of Parcel ID: L6-5-26).

D. Copies of the Request for Amended Order of Conditions may be examined or obtained at the office of the Town of Agawam Conservation Commission, located at 1000 Suffield Street, Agawam, MA 01001. The regular business hours of the Commission are Monday through Friday, between the hours of 8:30 AM and 4:30 PM, or by calling 413-786-0400.

E. Copies of the Request for Amended Order of Conditions may be obtained from the applicant's representative, R. Levesque Associates, Inc. at 40 School St. Westfield, MA, Monday through Friday, between the hours of 9:00 AM and 4:00 PM, or by calling 413-568-0985. An administrative fee may be applied for providing copies of the application and plans.

F. Information regarding the date, time, and location of the public hearing regarding the Request for Amended Order of Conditions may be obtained from the Town of Agawam Conservation Commission. Notice of the public hearing will be published at least five business days in advance, in the local newspaper.

Notification provided pursuant to the above requirement does not automatically confer standing to the recipient to request Departmental Action for the underlying matter. See 310 CMR 10.05(7)(a)4.

APPENDIX A: SITE PLAN

SITE PLAN ENTITLED “CONSERVATION FILING PLAN”

PREPARED FOR SERGE NAKHABENKO

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED APRIL 10, 2025; REVISED JANUARY 6, 2026

NOTES

1. THE RECORD OWNER OF 248 RIVER ROAD IS SERGE NAKHABENKO. SEE HAMPDEN COUNTY REGISTRY OF DEEDS LAND COURT CERTIFICATE #40775. THE RECORD OWNER OF 56 FOREST RIDGE LANE IS BRYAN A HUNT. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK 10888 PAGE 523.
2. THE PROPERTY LINES FOR 248 RIVER ROAD SHOWN HEREON ARE BASED UPON A PLAN TITLED, "SUBDIVISION OF LOT B2 SHOWN ON PLAN 11096-B FILED WITH CERT. OF TITLE NO. 1776 REGISTRY DISTRICT OF HAMPDEN COUNTY LAND IN AGAWAM" PREPARED BY COBB, BEESLEY, & MILES, ENG'RS., DATED AUG. 1942. SEE HAMPDEN COUNTY REGISTRY OF DEEDS LAND COURT PLAN 11096-C. AND AN R LEVESQUE ASSOCIATES SURVEY CONDUCTED ON 02-11-2025. THE PROPERTY LINES FOR 56 FOREST RIDGE LANE SHOWN HEREON ARE BASED UPON A PLAN TITLED, "DEFINITIVE SUBDIVISION PLANS FOREST RIDGE ESTATES AGAWAM, MASS." PREPARED BY PHARMER ENGINEERING CORPORATION, DATED APR. 21, 1988. SEE HAMPDEN COUNTY REGISTRY OF DEEDS BOOK OF PLANS 261 PAGES 117-129.
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ABUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR CONSERVATION PERMITTING PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. 248 RIVER ROAD CONTAINS 12,196± S.F. 56 FOREST RIDGE LANE CONTAINS 127,170 S.F.
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. WETLAND RESOURCE AREAS DELINEATED BY R LEVESQUE ASSOCIATES ON 02-11-2025 AND 03-03-2025.
8. THE EXISTING CONDITIONS INFORMATION SHOWN IS BASED UPON A TOPOGRAPHIC SURVEY PERFORMED BY R LEVESQUE ASSOCIATES, INC. ON 02-11-2025.
9. THE UNDERGROUND UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AVAILABLE RECORD DATA, AGAWAM MA WEB GIS AND, R LEVESQUE ASSOCIATES, INC. MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. R LEVESQUE ASSOCIATES, INC. FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN HERE ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.
10. ADJACENT PROPERTY LINES AND ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM WEB GIS.
11. 248 RIVER ROAD IS ZONED RESIDENCE A-2 AND 56 FOREST RIDGE LANE IS ZONED AGRICULTURAL ACCORDING TO THE TOWN OF AGAWAM ZONING MAP.
12. THE SUBJECT PARCELS ARE LOCATED WITHIN A SPECIAL FLOOD ZONE AREA ACCORDING TO FLOOD INSURANCE RATE MAP NUMBER 25013C0411E - EFFECTIVE DATE: 07-16-2013, IN ZONE AE WITH A BASE FLOOD ELEVATION OF 57.9'.
13. A PORTION OF 248 RIVER ROAD IS LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.

ZONING REVIEW - 248 River Road - Residence A-2 (RA2)

TYPE (MINIMUM)	REQUIRED	EXISTING	PROPOSED
AREA	15,000 FT²	12,196± FT²	12,196± FT²
FRONTAGE	110 FT	78.08 FT	78.08 FT
FRONT YARD	30 FT	60± FT	36± FT
SIDE YARD	15 FT	15± FT	15± FT
REAR YARD	20 FT	58± FT	53± FT
HEIGHT (MAX)	35 FT (2.5 STORIES)	(1.5 STORIES)	(2 STORIES)
BUILDING COVERAGE (MAX)	40%	±10%	±20%

BLSF IMPACTS

ELEVATION (FT)	PROPOSED BLSF DISPLACEMENT AT 248 RIVER RD (C.Y.)	PROPOSED BLSF COMPENSATORY STORAGE AT 56 FOREST RIDGE LN (C.Y.)	NET SURPLUS OF COMPENSATORY FLOOD STORAGE (C.Y.)
55-56	9±	102±	93±
56-57	69±	277±	208±
57-57.9	53±	251±	198±
TOTAL	131±	630±	499±

RIVERFRONT AREA

RIVERFRONT AREA ON PROPERTY	12,196± S.F.
EXISTING DEGRADED RIVERFRONT AREA ON PROPERTY	3,303± S.F.
DEGRADED RIVERFRONT AREA UNDER PROPOSED CONDITIONS	3,940± S.F.
NEW ALTERATION WITHIN RIVERFRONT AREA	637± S.F.
RIVERFRONT AREA MITIGATION REQUIRED AT 2:1 RATE	1,274± S.F.
PROPOSED RIVERFRONT AREA MITIGATION	1,304± S.F.

* Per 310 CMR 10.58(4)(d)(1)(a) Compensatory storage does not count towards riverfront area alteration

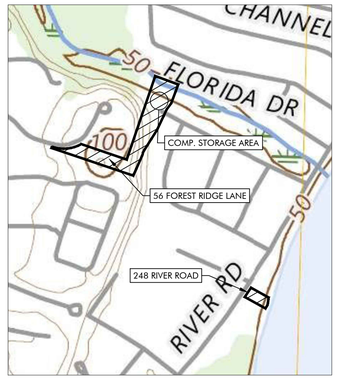
NOTE:
Per riverfront area performance standards, the improvement over existing conditions shall be met through excess mitigation provided, and implementation of voluntary stormwater management features.

PLANT LIST - 56 FOREST RIDGE LANE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/SPACING
QR	15	QUERCUS RUBRA	RED OAK	5-6' HT.
TC	10	TSUGA CANADENSIS	HEMLOCK	5-6' HT.
HV	14	HAMAMELIS VIRGINIANA	WITCH HAZEL	2-3' HT.

PLANT LIST - 248 RIVER ROAD

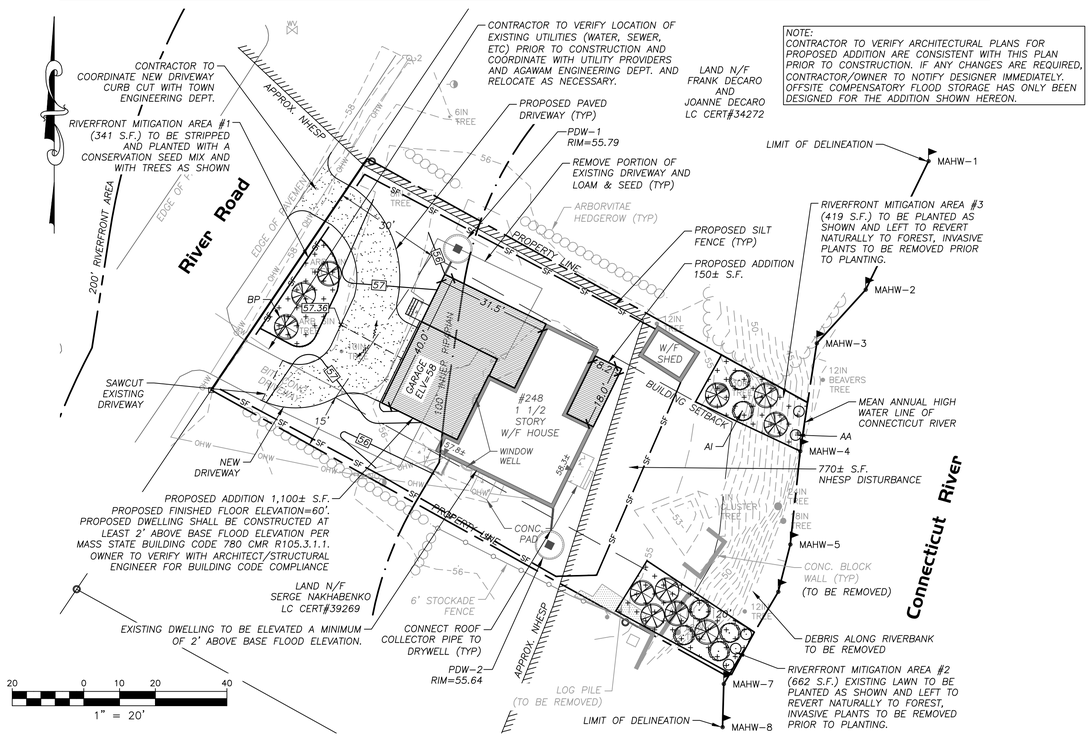
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/SPACING
BP	11	BETULA PAPYRIFERA	WHITE BIRCH	5-6' HT.
AA	5	AMELANCHIER ARBOREA	SERVICEBERRY	2-3' HT.
AI	6	ALNUS INCANA	SPECKLED ALDER	2-3' HT.



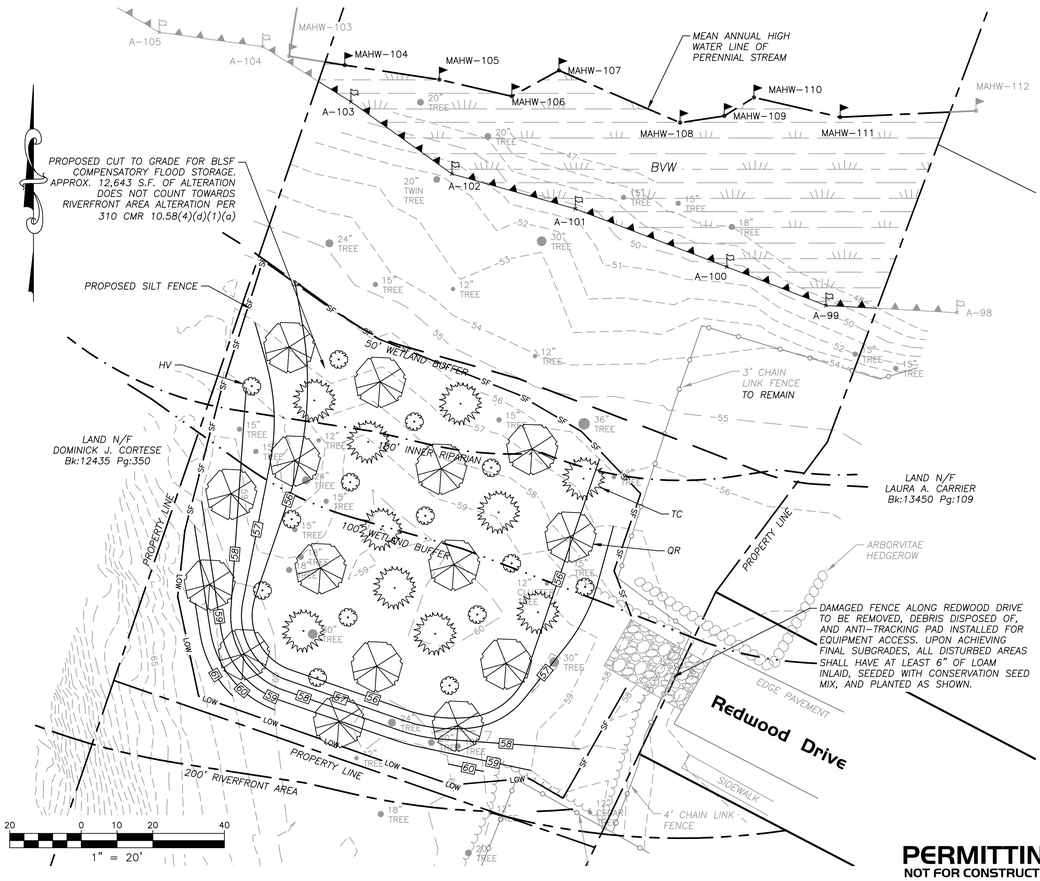
LOCUS
SCALE: 1"=500'

NOTE:
PROPOSED DWELLING SHALL BE CONSTRUCTED AT LEAST 2' ABOVE BASE FLOOD ELEVATION PER MASS STATE BUILDING CODE 780 CMR R105.3.1.1.
OWNER TO VERIFY WITH ARCHITECT/STRUCTURAL ENGINEER FOR BUILDING CODE COMPLIANCE.
EXISTING DWELLING TO BE ELEVATED A MINIMUM OF 2' ABOVE BASE FLOOD ELEVATION.

248 RIVER ROAD - PROPOSED ADDITION



56 FOREST RIDGE LANE - PROPOSED COMPENSATORY FLOOD STORAGE



PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

CONSERVATION FILING PLAN

248 River Road & 56 Forest Ridge Lane
Parcel ID: L6-10-3 & L6-5-26
Agawam, MA

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MICHAEL LEVESQUE
REGISTERED LANDSCAPE ARCHITECT
NO. 1105
1/6/26

PREPARED FOR:
Sergey Nakhabenko
248 River Road
Agawam, MA

ISSUANCE DATE: April 10, 2025	
REVISIONS:	DATE:
A. House elevation	5/22/25
B. Riverfront Mitigation	6/20/25
C. Expanded Comp. Storage Area	1/6/26

DRAFTED BY: J.L. & R.N.

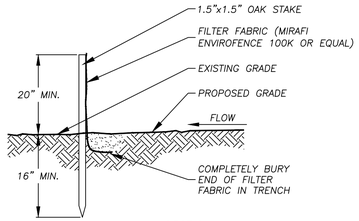
UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 240505

DRAWING#	REV.
W-1	C

S:\Projects\2024\240505 - Kalinchuk - 248 River Road, Agawam\05 Civil 3D\240505 - SITE.dwg

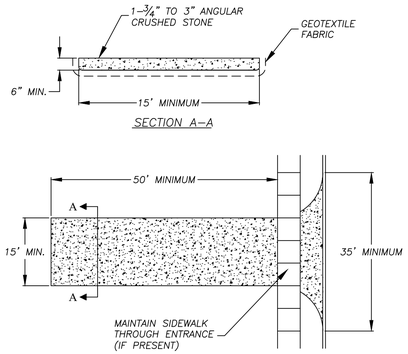


SILT FENCE DETAIL

NO SCALE

SILT FENCE INSTALLATION NOTES

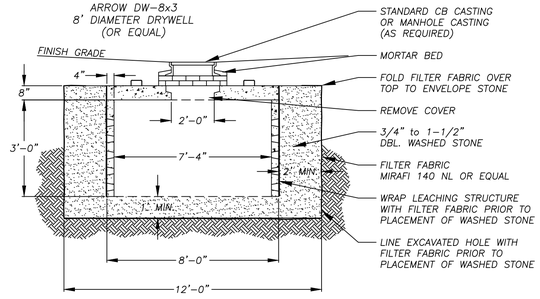
1. THIS SEDIMENT BARRIER UTILIZES MIRAFI ENVIROFENCE (100X) OR EQUAL. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.
2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES (HIGHER BARRIERS MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE). IDEALLY THE FILTER FENCE SHALL BE PLACED 10 FEET AWAY FROM THE TOE OF SLOPE.
3. WHEN JOINTS ARE NECESSARY, FILTER FABRICS SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT STAKES WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATION.
4. STAKES SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). IN APPLICATIONS WHERE HEAVY FLOWS ARE EXPECTED SUCH AS IN-STREAM INSTALLATIONS STAKE SPACING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND/OR THE ENGINEERS RECOMMENDATIONS.
5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF STAKES AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. THE PRE ASSEMBLED SILT FENCE SYSTEM SHALL BE UNROLLED, POSITION THE STAKES ON THE DOWNHILL SIDE OF THE TRENCH AND HAMMER THE STAKES AT LEAST 12 INCHES INTO THE GROUND.
7. THE BOTTOM SIX (6) INCHES OF THE FABRIC SHALL BE LAID INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUNOFF.
8. BACKFILL THE TRENCH OVER THE FILTER FABRIC AND COMPACT SUFFICIENTLY TO PREVENT THE RUNOFF FROM ERODING THE BACKFILL.
9. THE FABRIC SHALL NOT EXTEND MORE THAT 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES OR SUPPORTS OTHER THAN THE STANDARD STAKES.
10. INSTALLED SILT FENCE BARRIERS SHALL BE MAINTAINED ON A REGULAR SCHEDULE WHICH MAY BE PRESCRIBED BY THE LOCAL, STATE OF FEDERAL REGULATORY AUTHORITY; BUT, AT MINIMUM SHALL BE CHECKED WEEKLY AS WELL AS AFTER EACH STORM EVENT. MAINTENANCE SHALL CONSIST OF AN INSPECTION OF THE ENTIRE LENGTH OF THE BARRIER TO DETERMINE IF IT IS FUNCTIONING AS INTENDED. ALL BREAKS, DETACHED FABRIC, SLUMPED FABRIC, CLOGGED FABRIC, AND UNDERMINED AREAS SHALL BE FIXED THE DAY THAT THEY ARE DISCOVERED.
11. WHEN A MAXIMUM OF SIX (6) INCHES OF SEDIMENT HAS ACCUMULATED BEHIND THE SILT FENCE THIS SEDIMENT SHALL BE REMOVED AND THE FENCE SHALL BE INSPECTED FOR TEARS, CLOGGING OF BREAKS. ALL DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY EITHER BY REPAIR OF REPLACEMENT OF THE SILT FENCE BARRIER AND/OR STAKES AS NEEDED.
12. SILT FENCE BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN CLEANED OF SILT AND PERMANENTLY STABILIZED.



NOTES
1. EACH SITE ENTRANCE IS TO HAVE A TEMPORARY CONSTRUCTION ENTRANCE.
2. STONE IS TO BE 1-3/4" TO 3" ANGULAR CRUSHED STONE.
3. PLACE GEOTEXTILE OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
4. ANY SEDIMENT TRACKED INTO THE ROADWAY NEEDS TO BE CLEANED IMMEDIATELY.
5. ADDITIONAL STONE IS TO BE ADDED TO THE PAD AS NEEDED TO MAINTAIN THE ORIGINAL DEPTH.
6. ANY SIDEWALK DAMAGED DURING CONSTRUCTION MUST BE REPLACED AT THE CONTRACTORS/DEVELOPERS EXPENSE.
7. SIDEWALK MUST REMAIN PASSABLE, IF THE SIDEWALK BECOMES UNSAFE OR IMPASSABLE, A TEMPORARY SIDEWALK/ SIDEWALK DETOUR MUST BE PROVIDED.

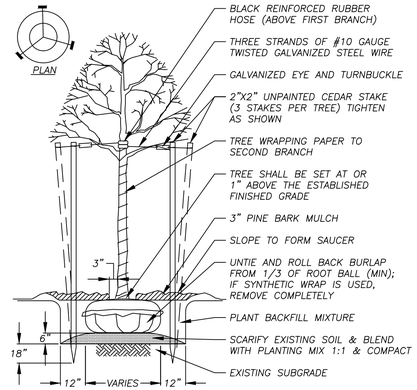
ANTI-TRACKING APRON (AS REQ'D)

NO SCALE



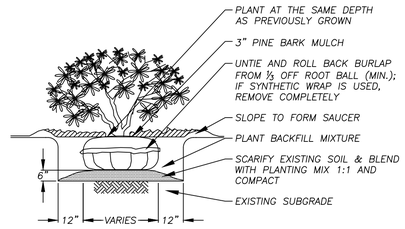
PRECAST CONCRETE DRYWELL DETAIL

NO SCALE



TREE PLANTING DETAIL

NO SCALE



SHRUB PLANTING DETAIL

NO SCALE

PERMITTING
NOT FOR CONSTRUCTION

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

CONSERVATION FILING PLAN

248 River Road & 56 Forest Ridge Lane
Parcel ID: L6-10-3 & L6-5-26
Agawam, MA

COMMONWEALTH OF MASSACHUSETTS
ROBERT A. LEVESQUE
REGISTERED LANDSCAPE ARCHITECT
NO. 1388
4/16/25

PREPARED FOR:

Sergey Nakhabenko
248 River Road
Agawam, MA

ISSUANCE DATE: April 10, 2025

REVISIONS:	DATE:

DRAFTED BY: J.L. & R.N.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: As Noted

RLA PROJ. NUMBER: 240505

DRAWING#	REV.
W-2	-

S:\Projects\2024\240505 - Kalinchuk - 248 River Road, Agawam\05 Civil 3D\240505 - SITE.dwg

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

A. General Information

1. Conservation Commission: AGAWAM
2. Issuance: a. ☑ OOC b. ☐ Amended OOC

3. Applicant Details

a. First Name	SERGE	b. Last Name	NAKHABENKO
c. Organization			
d. Mailing Address	242 RIVER RD.		
e. City/Town	AGAWAM	f. State MA	g. Zip Code 01001

4. Property Owner

a. First Name	SERGE; BRYAN	b. Last Name	NAKHABENKO; HUNT
c. Organization			
d. Mailing Address	248 RIVER RD.; 56 FOREST RIDGE LN.		
e. City/Town	AGAWAM	f. State MA	g. Zip Code 01001

5. Project Location

a.Street Address	248 RIVER RD. & 56 FOREST RIDGE LN.		
b.City/Town	AGAWAM	c. Zip Code	01001
d. Assessors Map/Plat#	L6, L6	e. Parcel/Lot#	10/3, 5/26
f. Latitude	42.05228N	g. Longitude	72.60845W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
HAMPDEN	40775		
HAMPDEN		10888	523

7.Dates

a. Date NOI Filed : 4/24/2025 b. Date Public Hearing Closed: 6/26/2025 c. Date Of Issuance: 7/7/2025

8.Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
"CONSERVATION FILING PLAN 248 RIVER ROAD & 56 FOREST RIDGE LANE PARCEL ID: L6-10-3 & L6-5-26 AGAWAM, MA"	R. LEVESQUE ASSOCIATES	ROBERT M. LEVESQUE	6/20/2025	AS NOTED

B. Findings

1.Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0706
eDEP Transaction #:1910037
City/Town:AGAWAM

Check all that apply:

a. ☑ Public Water Supply	b. ☐ Land Containing Shellfish	c. ☑ Prevention of Pollution
d. ☑ Private Water Supply	e. ☑ Fisheries	f. ☑ Protection of Wildlife Habitat
g. ☑ Ground Water Supply	h. ☑ Storm Damage Prevention	i. ☑ Flood Control

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

a. ☑ The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

b. ☐ The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act , and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts:Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a).

a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☐ Land under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☑ Bordering Land Subject to Flooding	6761 a. square feet	6761 b. square feet	4500 c. square feet	6200 d. square feet
Cubic Feet Flood Storage	87	131	97	186

	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8.☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.☑ Riverfront Area	6761 a. total sq. feet	6761 b. total sq. feet		
Sq ft within 100 ft	3120 c. square feet	3120 d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	3641 g. square feet	3641 h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10.☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11.☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12.☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13.☐ Coastal Beaches	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14.☐ Coastal Dunes	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15.☐ Coastal Banks	a. linear feet	b. linear feet		
16.☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17.☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18.☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19.☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20.☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			

c. c/y dredged d. c/y dredged

21. ☐ Land Subject to Coastal Storm Flowage

a. square feet b. square feet

22.

☐ Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

23.

☐ Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered

land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP"]
File Number :"087-0706"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) ☐ is not (2)☑ subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been

removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.*. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

g) The responsible party shall:

1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

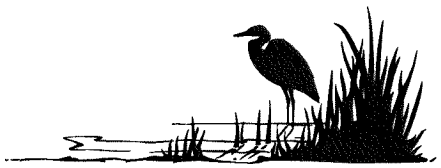
i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:
SEE ATTACHED



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
ORDER OF CONDITIONS

DEP File #087-0706 | 248 River Road & 56 Forest Ridge Lane | Nakhabenko

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the applicant shall be responsible for maintaining a copy of these Orders at the site. The applicant shall be responsible for compliance with the conditions of these Orders.

4. Prior to the start of construction, adequate erosion and sedimentation control measures shall be implemented, and shall be maintained throughout the entire construction phase and until the site has become stabilized with permanent vegetative cover.

5. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

6. The Commission shall be notified when the erosion control measures are in place to enable the Commission to ensure compliance with these Orders.

7. There shall be no discharge or spillage of oil, fuel, any petroleum product or any other pollutant into any area of statutory interest.

8. At no time shall any construction materials, soils, fills, sediments, dredging or any other substances be stockpiled or stored in any area of statutory interest.

9. All work within the area of statutory interest shall be performed so as to create minimum disturbance to the existing vegetative cover and contours.

10. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

11. If any alteration of the wetland/resource area does occur, the Commission shall impose such measures as it finds necessary to protect and restore the areas of statutory interest.

12. Only tagged trees shall be removed. All limbs, branches, slash and deadwood shall be

removed from the areas of statutory interest.

13. Whether from on-site or off-site, any fill used in connection with this project shall be clean fill as described here:

    The fill material shall be clean coarse washed sand or other clean granular material essentially free of clay, fines, dust, organic matter, large stones, masonry, stumps, frozen clumps of earth, wood tree branches and waste material. Before the fill is put in place, all trees, brush and stumps shall be removed from the area to be filled. Topsoil, peat and other impervious materials shall be removed from all areas to be filled prior to the placement of the fill material.

14. No liquid or solid chemical lawn fertilizers, pesticides, herbicides or chemical or petroleum dust control agents shall be applied within the area of statutory interest or anywhere that the surface drainage is discharged into an area of statutory interest. Also no petroleum or liquid or solid chemical storage is permitted in any areas of statutory interest.

15. Parcels abutting or containing wetland or resource areas shall carry the following restrictions, and a covenant so noted on each deed:

    "This lot contains certain areas or abuts areas protected by Chapter 131, Section 40 of the General Laws of Massachusetts known as the Wetlands Protection Act and comes under the jurisdiction of the Agawam Conservation Commission. No cutting of trees, clearing of brush, digging, filling in with soil or debris, or the building of bridges is permitted within one hundred (100) feet of the designated wetland areas or within 200' of any designated river without specific approval granted by the Conservation Commission."

16. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

17. This order shall apply to all successor or assignee in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this order is recorded.

18. The petitioner shall have recorded in the Hampden County Registry of Deeds an "Order of Conditions Form" provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

19. Prior to construction, the Commission shall be given notification of NHESP approval of final approved plans.

20. Mitigation plantings shall be completed in the Fall 2025 (Sept) or Spring 2026 (May)

growing season. Notify the Commission once completed so an inspection may be made. A follow-up inspection will be made one year after plantings were completed to ensure compliance.

21. Once all conditions of this Order are met, the applicant shall request a Certificate of Compliance.

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1.Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☑ No

2.The Conservation Commission hereby(check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

3.The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
087-0706
MassDEP File #

eDEP Transaction #

Agawam
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

7/7/25
1. Date of Issuance

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
Jill Ward	JILL WARD
Frank McAgher	FRANK MCAGHER
Henry Kozloski	Henry Kozloski
S. Page Fallon	S. Page Fallon

☒ by hand delivery on

July 7, 2025
Date

☐ by certified mail, return receipt requested, on

Date

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

7/7/2025
1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

S. Page Fallon

Henry Kozloski

Jill Ward

Frank Meagher

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land

subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

AGAWAM
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

AGAWAM
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

248 RIVER RD. & 56 FOREST RIDGE LN.
Project Location

087-0706
MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for:

Property Owner SERGE; BRYAN NAKHABENKO; HUNT

and has been noted in the chain of title of the affected property in:

Book | Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

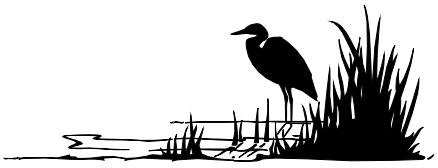
Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Rev. 4/1/2010



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
ORDER OF CONDITIONS

DEP File #087-0706 | 248 River Road & 56 Forest Ridge Lane | Nakhabenko

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the applicant shall be responsible for maintaining a copy of these Orders at the site. The applicant shall be responsible for compliance with the conditions of these Orders.

4. Prior to the start of construction, adequate erosion and sedimentation control measures shall be implemented, and shall be maintained throughout the entire construction phase and until the site has become stabilized with permanent vegetative cover.

5. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

6. The Commission shall be notified when the erosion control measures are in place to enable the Commission to ensure compliance with these Orders.

7. There shall be no discharge or spillage of oil, fuel, any petroleum product or any other pollutant into any area of statutory interest.

8. At no time shall any construction materials, soils, fills, sediments, dredging or any other substances be stockpiled or stored in any area of statutory interest.

9. All work within the area of statutory interest shall be performed so as to create minimum disturbance to the existing vegetative cover and contours.

10. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

11. If any alteration of the wetland/resource area does occur, the Commission shall impose such measures as it finds necessary to protect and restore the areas of statutory interest.

12. Only tagged trees shall be removed. All limbs, branches, slash and deadwood shall be

removed from the areas of statutory interest.

13. Whether from on-site or off-site, any fill used in connection with this project shall be clean fill as described here:

    The fill material shall be clean coarse washed sand or other clean granular material essentially free of clay, fines, dust, organic matter, large stones, masonry, stumps, frozen clumps of earth, wood tree branches and waste material. Before the fill is put in place, all trees, brush and stumps shall be removed from the area to be filled. Topsoil, peat and other impervious materials shall be removed from all areas to be filled prior to the placement of the fill material.

14. No liquid or solid chemical lawn fertilizers, pesticides, herbicides or chemical or petroleum dust control agents shall be applied within the area of statutory interest or anywhere that the surface drainage is discharged into an area of statutory interest. Also no petroleum or liquid or solid chemical storage is permitted in any areas of statutory interest.

15. Parcels abutting or containing wetland or resource areas shall carry the following restrictions, and a covenant so noted on each deed:

    "This lot contains certain areas or abuts areas protected by Chapter 131, Section 40 of the General Laws of Massachusetts known as the Wetlands Protection Act and comes under the jurisdiction of the Agawam Conservation Commission. No cutting of trees, clearing of brush, digging, filling in with soil or debris, or the building of bridges is permitted within one hundred (100) feet of the designated wetland areas or within 200' of any designated river without specific approval granted by the Conservation Commission."

16. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

17. This order shall apply to all successor or assignee in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this order is recorded.

18. The petitioner shall have recorded in the Hampden County Registry of Deeds an “Order of Conditions Form” provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

19. Prior to construction, the Commission shall be given notification of NHESP approval of final approved plans.

20. Mitigation plantings shall be completed in the Fall 2025 (Sept) or Spring 2026 (May)

growing season. Notify the Commission once completed so an inspection may be made. A follow-up inspection will be made one year after plantings were completed to ensure compliance.

21. Once all conditions of this Order are met, the applicant shall request a Certificate of Compliance.

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WESTERN REGIONAL OFFICE
436 DWIGHT STREET, SPRINGFIELD, MA 01103 413-784-1100

MAURA T. HEALEY
Governor

KIMBERLEY DRISCOLL
Lieutenant Governor

REBECCA L. TEPPER
Secretary

BONNIE HEIPLE
Commissioner

DATE: January 12, 2026

Municipality AGAWAM
(city/town)

RE: NOTIFICATION OF WETLANDS PROTECTION ACT FILE NUMBER

The Department of Environmental Protection has received a Notice of Intent filed in accordance with the Wetlands Protection Act (M.G.L. c. 131, §40):

Applicant:	TOWN OF AGAWAM	Owner:	TOWN OF AGAWAM
Address:	36 MAIN STREET AGAWAM, MA 01001	Address:	36 MAIN STREET AGAWAM, MA, 01001
LOCUS:	38 TUCKAHOE DRIVE		

This project has been assigned the following file # : WE 087-0710

A FILE NUMBER ONLY INDICATES THAT THE APPLICATION CONTAINS THE MINIMAL SUBMITTAL REQUIREMENTS AND IS ADMINISTRATIVELY COMPLETE - NOT THAT THE INFORMATION IN THE APPLICATION IS ADEQUATE FOR ISSUANCE OF AN ORDER OF CONDITIONS.

Although a file # is being issued, please note the following:

[1] The commission should review the Conservation Restriction for Tuckahoe.

[2] This project has been submitted as an Ecological Restoration Limited Project. The commission needs to review 310 CMR 10.11, 310 CMR 10.12 and 310 CMR 10.53(4)(e)5. as well as the included Appendix A.

[3] Was the aeration system approved by the commission?

[4] The commission should still use the Guidance for Aquatic Plant Management in Lakes and Ponds as it relates to the Wetlands Protection Act, in their review of this project. Appendix A of that documents has sample special conditions.

If you have any questions regarding this letter, please contact: MARK STINSON @ (413)-961-9583

Cc: Agawam Conservation Commission, DPW Inspection Services 1000 Suffield Street, Agawam, MA, 01001
Owner: TOWN OF AGAWAM, 36 MAIN STREET, AGAWAM, MA, 01001
Representative: GODDARD CONSULTING, LLC, 1442 NORTH MAIN STREET, PALMER, MA, 01069

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD# 1-866-539-7622 or 1-617-574-6868.
http://www.mass.gov/dep
Printed on Recycled Paper

TOWN OF AGAWAM
36 MAIN STREET
AGAWAM, MA 01001

Town of Agawam
Department Of Public Works

DPW
1000 Suffield Street
Agawam, MA 01001
Phone: 413-821-0600
Fax: 413-821-0631

MEMORANDUM

To: Conservation Commission
CC: File
From: Engineering Division
Date: January 22, 2026
Subject: PW 475 – Still Brook Pond – Herbicide Application

The Engineering Division has reviewed the Notice of Intent for the proposed herbicide application at Still Brook Pond located within the Still Brook Park facility; prepared by Goddard Consulting; dated December 29, 2025. Based on our review, we have the following comments:

1. It is Engineering's understanding that notifications will be posted within Still Brook Park at the time of herbicide application. We recommend that the following information be included in the notifications:
    a. The date of application
    b. The names of the herbicides applied
    c. The recommended time period for residents to avoid areas where herbicide has been applied

Engineering reserves the right to make additional comments as new information is submitted. If you have any questions, please do not hesitate to contact this division.

Sincerely,

Michael F. Albro, P.E.
Assistant Town Engineer

Michelle C. Chase, P.E.
Town Engineer

S:\PW\475 Tuckahoe Plans\NOI Application\2026_01_22 Con Com Memo.doc

GODDARD CONSULTING
Strategic Ecological Consulting

January 21st, 2026

Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

CC: MassDEP Western Regional Office
436 Dwight Street
Springfield, MA 01103

Re: Response to DEP Comments
Still Brook Pond - 100 Pine Street, Agawam, MA (DEP FILE# 087-0710)

Dear Agawam Conservation Commission,

Goddard Consulting, LLC (Goddard) is submitting this amendment to the Notice of Intent (NOI) on behalf of the applicant, the Town of Agawam, for the proposed pond management plan at Still Brook Pond (Parcel ID: C7_2_4).

Mass Department of Environmental Protection Comments:
Goddard offers the following responses to the comments below. Responses are in bold:

1) [3] Was the aeration system approved by the commission?

Goddard consulted with the Agawam Conservation Commission regarding the aeration system currently installed in Still Brook Pond. The system was not included or approved under the original Notice of Intent (DEP File No. 087-0668), issued in August 2021. This amendment to the current NOI (087-0710) is being submitted to request retroactive approval of the aeration system and authorization for its continued operation, consistent with ongoing pond management objectives. Aeration is an important management tool that improves dissolved oxygen levels, enhances water circulation, reduces internal nutrient loading, and supports overall aquatic ecosystem health. The aeration system is operated at the discretion of the Town or the pond management team and is used on an as-needed basis throughout the year in response to water quality and vegetation conditions; however, it is not operated during periods when the pond is frozen.

If you have any questions, please feel free to contact Goddard Consulting at (508) 393-3784.
Sincerely,
Goddard Consulting LLC

Steven Riberdy, MS, PWS, CWB, CERP, CE, PSS
Principal Ecologist, Regional Manager

Owen Kramer, CESSWI
Lead Wetland Scientist







Guidance for Aquatic Plant Management in Lakes and Ponds

As It Relates to the Wetlands Protection Act

Department of Environmental Protection
Bureau of Resource Protection
Wetlands/Waterways Program
April 2004

Acknowledgements

Aquatic plants are a valuable part of aquatic ecosystems providing cover, habitat, and food for many species of fish and aquatic wildlife. However, noxious and invasive aquatic plants can harm water quality, impair fish populations, and interfere with navigation and recreation. Noxious aquatic plant species can form dense growth that can pose safety problems for swimmers and boaters, as well as degrading wildlife habitat by competing with native species and changing the balance of the ecosystem.

This document is intended to assist and guide individuals in meeting the requirements of state laws and rules.

This document was made possible by the knowledge and expertise of the following individuals:

Authors: Lisa Rhodes, MA DEP; Michael Stroman, MA DEP; and Joseph Cerrutti, MA DEP

Editors and Reviewers: Michael Stroman, MA DEP; Lealdon Langley, MA DEP; Greg DeCesare, MA DEP; and Rick Dunn, MA DEP

Page Layout and Document Design: Sandy Rabb, MA DEP

DEP would also like to acknowledge the following state agency staff for sharing their thoughts and expertise in the development of the draft FGEIR for Aquatic Plant Management:

Ken Wagner, ENSR
Anne Monelly, MA Department of Conservation and Recreation, Lakes and Ponds Program
Mike Gildesgame, MA Department of Conservation and Recreation, Water Supply Protection
David Clark, MA Department of Conservation and Recreation, Dam Safety

Printable copies of this document can be downloaded and printed from the following DEP Web site; http://www.state.ma.us/dep/brp/waterway/waterway.htm. This information is also available in alternative formats by contacting the ADA coordinator at 617/574-6872.



Effective date (Leave Blank) Policy/SOP/Guideline # (Leave Blank)

Program Applicability BRP/W&W/Wetlands

Approved by (Leave Blank)

Supersedes Policy/SOP/Guideline *Wetlands Protection Program Interim Technical Guidance 90-TG1: Review of Lake and Pond Drawdown Projects for Aquatic Plant Control under 10.53(4); Western Region Technical Advisory # WE03-06 (revised April 10, 2003)*

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I. Purpose and/or Summary

The purpose of this document is to provide guidance for the issuing authority (the Conservation Commission or the Department of Environmental Protection - the "Department") in the review of aquatic plant management projects proposed to control abundance and distribution of aquatic vegetation under the Wetlands Protection Act Regulations (the "Regulations"). For the purposes of this guidance, "aquatic plants" refers to plants having the four commonly recognized growth forms of aquatic plants: floating unattached, floating attached, submerged and emergent. Reference to aquatic plants in this guidance shall also include algae. This guidance is applicable to waterbodies defined as lakes and ponds in the Regulations (310 CMR 10.04) and not to rivers (310 CMR 10.58(2)(a)(1)(e)). Additional technical information on all lake management methods is provided in the Final Generic Environmental Impact Report on Eutrophication and Aquatic Plant Management (FGEIR), scheduled for publication in April 2004 by the Department of Conservation and Recreation (DCR) in cooperation with DEP. When the FGEIR is published, a link will be provided on DEP's website, http://mass.gov/dep and on DCR's website, http://mass.gov/dem/programs/lakepond/lakepond.htm.

II. Applicability

A. Projects Subject to the Regulations

Aquatic plant management projects in lakes and ponds are subject to the jurisdiction of the Wetlands Protection Act (the "Act"), MGL Ch. 131, § 40 and the associated regulations in 310 CMR 10.00 (http://mass.gov/dep/brp/ww/regs.htm). Projects must comply with the general performance standards established for each applicable resource area in the regulations (i.e. 310 CMR 10.54, 10.55, 10.56, 10.57) unless the project is "limited" (310 CMR 10.53(4) or 310 CMR 10.53(3)(l)). If wildlife habitat thresholds described in the general performance standards are exceeded, the requirements of 310 CMR 10.60 for wildlife habitat must be met (e.g. a wildlife habitat evaluation shall be performed). No project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species (310 CMR 10.59).

B. Limited Projects

310 CMR 10.53(4) - Improve the Natural Capacity of a Resource Area

Applicants proposing a limited project under 310 CMR 10.53(4) must demonstrate that the project will improve the natural capacity of a resource area(s) to protect some or all of the interests of the Wetlands Protection Act (WPA). To meet this test, a project must improve the natural ability of a resource area to protect public or private water supply, ground water, fisheries, wildlife habitat, or to provide flood control, storm damage prevention, and/or to prevent pollution. Although a project does not need to improve the natural capacity of the resource area to protect all of the interests of the act, it must improve at least one interest and it should minimize the adverse affect on the interests that are not targeted for improvement. Projects that would usually qualify as limited projects under 10.53(4) include projects proposed primarily for the enhancement of fisheries habitat, projects to address eutrophication, or those that would increase dissolved oxygen or improve overall water quality in a water body. By the language of the limited project regulation, proposed projects involving removal of aquatic nuisance vegetation must demonstrate that the vegetation is a "nuisance" to the interests of the act. Non-indigenous invasive plant species constitute nuisance vegetation. However, significant increases in indigenous plant



species, if strongly linked to human activities, may also be considered.

Projects proposing aquatic plant management to improve the natural ability of a resource area to provide recreation, aesthetics, odor reduction, or other similar interests do not qualify under 310 CMR 10.53(4) because those interests are not protected by the WPA regulations. These projects would need to meet other applicable, relevant general performance standards.

310 CMR 10.53(3)(l) - Water Dependent Uses

310 CMR 10.53 (3) (l) applies only to a few cases where the work is confined to isolated areas and lower impact projects. Water dependent uses are defined in 310 CMR 10.04 and include those uses and facilities that "require direct access to, or location in, marine, tidal, or inland waters and which therefore cannot be located away from said waters." Examples of water dependent uses and facilities are provided in 10.04 and include, but are not limited to, marinas and public recreational uses. Water dependent uses include any other uses and facilities as may be further defined as water dependent in 310 CMR 9.12 (i.e., Chapter 91 Waterways Regulations). Aquatic plant management projects may be considered accessory (310 CMR 9.12(3)) to a water dependent use if they are necessary to accommodate a principal water dependent use. Normally, projects qualifying as water dependent uses would be confined to isolated areas associated with facilities and uses at specific points around the lake. All "water dependent uses" (e.g. marinas, public recreational uses, navigational and commercial fishing and boating facilities) that qualify for this limited project must meet all the requirements of 310 CMR 10.53(3)(l). [www.mass.gov/dep/brp/ww/files/310cmr10.pdf#64]

C. Estimated Habitats of Rare Wildlife

All projects within estimated habitat that is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by the Massachusetts Natural Heritage Program (MNHESP) require a determination by the issuing authority of whether or not a proposed project will have an adverse effect on rare species habitat. A copy of the Notice of Intent must be sent to MNHESP no later than the date the application is filed with the issuing authority. A written opinion of MNHESP on whether or not a proposed project will have such an adverse effect shall be presumed to be correct by the issuing authority, unless overcome upon a clear showing to the contrary. This determination is made by MNHESP after considering a variety of factors including time of year, existing data, and characteristics of the site. No project, including those that qualify under 310CMR 10.53(4) or 10.53(3)(1), may be permitted if it will have any short or long-term adverse impact on the estimated habitat of rare vertebrate or invertebrate species as identified by procedures established under 310 CMR 10.59. This standard is intentionally stringent in order to protect the Commonwealth's most vulnerable species.

III. Discussion

Many in-lake management proposals to control aquatic plant growth associated with nutrient and sedimentation loading, involve short-term strategies with short-term effectiveness. Such strategies require repeated implementation that may result in undesirable secondary wetland and water quality impacts. To minimize these undesirable impacts, applicants (especially those with responsibility for the entire lake such as municipalities or lake associations) are strongly encouraged to develop and implement follow-up best management practices that will promote long-term nutrient and sedimentation control. Such actions should be prioritized in areas where a waterbody has been listed on the state 303(d) list as being impaired from excess nutrients, where a Total Maximum Daily Load (TMDL) is required[1] as a result of excessive nutrients, when State Revolving Funds, Non-point Source (319) or other grants from, or administered by, the State are available. When one or more of the following conditions exist in close proximity to the lake, watersheds are likely to be contributing high pollutant loads to lakes:

1) unsewered areas with older septic systems;
2) areas with evidence of erosion, including eroded gullies serving as sources of sediment which wash into the lake;
3) agricultural areas;
4) residential areas with landscaping and lawn care activities; and
5) stormwater discharges.

Best management practices (BMPs) to address pollutant loads contributed by the watershed should be commensurate with the size of the project and could include: working with local officials and others in the community to develop watershed management plans; educating area citizens; constructing, maintaining, and monitoring structural BMPs; upgrading septic systems and other wastewater treatment facilities; employing erosion control measures; and/or implementing local lake protection bylaws. Conservation Commissions should recognize that some contributions of pollutants and nutrients might be coming from sources such as stormwater control structures, streets and wastewater treatment facilities that are beyond the ability of the applicant to control. Appendix A includes conditions that Conservation Commissions may use when developing Orders of Conditions. Condition #9 in Appendix A provides guidance on surveying a lake watershed and preparing an action plan to identify appropriate best management practices.

It is important to note that mitigation measures



are likely to be more effective on plants that get their nutrients from the water column (e.g., algae and non-rooted vascular plants) than on plants that get their nutrients from the sediment (e.g., most but not all rooted plants). It is anticipated that the measures implemented to control nutrient and sedimentation loading will have cumulative and long-term benefits (e.g. > 10 years or greater) on the overall health of the lake, but those benefits may not be visible in the short term. The benefits are likely to result from slowing of sedimentation and nutrient input rather than its elimination. Therefore, Commissions should avoid linking the implementation of lake management nutrient and sedimentation controls to short-term observable results in the lake.

IV. Information Required to Evaluate Impacts for ALL Projects

Sufficient information to evaluate the environmental impacts to wetland resource areas should be submitted with the Notice of Intent (NOI) for the project. More or less information may be required depending on the scale of the project and the magnitude of its impacts. For example, a project involving harvesting in a small area of a pond, such as a cove, may not warrant delineation of resource areas around the entire pond, but, rather, only those in the immediate vicinity. The information detailed below should be presented in a NOI in order for the issuing authority to determine whether the proposed project would protect the interests of the Act. Aquatic weed control projects may qualify as "limited projects" under the Wetland Regulations (See Section II. B.).

A. Control of Target Species

1. A map showing the distribution and density of target and non-target plants and all inlets and outlets to the water body, including any control structures. Provide an overall plan of adequate scale, size and detail to accurately and completely describe the site and proposed work to be performed.

2. Discuss factors that make it conducive for target species to propagate in the lake/pond, including whether plants spread to the lake by boats from other lakes; nutrient contribution from septic systems, stormwater or other sources; whether nutrient loading from the flooding of nutrient rich soils near shallow impoundments is contributing to the problem. Any factors that may significantly affect long-term management success should be addressed.

3. Develop a pre- and post-management monitoring program to identify new growth of target species in early stages. Strategies to address new growth should be considered and implemented (e.g. harvesting, benthic barriers). Ongoing monitoring of water quality (e.g., dissolved oxygen and temperature at various strata in the lake, nutrient levels, water clarity) as well as visual inspection for invasive species will assist in the development of long-term management plans and provide the basis for management strategies that will maintain overall health of the lake ecosystem. Information on DCR's Weed Watcher Program is a resource for training and monitoring efforts and can be found at http://mass.gov/dem/programs/lakepond/lakepond.htm.

4. Applicants should describe any efforts proposed for long-term management of the lake and how they will move away from exclusive use of short-term management methods (*See Section III-Discussion*).

B. Protection of Resource Areas

1. Identify all affected wetland resource areas and quantify proposed impacts. If no direct impacts are proposed to adjacent resource areas (e.g., herbicides and drawdowns), and in most cases when proposing treatment of expansive areas (e.g., drawdowns), resource areas may be delineated using DEP Orthophoto Wetland Maps that are available from MassGIS (http://www.state.ma.us/mgis/), local Conservation Commissions, and/or DEP (if not available, National Wetland Inventory maps may be used) rather than using full Bordering Vegetated Wetlands (BVW) delineation procedures.



2. Include a discussion of how the project will protect the interests of the Act, including public and private water supplies and groundwater. This discussion should demonstrate an understanding of the area surrounding the lake in which the activity is proposed. This discussion should also include an analysis of alternative strategies and whether they would avoid or minimize impacts to the resource areas.

C. Work Description

1. Provide a site-specific work description and plan, including details of treatment methodologies and a full description of impacts to resources such as vegetation to be removed, non-target plant and fisheries species, etc., that reflect the actual, as opposed to generic, site conditions. If harvesting is proposed, the ultimate disposal location of the vegetative spoils should be disclosed and should be outside of wetland resource areas or buffer zones.

2. Provide details of erosion controls, site access, staging areas, timetables for work and/or application of chemicals, name of supervisor or person on call who takes responsibility for work, and any other important construction considerations that might result in a resource area impact.

D. Rare Species and Other Critical Resources

1. Identify specific estimated habitat as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife (if any) published by the Natural Heritage and Endangered Species Program (NHESP).

2. If the activity proposed is located within an estimated habitat, the project proponent must follow the procedures detailed in 310 CMR 10.59 and document by a letter from the NHESP the absence of rare wildlife species habitat or that a project will not adversely affect the habitat if present in the project area (310 CMR 10.59).

3. Identify any Outstanding Resource Water (ORW) as defined by 314 CMR 9.00 (e.g. public water supplies and their tributaries, vernal pools). See the discussion on Water Quality Certification at Section X.

4. Activities conducted by water suppliers in public water supplies that involve "maintaining, repairing or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public and used to provide …water…" are exempt from the provisions of the Act and its regulations.[2] However, impacts to adjacent or downstream wetland resource areas may result from activities conducted by water purveyors that may be subject to the Act (e.g. sedimentation of downstream resource areas). Therefore, it is recommended that water suppliers inform Conservation Commissions of these activities prior to their commencement. If an applicant other than the water supplier proposes an aquatic plant management project within a public water supply or tributary, notice should be given to the water supplier prior to filing a NOI with the Conservation Commission.

E. Fisheries

1. Identify fisheries present in the project area; describe how the existing aquatic vegetation serves as fish habitat in terms of breeding habitat, food resources, and escape cover; indicate if the lake/pond is stocked; and ensure that any impact to existing fisheries habitat is minimized, and if possible, that the fishery will be enhanced.

2. Discuss the positive and negative impacts of the project on the fisheries. When possible, lake management activities should be planned to avoid the spawning and stocking period for indigenous fish. Fish spawning generally occurs in the spring or fall. Some common Massachusetts fish species and their spawning seasons are listed in the FGEIR. Some lake management techniques can result in fish kills, significant modification of benthic habitat, impact cold-water fisheries, or may need approval (*see Drawdown, Section V*) from the Department of Fish and Game (DFG). While all techniques have the potential to have adverse effects on fisheries, the selected treatment technique should balance short-term adverse effect on fisheries against the long-term improvements to the lake. The FGEIR and DFG can provide guidance about the potential effects of fisheries on specific techniques.

3. Discuss how fisheries habitat will be protected (e.g. preservation of high quality aquatic beds, create more edge effect, improved balance in ratio of forage fish to game fish).

F. Wildlife Habitat

1. The Department presumes that non-indigenous aquatic plants within lakes ponds are not "significant to the protection of wildlife habitat", either in whole or as a component of a larger plant community.[3] As such, the control or elimination of non-indigenous aquatic hydrophytes within lakes or ponds will not exceed any threshold established at 310 CMR 10.56(4)(a) 4 or 310 CMR 10.60, providing that work is designed and carried out using the best practical measures (BMPs). The BMPs should include measures to control the following: erosion, suspension or transport of pollutants, increases to turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, and the destruction of fisheries habitat.

2. If required by performance standards for individual resource areas (e.g. land under water, bordering land subject to flooding), applicants should discuss the potential impacts on wildlife habitat and the issuing authority may condition the project to protect wildlife as described in the regulations at 310 CMR 10.60. For projects that exceed the threshold

established for work in LUW at 310 CMR 10.56(4)(a) 4, See Appendix B: *Guidance for Achieving Compliance with "Wildlife Habitat Evaluations" (310 CMR 10.60) for Aquatic Plant Management Projects in Lakes and Ponds.*

3. The elimination or reduction in population of non-indigenous aquatic plants within lakes or ponds may promote an increase in indigenous plant and animal diversity and/or edge effect habitat. This change is likely to improve wildlife habitat and serve as restoration per 310 CMR 10.60.

V. Additional Information Required for DRAWDOWN Projects

Drawdown duration must be temporary (i.e., not permanent) and no longer than the minimum time necessary to accomplish aquatic nuisance plant control. Certain plant species may decrease, increase or have a variable response to drawdown and those factors should be considered. Although many drawdowns are annual treatments, periodic review of dam safety and wildlife/fisheries habitat should be conducted through regular monitoring.

Parties responsible for lake drawdown projects, including those that have been historically and systematically conducted pre-1983, should file for and receive an Order of Conditions for up to 5 years in accordance with 310 CMR 10.05 (6) (d), as long as the drawdown procedures (including water levels and timing) remain the same within that timeframe (with regular monitoring as described in the preceding paragraph).

A. Fisheries

1. The DFG should be consulted for potential fisheries impacts prior to filing the NOI (See www.state.ma.us/dfwele/dfw). The project proponent should comply with guidelines from DFG detailed in Section 4.2.6.3. of the FGEIR to the maximum extent feasible and provide evidence of such coordination in the NOI.

2. Lake drawdown has the potential to decrease the level of dissolved oxygen in the water column and can result in fish kills. During coordination with DFG, the project proponent should provide an estimate of the total area and depth zones to be dewatered, and should verify the presence of a deep-water pool or other refuge areas with sufficient dissolved oxygen levels to prevent fish kills.

3. It is advisable to commence lake drawdown between November 1 and December 1 and complete lake refill no later than April 1 to minimize impacts to fish spawning and other non-target organisms that may have water level requirements for reproduction. [4] Also, placement of temporary check dams upstream of the lake may inhibit access of fish to spawning areas in tributary streams. Applicants should avoid drawdowns in any tributaries in which Atlantic salmon restoration efforts are being conducted during October and November since it may cause siltation of spawning beds downstream (Contact the DFG to identify such tributaries). During drought conditions, refill should begin earlier to ensure adequate water for spring fish spawning (such as pickerel). Anticipated dates for the commencement and duration of drawdown as well as duration and completion of refill should be provided.

4. Estimated upstream and downstream flow rates during drawdown and refill should be provided to ensure sufficient flow rates at all times to maintain fisheries. During drawdown, downstream flow rates should be equal to flow rates expected under normal conditions, since changes in stream flow can impact fish populations (different species habitats are dictated by depth, current velocity and area, and stability of flow). To protect fisheries resources, the DFG recommends that the drawdown rate not exceed 4 cubic feet per second per square mile of drainage area (cfsm), as measured at the outlet structure, or not exceed three inches of lake elevation change per day, whichever results in the lower downstream flow rate. This drawdown rate and the time of year guidance provided in *Section B - Wildlife Habitat (below)* are general guidance that would apply to many water bodies. However, because some lakes will require higher flow rates or longer drawdown periods due to lake volume, drawdown conditions exceeding those recommended in these paragraphs should be weighed against

potential impacts to fisheries or wildlife on a case-by-case basis. Once the drawdown level has been achieved, lake outflow must equal lake inflow for the duration of the drawdown. During the lake refill period, DFG recommends that 0.5 cfsm be maintained at the outflow. While this flow rate is considered optimal for all life stages of fish, the flow rate which occurs at a specific location is dependent on the watershed size, geology and stream regulation devices such as dams and outlet structures, and should be determined by flow sampling prior to the initiation of the project, or by consultation of stream gage records in the area. Stream flow may be estimated by using the United States Geological Survey's StreamStats program. [5]

Applicants should propose a contingency strategy (such as adjusting outlet structures) to maintain downstream flow in the event of drought conditions.



B. Wildlife Habitat

The project proponent should include a discussion on how impacts to wildlife habitat will be minimized by coordinating the timing of the drawdown versus the presence of amphibian eggs, and the start of hibernation or brumation periods and any reductions in emergent vegetation preferred by wildlife species. Amphibians, reptiles, and other aquatic organisms need to be able to move to deeper water before ice formation and substrate freezing. Aquatic mammals need to locate alternate lodge sites, and beavers need to relocate food caches before ice formation. Therefore, the completion of the drawdown should, whenever possible, be accomplished by December 1. For most amphibians in Massachusetts, the primary reproductive period occurs between March and the end of August with the greatest percentage of hatching and transformation occurring by mid-July. Gradual reduction in water levels over a two to three-week period (i.e. November 1 to December 1) is important to allow for adjustment to the new water level by wildlife.

C. Public and/or Private Water Supplies

1. The Applicant should determine the presence of shallow wells or water supply intakes, the operation of which could be impaired during a drawdown.

2. The Applicant should describe mitigation to be provided if adverse impacts to water supplies cannot be avoided.

D. Dam or Other Outlet Control Structures

1. The applicant should describe what type of structure is to be used to accomplish the drawdown.

2. The Applicant should document the rate of drawdown (inches/day), duration of drawdown (*see A.3 above*), and contingency plan for closure if the structure is stuck in the open position. Note that the DCR Office of Dam Safety (DCR-ODS) recommends that in most cases, for safety purposes, drawdown rates should not exceed 6 inches/day. However, if fisheries are present, the maximum drawdown rate should not exceed those recommended by DFG as described in Section V. A. 4. The DCR-ODS also recommends that drawdowns be conducted slowly and that timeframes be minimized to avoid any structural damage to the dam. The DCR-ODS should be contacted for comment on the project and those comments should be submitted with the application.

E. Bordering Vegetated Wetlands (BVW)

Drawdowns Commenced after November 1 with refill completed by April 1 will contribute to the protection of bordering vegetated wetlands (BVW). Variability in this date is

permissible on a case-by-case basis. However, completion of the drawdown by December 1 is recommended whenever possible since it will allow wildlife to move to deeper water, locate alternate lodge sites or relocate food caches prior to ice formation and substrate freezing *(See Section V. B.)* and will minimize impacts to fish spawning and other non-target organisms that may have water level requirements for reproduction *(See Section V. A. 3)*.

F. Flood Control and Storm Damage Prevention

The applicant should discuss the potential for downstream flooding and erosion during the drawdown period. Documentation of downstream flow rates and the maximum lateral extent of flooding during drawdown should be provided. Flow rates may be measured using flow meters, weir measurements, or thorough calculations. Flow rate monitoring should be conducted during drawdown, and a contingency plan should be developed prior to drawdown and implemented in the event that flow rates change during heavy precipitation events. Measures to prevent flood damage should be identified and discussed by the project proponent and implemented when conducting the project. Any drawdown allowed should be conditioned to occur gradually and to allow for a measured reduction in water levels over a two- to three-week period to avoid sudden downstream flooding and erosion.

G. Water Quality

The project proponent should discuss potential impacts from the project to productivity, nutrient cycling, sediment inputs, and potential for algal blooms. Erosion and sedimentation controls, removal of accumulated sediments prior to drawdown, and other appropriate measures to minimize the potential for flushing nutrients, sediments, and other pollutants to downstream lakes and ponds also should be addressed.

VI. Additional Information Required for HERBICIDE/ALGICIDE Projects

A. Water Quality

1. An Application to Apply Herbicide(s) to the Waters of the Commonwealth (BRP WM 04) must be submitted to the DEP Office of Watershed Management unless the project falls under an exception as specified on BRP WM 04 application form. This license reviews proposed chemical applications to aquatic systems (traditionally lakes and ponds) to ensure that the area is being treated utilizing currently acceptable procedures and materials, in order to maintain environmental and public health to the maximum extent possible under the circumstances. The license also serves as a record of chemicals that have been introduced to specified areas. The license grants approval to apply chemicals for the control of nuisance aquatic vegetation in accordance with authority granted to the Department by MGL Ch. 111 § 5E.

Prerequisites that must be considered prior to filing for the BRP WM 04 license include:

a. Any individual who plans to use aquatic herbicides in Massachusetts must be in possession of the appropriate pesticide credential issued by the Department of Agricultural Resources; [6]

b. Chemicals used for treatments must be currently approved for use in the state by the Pesticide Bureau; and

c. The final Order of Conditions or Negative Determination of Applicability must be obtained prior to treatment. If a copy of the BRP WM 04 license is not included in the Notice of Intent or Request for Determination, then it is recommended that a condition be included in the Order of Conditions requiring that a copy of the approved BRP WM 04 license be submitted to the Conservation Commission prior to the commencement of work.

License applications can be obtained from the DEP Web site http://www.mass.gov/dep and must be submitted to the Division of Watershed Management, 627 Main Street, 2nd Floor, Worcester, MA 01608 at least 30 days prior to the proposed date(s) of treatment.

2. Regarding public drinking water supplies, 310 CMR 22.20B (8) states that "No person shall apply herbicides to any surface water body including, but not limited to, any reservoir or their tributaries, which serve as a source of public water supply without a license issued by the Department pursuant to MGL Ch. 111, § 5E. This requirement does not apply to the application of algicides containing copper by the public water system. However, the public water system shall notify DEP in writing prior to the application of such algicides.

The application of the herbicide 2,4-D is not permitted in any lakes or ponds that either abut or are within an Interim Wellhead Protection Area (IWPA) or a Zone II for a public water supply well; or are within a Zone A, B, or C for a public surface water supply. The application of the herbicide 2,4-D in any lakes or ponds that are within certain geological settings and distances of private water supply wells used for potable purposes will be conditioned to require the applicant to provide notice *(see attached notice language)* to the owners of record abutting the lake. The imposition of these restrictions is accomplished through the issuance of an *Herbicide Application Permit* by DEP in accordance with the procedures established by the *"Protocol for the Application of 2,4-D to Lakes and Ponds in Massachusetts" (See Appendix C)*. The Herbicide Application Permit will require the applicant to undertake sampling of at least three private wells within the applicable downgradient setback distance in accordance with a Department approved sampling plan designed to detect 2,4-D in the wells. If any 2,4-D is detected, then property owners with wells within the applicable downgradient setback distance will be provided notice of the test results and will be provided with bottled water by the applicant at their request for the remainder of the 150 day period in which 2,4-D may pose a risk to persons using the water as their primary source of drinking water. If, after 150 days, sampling shows 2,4-D levels not declining and not less than half the MCL, the proponent will contact DEP to determine how much longer to provide bottled water. Distance setbacks for private potable sources are dependent upon the geologic material within which the property is located. Any exceptions to these exclusionary conditions will be handled on a case-by-case basis and will require additional hydrologic or hydrogeologic assessments as specified by DEP.[7] Please see the FGEIR for detailed discussion about the toxicological and environmental fate profiles of 2,4-D and a number of other herbicides commonly used for lake management.

3. Application of herbicides has the potential to result in fish kills due to low dissolved oxygen under the following circumstances: high water temperature, high plant biomass to be controlled, shallow nutrient-rich water, high percentage of the lake to be treated, closed or non-flowing system.[8] Under these conditions, avoidance or limited application of herbicides is advisable.

4. Depending on specific circumstances, potential mitigation measures may be considered for herbicide treatments. Conservation Commissions should review the herbicide chapter of the FGEIR for the specific herbicide proposed and discuss the use of the herbicide with the individual proposing the work and in possession of the appropriate pesticide credential issued by the Department of Agricultural Resources (DAR).

VII. Additional Information Required for Harvesting Projects

1. Areas of target species for control and areas of non-target species should be identified and indicated on a map of appropriate scale.



2. Methods for minimizing turbidity during harvesting should be identified and implemented when feasible.

3. A method for collection of plant material that is cut and a disposal location of plant material that is to be removed from the water body should be identified in order to prevent decomposition that may result in lower dissolved oxygen in the water column.

VIII. Additional Information Required for Dredging Projects

1. For projects involving dredging or disposal of sediment volumes greater than 100 cubic yards, a 401 Water Quality Certificate must be obtained from the DEP Wetlands Program in the Boston Office to ensure that the proposed project is in compliance with existing water quality standards. Chapter 91 considerations may also apply. See Section X A. for further information on Chapter 91, and Section X C. for further information on Water Quality Certifications.

2. The information required to permit dredging project is extensive and includes the following:

a. Plans and cross-sections of the current and proposed conditions prepared by a qualified professional,
b. Calculations of area to be dredged and the volume of sediment to be removed,
c. Physical and chemical characterization of the sediment,
d. Procedures for land side management of the sediment (e.g., dewatering, transport), and
e. Plans for the use, or proper disposal, of the dredged material.

Some dredging projects fall within the jurisdiction of Army Corps of Engineers and may require a Federal permit. The Corps can be contacted at 1-800-343-4789.

IX. Pioneer Infestations

Projects involving monitoring for and/or eradicating pioneer infestations of non-native invasive aquatic species in public lakes or ponds in Massachusetts will improve the natural capacity of a resource area(s) to protect the interests of the Act, and are anticipated to have minor impacts (See Section IV F1). These projects typically propose to eradicate pioneer infestations through hand pulling or benthic barriers. Further, these projects are expected to improve the natural capacity of resource areas to protect the interests of the Wetland Protection Act and thus, qualify as a limited project as defined by 310 CMR 10.53 (4). DEP endorses the issuance of a Negative Determination of Applicability when these projects are conducted in accordance with the management techniques approved by DEP and described in the DCR Guidance, *Standard Operating Procedures for Hand Pulling of Aquatic Vegetation and Benthic Barriers to Control Aquatic Vegetation* dated May 15, 2003. The guidance can be obtained from the DCR Office of Water Resources, 251 Causeway Street, Suite 600, Boston MA 02114-2104. Pioneer infestations to be controlled using herbicides should be proposed under a Notice of Intent due to a higher potential to have effects on other interests of the Act.

X. Other Related Permits/Licenses/ Certifications[9]

A. MGL Chapter 91, the Public Waterfront Act:

Where dams are licensed under Chapter 91, the license conditions often allow for annual drawdowns to occur to specific levels. However, if drawdowns are sought to lower levels, new authorization must be obtained. Additionally, Section 310 CMR 9.05(2)(e) of the Waterways regulations states:

"…an application for a permit or permit amendment shall be submitted to the Department for the following activities unless the applicant includes such activities in a license application:

(e) Any lowering of the water level of a Great Pond, except a body of water used for agriculture, manufacturing, mercantile, irrigation, insect control purposes, or for flowing cranberry bogs, or for public water supply, in accordance with MGL Ch. 91, § 19A."

Note that this jurisdiction also applies to enhanced Great Ponds (ponds whose footprints have been enlarged by impoundments). Since Chapter 91 jurisdiction is associated with the water column, structures and activities are regulated in enhanced Great Ponds the same as in Great Ponds.

Dredging projects also require approval under Chapter 91. In addition to dredging projects involving sediment removal, Chapter 91 regulations define as dredging "the removal of materials including … plant or animal matter, in any excavating, cleaning, deepening, widening or lengthening, either permanently or temporarily". Therefore, a dredge permit would need to be obtained for mechanical harvesting of plant material unless the cutting and harvesting of the plant material does not disturb the bottom sediment (in which case it would not be considered "excavating" or "cleaning").

B. Water Management Act

Drawdown projects may fall under the jurisdiction of the Water Management Act (MGL Ch. 21G). Any project that includes the withdrawal, through pumping or other artificial means other than the removal of boards or other manipulation of a dam structure, of 100,000 gallons per day (or total withdrawal of nine million gallons over a three month period), will require a Water Management Act permit. If the Water Management Act applies, the project proponent should obtain a withdrawal permit from DEP's Drinking Water Program prior to initiating any work.

C. Water Quality Certification (314 CMR 9.00)

Water Quality Certification (WQC) is required under the federal Clean Water Act for certain activities in jurisdictional wetlands and waters of the Commonwealth. A WQC from DEP is required for discharge of dredged or fill material, dredging, and dredged material disposal activities in waters of the United States within the Commonwealth that require federal licenses or permits. The federal agency issuing a permit initially determines the scope of geographic and activity jurisdiction (e.g. the Corps of Engineers for Section 404 permits for the discharge of dredged or fill material). The Department administers the 401 Certification Program. Therefore, applications for WQC for fill and excavation in wetlands (BRP WW 10,11) should be sent directly to the DEP regional office in accordance with 314 CMR 9.00. Applications for WQC for dredging (BRP WW 07, 08, 09) should be sent to the Department's Boston office. Remember, projects with less than 100 cubic yards of dredging or less than 5000 square feet of wetland impact are deemed approved upon the receipt of a valid final Order of Conditions.

Discharge of dredged or fill material to an ORW specifically identified in 314 CMR 4.06(1)(d) (e.g. vernal pools, within 400 feet of a water supply reservoir, and any other area so designated) is prohibited unless a variance is obtained under 314 CMR 9.08.



D. License to Apply Herbicide(s) to the Waters of the Commonwealth (BRP WM 04)

Pursuant to MGL Ch. 111, § 5E, a license is required for application of chemicals to water bodies for the control of nuisance aquatic vegetation, with certain exceptions as are detailed on the BRP WM 04 application form. (*See Section VI. A. 1*)

Notes

1. Many hundreds of lakes are listed under Section 303(d) of the Federal Clean Water Act that requires states to identify those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and as such, require the development of total maximum daily loads (TMDL). Further information can be obtained at the Department's web site http://www.state.ma.us/dep/brp/wm/tmdls.htm

2. Note that reservoirs are considered "structures".

3. Non-indigenous (native) aquatic plants in Massachusetts include, but are not limited to:
fanwort (Cabomba caroliniana), Brazilian water-weed (Egeria densa),Eurasian water milfoil (Myriophyllum spicatum), lesser naiad (Najas minor), curly pondweed (Potamogeton crispus), and water-chestnut (Trapa natans). See Figures 1-10, 1-11, and 1-12 of the Final GEIR published in 2004.

4. See FGEIR, Section 4.2.6.3

5. The USGS StreamStats Interface help page which contains a tutorial before the user can open Streamstats is:http://ststdmamrl.er.usgs.gov/streamstats/. The expert page link to Streamstats which skips the tutorial is: http://ststdmamrl.er.usgs.gov/streamstats/expert.htm.
You may access an interactive map of Massachusetts depicting each continuous stream gage at: http://water.usgs.gov/cgi-bin/daily_flow?ma or an electronic text list of continuous stream gages at http://waterdata.usgs.gov/ma/nwis/current?type=flow.

6. The majority of herbicides registered in Massachusetts for aquatic use are classified as general use products. At a minimum, the state pesticide law (Chapter 132 B of the MGL) requires that all persons who use products classified as general use must be in possession of a current and valid commercial applicator's license. However, several herbicides registered and labeled for aquatic use in Massachusetts are classified as restricted use products (RUP's). These RUP's can only be used by individuals who possess a current and valid commercial certification in the certification subcategory code 39 (aquatic weed control). Also note that DEP holds a seat on the Pesticide Board to provide input on wetland and other environmental matters.

7. The Department's Office of Research and Standards (ORS) memo dated September 9, 1999.

8. See MDFW Performance Standards for the Protection of Fisheries Resources for Herbicides and Algicides submitted to Mike Gildesgame of the Department of Conservation and Recreation in a letter dated September 27, 2002. Also see FGEIR.

9. For additional information on regulatory requirements, see the FGEIR.



Appendices

Appendices:

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Appendix A: Sample Conditions

The sample conditions provided below contain suggested language and are intended for the use of the issuing authority in drafting Orders of Conditions.

1. This Order approves the [Insert specifics: application of herbicides, harvesting activities, etc.] specified in the permit application for the time period of [month/year] to [month/year].

2. Prior to any work, the boundary of significant wildlife habitat shall be delineated, mapped, and approved by the issuing authority. The boundary of significant wildlife habitat shall serve as the "limit-of-work" line.The boundary of significant wildlife shall be delineated by the use of weighted floats distributed along the "limit-of-work" line at intervals of no greater than 100 feet, unless the applicant proposes some other methodology that is approved by the issuing authority. No [aquatic herbicides shall be placed, harvesting shall occur etc.] in the area between the shore and the "limit-of-work" line.

3. *[For Herbicide Application Only]* The applicant or his/her designee shall obtain a valid BRP WM 04 Permit for the application of aquatic herbicides and/or algicides for designated target species [name of target species] and a copy of such BRP WM 04 permit shall be submitted to the Conservation Commission prior to initiating any treatment of aquatic vegetation permitted by this Order.

4. *[For Herbicide Application Only]* All application of herbicides approved for use by this Order shall be applied by an applicator licensed (in the aquatic weed category) by the Massachusetts Department of Agricultural Resources (DAR), Pesticide Bureau. Applications shall follow all product label directions.

5. *[Use this condition for projects that do not qualify as a limited project, or for projects warranting a wildlife habitat analysis due to presence of specific habitat characteristics detailed in Appendix B]* A Wildlife Habitat Evaluation shall be prepared by a person with the qualifications detailed at 310 CMR 10.60(1)(b) and shall describe the plant community distribution, composition, and structure between the shore and the "limit-of-work" under existing and post-treatment conditions. The report shall be prepared in accordance with the Appendix B of the *Guidance for Aquatic Plant Management in Lakes and Ponds as it Relates to the Wetlands Protection Act*, dated June 2003. The existing condition analysis shall be completed prior to the [application of herbicides, harvesting etc.]. In the following year the applicant shall complete the post-treatment portion of the Wildlife Habitat Evaluation and shall submit the evaluation to the issuing authority within thirty (30) calendar days of the last day of [application of herbicides, harvesting, etc.].

6. A status report updating the Wildlife Habitat Evaluation shall be submitted within two years of the last date of application and shall capture two growing seasons. The report shall include a discussion and conclusion as to the extent to which an "adverse effect", as defined at 310 CMR 10.60(1)(a), to significant "wildlife habitat characteristics" has resulted from the project. If a conclusion of an "adverse effect" is made in the report, or independently determined by the issuing authority, then the applicant shall demonstrate compliance with 310 CMR 10.60.

7. In the event of any fish kill within [name of lake or pond], the applicant and licensed applicator shall immediately contact the Department's Emergency Response section at [phone number for region]; the Department of Fish and Game's Westborough office at (508) 792-7270 (during normal working hours); or the Boston 24-hour response line at 1-800-632-8075.

8. Refueling, servicing, and repair of motorized watercraft and service vehicles associated with the lake surveys and treatments shall take place at least 100-feet from boundary of the resource area. Equipment operators shall be prepared to immediately respond to, and contain, accidental releases of fuel, motor oil, or aquatic herbicides. On-site absorbent materials shall be maintained for use in containing accidental spills. If an accidental release of fuel, motor oil, lubricating oils, etc. occurs, the issuing authority shall be immediately notified, and contaminated areas shall be treated according to guidelines established by the DEP's Bureau of Waste Site Cleanup (BWSC). Staging and long-term storage of aquatic herbicides and/or algicides shall take place outside the jurisdiction of the Department.

9. *[See guidance in Section III–Discussion, and use or edit this condition only as appropriate for a problem that clearly has a watershed source]* Prior to a repeat of the lake management technique allowed by this Order the applicant shall survey the lake watershed using the techniques described in the publication, *"Surveying a Lake Watershed and Preparing an Action Plan"* published by DEP, 2001. This document may be accessed through the Department's web page at http://www.state.ma.us/dep/brp/wm/volmonit.htm.

Following completion of the lake watershed survey, the Commission [or Department] recommends public education measures be undertaken, and that erosion and sedimentation control, and storm water and wastewater management measures be implemented as appropriate to address long term water quality impacts within the watershed. The Commission [or Department] reserves the right to condition future lake management proposals to address pollution inputs within the reasonable control of the applicant.

10. Following completion of the project, the applicant shall request a Certificate of Compliance and include an affidavit signed by the licensed applicator stating that the aquatic vegetation has been treated in accordance with the requirements of this Order of Conditions. All weighted floats used to demarcate the limit of work line shall be removed from the waterbody.

11. During drawdown, water levels shall be reduced gradually over a two to three-week period (i.e. between November 1 to December 1) to allow wildlife to move to deeper water, locate alternate lodge sites, or relocate food caches prior to ice formation and substrate freezing; and to minimize impacts to fish spawning and other non-target organisms that may have water level requirements for reproduction.

12. During dredging projects, siltation controls shall be utilized to prevent and minimize downstream siltation to resource areas.

13. During mechanical cutting and harvesting projects, areas of target species for control and areas of non-target species shall be identified and indicated on a map of appropriate scale. The applicant shall take all feasible measures to avoid impacts to non-target species.

14. Methods for controlling turbidity during mechanical cutting and harvesting shall be in place during the project if they are determined to be feasible.

15. *[Use this condition for mechanical cutting/harvesting projects]* Plant material that is cut shall be collected, removed from the water body, and disposed of [in the disposal location identified in the Notice of Intent] [or specify a location] in order to prevent decomposition that may result in lowered dissolved oxygen in the water column.

16. The applicant shall develop a pre- and post-management monitoring program to identify new growth of target species in early stages. Strategies to address new growth should be considered and implemented (such as harvesting or benthis barriers) to assist in the development of long-term management strategies.

Appendix B
Guidance for Achieving Compliance with "Wildlife Habitat Evaluations" (310 CMR 10.60) for Aquatic Plant Management Projects in Lakes and Ponds

Introduction

In order to protect significant wildlife habitat, safe zones that remain free of herbicide applications should be established around the perimeter of all lakes and ponds should be established around the perimeter of all other important habitat features listed below. Plant management activities within these zones should be limited to the following BMPs: (1) direct application of herbicides to non-indigenous species that occur within areas inhabited by indigenous hydrophytes; and/or (2) eradication of nuisance species using methods described in Section IX- Pioneer Infestations. An exception to the imposition of these safe zones may be considered by the issuing authority if prohibition of work within these zones would preclude whole lake aquatic plant management strategies. DEP presumes that non-indigenous aquatic plants within lakes and ponds are not "significant to the protection of wildlife habitat," either in whole or as a component of a larger plant community. (Note that this Appendix does not apply to drawdown projects. Requirements for drawdown projects are detailed in Section V.)

Significant Wildlife Habitat Characteristics

Safe zone within five feet (5') of:

• The perimeter of all lakes and ponds measured from the Mean Average Low Water Line (MALWL) horizontally into the lake or pond.

In addition, if feasible, safe zones should be established around the perimeter of the other important habitat features listed below as follows:

Within five feet (5') of:

- Any stand of indigenous emergent hydrophytes of sufficient density to provide escape shelter from predators, and/or nesting habitat for indigenous vertebrate wildlife. [1]

- Any stand of rooted, floating and/or submerged indigenous aquatic plants that has the potential to provide egg attachment or deposition sites for amphibians, and/or serves as a food source, either directly, or indirectly, to any species of vertebrate wildlife;

Within forty feet (40') of:

- Any muskrat house or feeding shelter;

- Any active or abandoned beaver lodge, underwater dam or dam remnant, or by-pass canal;

- Any island having a land mass situated above the elevation of the MALWL to provide basking sites, roosts, "haul-outs", perching sites, and/or denning/nesting sites for indigenous, vertebrate wildlife, and when stands of indigenous, aquatic and/or emergent plants are present in adjacent waters.



Although not subject to the safe zone practices described above, all projects should avoid the following wildlife habitat characteristics during construction or operation to the maximum extent practicable:

- Any rock outcropping which projects above the elevation of the MALWL that can serve as a basking site, roost, perch, or "haul-out" for indigenous, vertebrate wildlife;

- Trunks, root systems, stumps, and limbs which project above the elevation of the MALWL, and that can serve as a cavity nest, rookery, basking site, roost, perch, or "haul-out" for indigenous, vertebrate wildlife.

Notes

[1] Emergent hydrophytes potentially meeting this definition include: lake sedge (*Carex lacustris),* tussock sedge (*Carex stricta),* bayonet rush (*Juncus militaris),* Pickerelweed (*Pontederia cordata),* common arrowhead (*Sagittaria latifolia),* chair-maker's rush *(Scirpus americanus),* river bulrush (*Scirpus fluviatilis),* soft-stemmed bulrush (*Scirpus tabernaemontani),* wooly bulrush (*Scirpus cyperinus),* common cattail (*Typha latifolia),* Narrow-leaved cattail (*Typha angustifolia).*



Appendix C
Protocol for the Application of 2,4-D to Lakes and Ponds in Massachusetts

[Note: This document is for use by DEP to evaluste 2,4-D in herbicide license applicationspursuant to BRP WM 04 and is included in this policy for Conservation Commission information only]

General:

The purpose of this protocol is to establish the criteria for which the application of the herbicide 2,4-Dichlorophenoxyacetic acid (2,4-D) in surface water bodies will be permitted relative to drinking water quality concerns. The application of 2,4-D is not permitted in any lakes or ponds that are either within or abut an Interim Wellhead Protection Area (IWPA) or a Zone II for a public water supply well; or in a Zone A, B, or C for a public surface water supply. Any exceptions to these exclusionary conditions will be handled on a case-by-case basis and will require additional hydrologic or hydrogeologic assessments as specified by DEP.

DEP has established private drinking water well setback distance requirements for three types of aquifer settings. The Herbicide Application License issued by DEP will condition the application of 2,4-D to require the applicant to provide notice to the owners of record of properties abutting the lake. Applicants will also be required to undertake sampling of at least three private wells within the downgradient setback distance in accordance with a Department approved sampling plan designed to detect 2,4-D in the wells. In the event that the upgradient/ downgradient areas cannot be determined the sampling requirements will apply to wells within the setback around the entire perimeter of the shoreline. If any 2,4-D is detected then property owners will be notified of the test results and those with wells within the downgradient setback distance will be provided, at their request, with bottled water for the remainder of the 150 day period in which 2,4-D may pose risk to persons using the water as their primary source of drinking water. If, after 150 days, sampling shows 2,4-D levels not declining and not less than half the MCL, the proponent will contact the Department to determine how much longer to provide bottled water. In the event that the upgradient/ downgradient areas cannot be determined the notification and provision for bottled water requirements will apply to wells within the setback around the entire perimeter of the shoreline.

In order to have an approvable sampling plan, the proponent must submit a scaled map(s) showing the location of each private well proposed for sampling that fall within the applicable drinking water well setback distance. The setback distance is measured from the bank (i.e. the mean annual flood level of the surface water body or the first observable break in slope, whichever is lower per 310 CMR 10.54) closest to the wellhead to a point measured horizontally landward from the bank of the lake *(See below for calculation of distances based on surficial geology)*. Except for the above exclusionary conditions, for all aquifer settings, if the proponent establishes that the existing residences and businesses along the developed shoreline (within the set back distances) of the lake or pond have access to a public water supply, then the application of 2,4-D will be permitted without the requirement to sample private wells.

For the purpose of this protocol, access to a public water supply shall mean the following:

1. The owner of a residence or business establishment has the ability to connect to a public drinking water supply main that currently exists on public or town owned land that abuts a portion of the property boundary; and,
2. The public water supply main is within 200 feet of the private residence/business property boundary.

If a moratorium on new hook-ups to the public water supply is in effect, then the proponent must verify that each individual developed property within the applicable setback distance is connected to the existing public water supply.

DEP has used an initial lake or pond treatment concentration of 1,750 micrograms per liter (µg/l) of 2,4-D and a decay rate half-life of 29.5 days for calculating private drinking water well setback distances from lakes and ponds. This decay rate was considered adequately conservative for the purpose of establishing private drinking water well setback distances. The setback distance selected was based upon achieving a 2,4-D concentration in private well water of less than the Massachusetts Maximum Contaminant Level (MMCL) of 70 µg/l. For the purpose of this 2,4-D protocol, DEP established a conservative household use of 480 gallons per day, which includes indoor and outdoor water use. Water use is based upon an assumed 6 person, 3 bedroom home using 80 gallons per day per person. The calculations used to establish the setback distances are conservative in that they do not take into account dispersion and retardation of 2,4-D as it travels through lake or pond sediments and aquifer formation. They lack conservatism in that they use 2,4-D decay rate estimates derived for surface waters which will be higher than rates for groundwater where there would be less microbial activity to break down 2,4-D.

Setback Distances for the Protection of Private Wells:

In the instance where a parcel is mapped as multiple categories of aquifer or surficial geology having different setback distance requirements, the most restrictive setback distance will be applied to the entire parcel.

Medium and High Yield Aquifers, Sand and Gravel, and Large Sand Deposits:

DEP has established a setback distance of 200 feet within which the applicant is required to test some private wells. This setback distance may be reduced for portions of the shoreline if DEP concurs with a more site specific hydrogeologic analysis as described below. The 200-foot setback distance will apply to all areas that are mapped by Massachusetts Geographic Information System (MassGIS) as medium and high yield aquifers, and as sand and gravel and large sand deposit surficial geology. This distance is based upon an assumed hydraulic conductivity (K) value of 300 feet per day (ft/day), a natural groundwater hydraulic gradient of 0.0017, and an effective porosity of 39 percent. The 200-foot setback distance is based upon a concern for the potential travel-time in the downgradient direction. Dilution effects were not factored into the setback distance calculations due to concerns that in high K aquifers, some downgradient wells may receive 100 percent of their water from the infiltration of lake or pond water into the aquifer.

The proponent may conduct a hydrogeologic study to determine the direction of groundwater flow. If DEP concurs with the groundwater flow direction presented by the proponent then the setback distance requirements will be 200 feet along the downgradient shoreline. The level of effort required for the hydrogeologic study will depend upon the site-specific conditions. In some instances a simple conceptual assessment will be required to determine the general downgradient groundwater flow direction.The conceptual approach will be based upon a review of the surficial geology mapping and the topographic setting. It may also be possible to establish groundwater flow directions by conducting a literature review of published reports. In other instances where significant uncertainty exists a more complex study may have to be conducted including installation of monitoring wells and monitoring of groundwater flow directions.

Applicants will be required to provide notice to the owners of record of properties abutting the lake and to undertake sampling of at least three private wells within the downgradient setback distance in accordance with a Department approved sampling plan designed to detect 2,4-D in the wells. If any 2,4-D is detected then property owners will be notified of the results and those with wells within the downgradient setback distance will be provided, at their request, with bottled water for the remainder of the 150 day period in which 2,4-D may pose risk to persons using the water as their primary source of drinking water. If, after 150 days, sampling shows 2,4-D levels

not declining and not less than half the MCL, the proponent will contact the Department to determine how much longer to provide bottled water.

Areas of Sandy Till over Sand, End Moraines, and Flood Plain Alluvium:

A setback distance for private drinking water wells of 50 feet will apply to all areas that are mapped by MassGIS as surficial geology characterized as sandy till over sand; end moraine; and flood plain alluvium which may be reduced for portions of the shoreline if DEP concurs with a more site specific hydrogeologic analysis as described below. The notice provisions to abutters of the lake, the sampling requirements, and provision of bottled water in the event of detection of 2,4-D in private wells within the downgradient setback distance will be required as specified above. The exception will be for the areas mapped as medium and high yield aquifers that are discussed above. The 50-foot setback distance is based upon an assumed hydraulic conductivity (K) value of 30 feet per day (ft/day), a natural groundwater hydraulic gradient of 0.0017, and an effective porosity of 30 percent. The Theis nonequilibrium well equation was used to determine the additional hydraulic gradient that would be created by a residential well pumping at 480 gallons per day. For the Theis calculations the saturated thickness of the aquifer was assumed to be 20 feet. The 50-foot setback distance is based upon a concern for the potential travel-time in the downgradient direction. Dilution effects were not factored into the setback distance calculations.

As in the above case for medium and high yield aquifers, or sand deposits or sand and gravel deposits, a proponent may conduct a hydrogeologic study to determine the direction of groundwater flow. If DEP concurs with the groundwater flow direction presented by the proponent then the setback distance requirements will be 50 feet along the downgradient shoreline. See the discussion above regarding the level of effort required for conducting a hydrogeologic study.

Areas of Till or Bedrock, or Fine-Grained Deposits:

A setback distance for private drinking water wells of 25 feet will apply to all areas that are mapped by MassGIS as surficial geology characterized as till or bedrock, or fine-grained deposits. The notice provisions, sampling requirements and provision of bottled water in the event of detection of 2,4-D in private wells within the downgradient 25-foot setback distance will be required as specified above. This distance is based upon an assumed hydraulic conductivity (K) value of 0.3 foot per day (ft/day), a natural groundwater hydraulic gradient of 0.0017, and an effective porosity of 30 percent. The Theis nonequilibrium well equation was used to determine the additional hydraulic gradient that would be created by a residential well pumping at 480 gallons per day. For the Theis calculations the saturated thickness of the aquifer was assumed to be 20 feet. At a K value of 0.3 ft/day the hydraulic gradient created by the residential well becomes the controlling factor relative to groundwater flow velocity toward the well. Dilution effects were factored into this setback distance calculation based upon the assumption that the hydraulic gradient generated by pumping is the controlling factor relative to flow velocities and directions in the vicinity of the wellhead. Therefore, it is assumed that approximately equal volumes of water are drawn from all radial directions toward the well. Assuming an infiltration rate of one foot per year for bedrock/till areas, a circular area with a radius of 153 feet would be required to support a daily withdrawal volume of 480 gpd. At a distance of 25 feet from a lake or pond shoreline, approximately 42 percent of the calculated contributing area would be occupied by the surface water body. Therefore, the calculated 2,4-D concentration after the time it would take to travel the 25-foot distance is reduced by a factor of 0.42 and is below the MCL.

Procedure for the Determination of Applicable Setback Distance:

MassGIS is in the process of upgrading its on-line GIS application services to include the GIS data layers that are required to be able to quickly determine whether a particular proposed 2,4-D application to a lake or pond can proceed and what setback distances would be required between the shoreline and any private drinking water wells. Until such time as the web-based public access to this information is available, DEP's Bureau of Resource Protection (BRP) will conduct GIS queries for proponents inquiring about specific locations for proposed 2,4-D application. Please contact Joe Cerutti at (617) 292-5859 for assistance.

For a specific proposed lake or pond application of 2,4-D, the proponent should conduct the following steps to determine whether the site meets any of the exclusionary conditions or to determine the applicable setback distance requirements between the shoreline and any private drinking water wells:

1. First the proponent must determine whether the lake or pond is either located within or abuts any Zone II or IWPA for public water supply wells. Furthermore, the proponent must determine whether the lake or pond falls within a Zone A, B, or C for a public surface water supply. This information is currently available in CD format from MassGIS. In the future it will be available through the MassGIS website (http://www.state.ma.us/mgis/) with USGS topographic map or orthophoto backgrounds. If any of the above is true, then the application of 2,4-D will not be permitted unless the proponent can demonstrate to BRP that the proposed application will not impact the public drinking water sources within the applicable protection zone and that no private drinking water wells fall within the applicable setback distance established in this protocol. DEP recommends that the proponent discuss with BRP what additional information will be required prior to submitting the permit application. DEP will review any hydrologic or hydrogeologic information within the existing timeline for DEP approval.

2. If none of the above is true regarding public drinking water source protection areas, then the proponent should determine what portions, if any, of the developed properties within 200 feet of the lake or pond shore have access to public water supply service. If 100 percent of this area has access to a public water supply then the 2,4-D permit will be approved, provided that the lake or pond has not been precluded from 2,4-D application based upon the locations of public drinking water supply protection areas.

3. If less than 100 percent of the developed land within 200 feet of the downgradient lake or pond shore has access to a public water supply, then the proponent must determine the applicable private drinking water well setback distance(s) that applies. First the proponent should determine whether any of the land abutting the lake or pond is classified by MassGIS as medium or high yield aquifer deposits, or as sand and gravel or large sand surficial geology deposits. If any of these areas exist along the downgradient lake or pond shore, then a 200-foot setback distance will be required from all private drinking water wells that are located within these areas. If the surficial geology is mapped by MassGIS as sandy till over sand, end moraines, or floodplain alluvium, then a 50-foot setback distance will be required in the downgradient direction. If the surficial geology is mapped by MassGIS as till or bedrock, or fine-grained deposits then a 25-foot

setback distance will be required.

4. The proponent may submit to DEP hydrologic/hydrogeologic information to determine the direction of groundwater flow to reduce the setback distance requirement from 200 feet or 50 feet(whichever is applicable) within the 200-foot or 50-foot setback distance from the downgradient shoreline. DEP recommends that the proponent discuss with BRP what additional information will be required prior to submitting the permit application.





Massachusetts Department of Environmental Protection
1 Winter Street
Boston, MA 02108

Notice of Intent

for

Still Brook Pond
100 Pine Street
Agawam, MA, 01030

DATE:
December 29th, 2025

ADDRESSED TO:
Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

PREPARED BY:
Goddard Consulting LLC
1442 North Main Street
Palmer, MA 01069

In coordination with

SŌLitude Lake Management
590 Lake St,
Shrewsbury, MA 01545

PREPARED FOR:
Jennifer Bonfiglio
Town of Agawam
36 Main Street
Agawam, MA 01001

GODDARD CONSULTING
Strategic Ecological Consulting

December 29th, 2025

Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

Re: Notice of Intent
Still Brook Pond
38 Tuckahoe Drive
Agawam, MA 01030

Dear Agawam Conservation Commission,

On behalf of the Town of Agawam (the Applicant), Goddard Consulting, LLC (Goddard) in collaboration with SŌLitude Lake Management is hereby submitting this Notice of Intent (NOI) application for an Ecological Limited Restoration Project on Still Brook Pond at 38 Tuckahoe Drive, Agawam, MA (Parcel ID: C7_2_4). The overall goal of this project is to develop and implement a comprehensive pond management plan that includes ongoing monitoring, herbicide and algaecide application as needed, and aeration to improve water quality and habitat conditions. The project would involve the application of herbicide across the extent of the pond with the goal of managing plant assemblages, which are currently dominated by nuisance submersed, emergent, and floating-leaf vegetation and filamentous algal species. The proposed project has been filed as an Ecological Restoration Limited Project under 310 CMR 10.53(4) and will protect the interests of the Wetlands Protection Act by controlling nuisance species, improving fish habitat, improving water quality, and slowing pond eutrophication

Wetland resources affected by the proposed work include Land under Water Bodies and Waterways.

This NOI application is a filing under the MA Wetlands Protection Act (WPA). Enclosed are the WPA Form 3 and additional supporting documentation for the project for your review and approval.

Sincerely,
Goddard Consulting, LLC & SŌLitude Lake Management

Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS
Senior Ecologist / Palmer Office Manager

Owen Kramer, CESSWI
Lead Wetland Scientist

CC: MassDEP Western Regional Office, 436 Dwight Street, Springfield, MA 01103

GODDARD CONSULTING
Strategic Ecological Consulting

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GODDARD CONSULTING
Strategic Ecological Consulting

LIST OF ATTACHMENTS

Attachment A: **WPA Form 3 – Notice of Intent & Fee Transmittal Form**
Appendix A: Ecological Restoration Limited Project Checklists

Attachment B: **Abutters Information**
100-foot Abutters Map, Goddard Consulting, LLC, 11/18/2025
Environmental Monitor Publication

Attachment C: **Locus Maps & Figures**
USGS Map of the Locus Site, Goddard Consulting, LLC, 11/18/2025
Orthophoto of the Locus Site, Goddard Consulting, LLC, 11/18/2025
NRCS Map of the Locus Site, Goddard Consulting, LLC, 11/18/2025
FEMA Flood Hazard Map, Goddard Consulting, LLC, 11/18/2025
Figure 1: Still Brook Pond Survey, SOLitude Lake Management, 07/18/2025

Attachment D: **Safety Datasheets**
Diquat Treatment
Endothall Treatment
Fluridone Treatment
Imazamox Treatment
Flumioxazin Treatment
Glyphosate Treatment

1.0 INTRODUCTION

On behalf of the Town of Agawam (the Applicant), Goddard Consulting, LLC (Goddard) is hereby submitting this Notice of Intent (NOI) application for an Ecological Restoration Limited Pond Management Project on Still Brook Pond at 38 Tuckahoe Drive, Agawam, MA. SŌLitude Lake Management surveyed Still Brook Pond in July 2025 and determined an active herbicide management plan was necessary.

The pond has a history of problematic growth of purple loosestrife (*Lythrum salicaria*), naiad (*Najas minor*), cattails (*Typha spp.*), duckweed (*Lemna minor*), bladderwort (*Utricularia spp*), coontail (*Ceratophyllum demersum*) and various filamentous algal species. These plants have the ability to proliferate to nuisance densities, as has been observed in Still Brook Pond. Vegetation densities of this magnitude can overcrowd beneficial native plants and deprive them of sunlight, while also reducing dissolved oxygen and essential nutrients for other species. Over time, these conditions can lead to monocultures and a significant loss of native biodiversity.

Still Brook Pond has never undergone any true management efforts. This current proposal describes management of the pond with the implementation of selective and targeted herbicide treatments. To remediate the pond to ecologically balanced conditions, herbicides including diquat, endothall, fluridone, imazamox, flumioxazin, and glyphosate will be used as treatments. All of these products won't be applied at the same time, and some may not be used at all depending on the present conditions. Application will be used to address nuisance species across the pond. The goal is to have a balance of native species with vegetation densities to remain over 30% wherever suitable throughout the pond to ensure habitat integrity. In addition to chemical treatments, an aeration system has already been installed to improve dissolved oxygen levels, reduce internal nutrient loading, and limit algal growth. The system promotes a more balanced aquatic ecosystem by supporting fish and invertebrate populations and helping to prevent stratification and stagnation. Retroactive approval is being requested to authorize the installation and continued operation of this existing aeration system. Regular inspections will take place after the application to confirm the success of treatment. Treatment will be done within the water body and may indirectly contact Land Under Waterways and Waterbodies (LUWB/WW).

This report describes existing conditions, resource areas present on site, the proposed work, and project compliance with the Massachusetts Wetlands Protection Act. Goddard requests that the Agawam Conservation Commission issue an Order of Conditions by virtue of the demonstration of this project's compliance, described in the sections below. A 5-year approval is requested for the implementation and monitoring of the aquatic management program at Still Brook Pond.

2.0 EXISTING CONDITIONS

Still Brook Pond is located on the parcel at 38 Tuckahoe Drive (Parcel ID: C7_2_4), with public access provided through Still Brook Park at 100 Pine Street in Agawam, MA. The park consists primarily of hardwood forest, and the pond's shoreline is bordered by wooded deciduous swamps and upland forest. The park, the pond, and its shores are utilized for recreational activities including canoeing, kayaking, fishing, hiking, and picnicking. Access to the pond has recently been increased with new paved roads, parking spots, and a launch point. Still Brook Pond itself is approximately 10.1 acres (439,956 SF) and lies within the Connecticut River Watershed. The pond sits on land formerly operated as the Tuckahoe Turf Farm, where historic use of fertilizers and soil amendments may have contributed to elevated nutrient levels that now support excessive aquatic vegetation growth. The property was later purchased by the Town of Agawam and incorporated into Still Brook Park, which is designed to serve the community. The pond is currently equipped with an aeration system to help improve water quality and circulation. The pond receives inflow from channels at its northern end and drains through an outlet at its southern end, which ultimately discharges into Still Brook.

2.1 OVERVIEW

Still Brook Pond has experienced the growth of submersed, emergent, and floating-leaf vegetation and filamentous algal species for many years. As discussed above, these species have the ability to proliferate throughout the pond in a short amount of time and are doing so in Still Brook Pond. Such proliferation by nuisance species can deprive other beneficial aquatic vegetation of sunlight, dissolved oxygen, and essential nutrients, ultimately creating near-monocultures and reducing overall ecosystem health.

Nuisance vegetation species have a history of rapid proliferation and subsequent overgrowth in Still Brook Pond, extending throughout the entire water body and proliferating around the perimeter of the pond. These species, in lieu of proper management and treatment, given the anthropogenically impounded nature of Still Brook Pond, will grow to become a monoculture covering a significant portion of an area and hinder diversity of aquatic vegetation within the pond. Management of these species is essential to maintaining wildlife habitat, fisheries, and the recreational value of the pond. If left wholly unmanaged, or if the only management available is not cost-effective enough to be employed, these species can overrun an area, causing deteriorated water quality conditions and the subsequent issues that come with them, including severe eutrophication and ultimately habitat degradation, while also precluding effective recreational use of a water body.

A pond survey conducted by SŌLitude Lake Management in July 2025 documented the dominant vegetation types and their distributions throughout Still Brook Pond. Dominant submersed vegetation included coontail, bladderwort, filamentous algae, and naiad, while emergent vegetation was characterized by dense stands of purple loosestrife and cattails. Duckweed was identified as the primary floating vegetation. All of these will be targeted for management. In its current condition, vegetation in the southern portion of the pond is present at densities that impede access from the launch point and restrict proper drainage. A map of plant distribution is provided in Attachment C.

The pond is relatively shallow around most of its edges, with extensive areas only 1 to 2 feet deep. These shallow margins make it more susceptible to eutrophication, as emergent wetland vegetation can readily encroach into open-water areas and trap sediment. The pond reaches a maximum depth of approximately 6 feet.

The Applicant is seeking an OOC to ensure the ability to actively manage the pond for recreation and wildlife habitat integrity under all current laws and local regulations. Management will include selective and targeted herbicide treatments to control nuisance species while maintaining approximately 30% aquatic vegetation cover in the managed areas. An aeration system has already been installed to improve water circulation, increase dissolved oxygen levels, and help prevent stratification and algal blooms; retroactive permitting is requested to authorize its installation and continued use. Without these management measures, problematic vegetation would continue to expand, further degrading the aquatic environment and reducing the pond's ecological and recreational value. These methods are in compliance with the Massachusetts DCR's 2004 *Generic Environmental Impact Report on Eutrophication and Aquatic Plant Management in Massachusetts* (GEIR) and *The Massachusetts Guide to Lake Management* (MassGLM).

According to WPA 310 CMR 10.05, "An applicant who proposes work solely within Land under Water Bodies or Waterways, or solely within a Lot with an area greater than 50 acres, is required to provide notification only to Abutters whose Lot is within one hundred feet from the Project Site." The proposed work is entirely within the pond, which is part of a parcel of approximately 266 acres. The Agawam Assessor's Office could only provide abutter information within 100 feet of the parcel boundary, rather than from the pond's edge. Based on this information, Goddard determined that notifying abutters was not required based on the regulations. A figure showing the 100-foot buffer around the pond is attached in Attachment B.

2.2 RESOURCE AREAS ON-SITE

2.2.1 LAND UNDER WATER BODIES AND WATERWAYS

Under the Wetlands Protection Act, Land under Water Bodies and Waterways is defined as "the bottom of, or land under, the surface of the ocean or any estuary, creek, river, stream, pond, or lake." No significant changes or alterations to this resource area will happen as a result of the treatment. This resource area is expected to be enhanced through the removal of excessive nuisance species, and subsequent improvement of water quality and habitat, as well as lessening eutrophic conditions. In the short term, during and immediately after treatment, there will likely be a small short term impact to the Land under Water Bodies underneath the pond surface, as, in order to treat and restore the pond, there is some necessity to use minimal drawdown and appropriate treatments within the surface and littoral zone of the pond, which will cause temporary impacts to this resource.

2.2.2 BANK

Under the Wetlands Protection Act, Bank is defined as "the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland." No significant changes or alterations to this resource area will happen as a result of the treatment. Bank will not be impacted as a boat will be used to help administer treatment away from the bank, meaning no staging or setup impacts will occur. The boat will be launched from the pond's existing launch point.

2.2.3 HABITAT AREA

The pond is not located within an Area of Critical Environmental Concern (ACEC), nor is the pond located within NHESP Priority Habitat of Rare Species or Estimated Habitats of Rare Wildlife.

2.2.4 WATER QUALITY

Still Brook Pond is not an Outstanding Resource Water (ORW) area nor is it considered a Great Pond. The pond is also not listed in the 314 CMR 4.06 Table 12 (Surface Water Quality Standards (11/12/21)) and thus, per 314 CMR 4.06(5), as "Other Waters" it can be presumed to be a Class B Water representing its recreational, habitat, and aesthetic value. All proposed treatments are suitable for such waters per Massachusetts and USAEPA guidelines and regulations, and, once an Order of Conditions has been issued by the Agawam Conservation Commission, the licensed applicator will complete the filing for a State Pesticide Use Permit (WM04) with the Massachusetts Department of Environmental Protection (MA-DEP).

3.0 PROPOSED PROJECT

3.1 GENERAL OVERVIEW

The applicant proposes to manage Still Brook Pond utilizing a variety of herbicides as needed based on monitoring to help control the problematic nuisance vegetation on the pond. This Notice of Intent is requesting approval for use of diquat, endothall, fluridone, imazamox, flumioxazin, and glyphosate. These products will not all be used at once, and some may not be used at all depending on the present conditions and management approach. The proposed treatments specifically affect the target species to be controlled and have a negligible effect on the non-target species and wildlife when applied in accordance with the label directions. All treatments will be applied at or below suggested doses according to the product label. All doses are based on plant types and densities as well as the volume of the pond, so that the minimum suitable concentration for efficacy of treatment material is introduced into the waterbody. The herbicides will be applied within the limit of work and below the mean annual low water line of the pond. In

addition to herbicide treatments, the use of a previously installed aeration system is proposed to promote better water circulation and higher dissolved oxygen level and reduce algal blooms. By enhancing these water quality conditions, aeration will support healthier aquatic habitats, improve water clarity, and increase the overall effectiveness of the pond management plan. Combined, these treatments are proposed for the purpose of ecological restoration to restore and maintain the aquatic habitat and water quality of the pond and allow continued useThese treatments are proposed for the purpose of ecological restoration to restore and maintain the aquatic habitat and water quality of the pond and allow for enhanced and to allow for continued communal recreational use.

Management and treatment of the vegetation will be paired with pre- and post- treatment surveys to assess and confirm appropriate management conditions, physical and chemical properties of the lake, treatment areas, and timing, as well as determine the effectiveness of treatment. The information and summaries from these pre- and post-treatment surveys will be supplied to the Agawam Conservation Commission and paired with treatment area maps and information on the herbicide used.

Still Brook Pond had experienced extensive growth of nuisance submersed, emergent, and floating-leaf vegetation and filamentous algal species for many years prior to this proposed treatment. Since the pond has received no previous management efforts, aquatic vegetation densities in the pond have been increasing, and continued treatment is required to avoid degradation of habitat in the future. If left untreated, nuisance vegetation will proliferate to problematic densities. When this vegetation dies in the fall, cyanobacteria may flourish and feed on the decaying plants, leading to a potentially anoxic and/or toxic event. Goddard anticipates that the management program proposed in this document will be successful in reduction and maintenance of nuisance species within the pond, while maintaining a dynamic composition and healthy beneficial distribution of suitable aquatic vegetation throughout the remainder of the pond.

3.2 POND MANAGEMENT

As stated above, once an Order of Conditions has been issued by the Agawam Conservation Commission, the licensed applicator will complete the filing for a State Pesticide Use Permit (WM04) with the Massachusetts Department of Environmental Protection (MA-DEP).

The applicant's goal is to maintain Still Brook Pond as a passive recreational resource and as viable habitat for fish and wildlife. To achieve this goal, proactive and ongoing management of nuisance vegetation is essential.

The following management schedule is proposed under this Notice of Intent. The phases outlined below provide a general framework and may be adjusted as needed based on field conditions, weather, and applicator availability.

Activity	Month	Target Species	Possible Products Utilized
Monitoring	April - September		
Floating-leaf vegetation herbicide treatment	August-September	- duckweed	- Diquat - Fluridone - Flumioxazin
Submersed vegetation herbicide treatment	August-September	- bladderwort - coontail - naiad - filamentous algae	- Diquat - Endothall - Fluridone - Flumioxazin
Emergent vegetation herbicide treatment	August-September	- cattails - purple loosestrife	- Glyphosate - Imazamox
Pond Aeration	Year-round as needed		

Future Management

Due to the nature of managing nuisance species, annual long-term management is required for the continued control of these species and subsequent restoration of the pond.

Annual pre-treatment surveys will be undertaken in the following years around Spring and early-Summer. If there is regrowth of the target species, it will be handled with appropriate management practice.

3.3 ECOLOGICAL RESTORATION PROJECT

This project has been filed as an Ecological Restoration Project in accordance with 310 CMR 10.53(4). As per 310 CMR 10.04, "Ecological Restoration Limited Project means an Ecological Restoration Project that meets the eligibility criteria set forth in 310 CMR 10.24(8) or 10.53(4)." 310 CMR 10.53(4)(e)(5) states that, "An Ecological Restoration Project that is not listed in 310 CMR 10.54(4)(e)2. Through 4., that will improve the natural capacity of a Resource Area(s) to protect the interests identified in M.G.L. c. 131, § 40, may be permitted as an Ecological Restoration Limited Project provided that the project meets the eligibility criteria set forth in 310 CMR 10.54(4)(a) through (d). Such projects include, but are not limited to, the restoration, enhancement, or management of Rare Species habitat, the restoration of hydrologic and habitat connectivity, the removal of aquatic nuisance vegetation to retard pond and lake eutrophication, the thinning or planting of vegetation to improve habitat value, riparian corridor re-naturalization, river floodplain reconnection, in-stream habitat enhancement, fill removal and regarding, flow restoration, and the installation of fish passage structures."

This project clearly fits under this definition, as it seeks to remove aquatic nuisance vegetation to slow pond eutrophication and includes thinning vegetation to improve habitat value. It aims to restore and maintain habitat which is anthropogenically impounded and thus, modified.

3.4 RARE SPECIES HABITAT & FEMA FLOOD DESIGNATIONS

The entirety of Still Brook Pond and the property parcel is not mapped within priority habitat on the most recent habitat map of State-listed Rare Wildlife published by Natural Heritage and Endangered Species Program. The site is not located in an Area of Critical Environmental Concern (ACEC), but parts of the parcel are located within a regulated FEMA flood zone.

3.4.1 TREATMENTS

Diquat (Tribune - EPA # 100-1390 or equivalent)

Tribune (diquat) is an effective herbicide for partial-pond treatments due to its rapid mode of action and short herbicide concentration-exposure-time requirements. Even though diquat is considered to be a contact-herbicide, longer term control may be seen as plants' root crowns will not be allowed to develop.

The USEPA/MA registered herbicide diquat dibromide (Tribune) will be applied to the area at or below the permissible label dose. Tribune is applied to more than 500 lakes and ponds annually, throughout the northeast, to control nuisance submerged aquatic plants. Diquat can be applied to control milfoil, naiad, bladderwort, and other nuisance submersed plants at the application rate of 1.0-2.0 gal/acre, if necessary. Temporary water use restrictions for diquat are now: 1) No drinking or cooking for 3 days. 2) No irrigation of turf for 3 days and of food crops for 5 days, and 3) No livestock watering for 1 day. There are no restrictions on swimming, boating, or fishing, but prudent herbicide/algaecide management, suggest that we close the pond on the day of treatment. The shoreline of the pond will be posted with signs warning of these temporary water use restrictions, prior to treatment.

Diquat is translocated to some extent within the plant. Its rapid action tends to disrupt the leaf cuticle of plants and acts by interfering with photosynthesis. Upon contact with the soil, it is adsorbed immediately and thereby biologically inactivated. Residual levels of diquat in treated water decline rapidly and their reduction is due to the uptake by the targeted vegetation and adsorption to suspended soil particles in the water or on the bottom mud. Photochemical degradation accounts for some loss under conditions of high sunlight and clear waters.

Endothall (Aquathol-K – EPA #70506-176 003 or equivalent)

Endothall is an aquatic contact herbicide that is primarily used for the control of submersed weeds. It prevents certain plants from producing the proteins they need to survive including bladderwort, pondweed, coontail, and more. Endothall is available as two formulations in granular or liquid form. These include dipotassium salt and monoamine salt. Formulations that contain monoamine salt are more toxic to fish and should not be used in areas where fisheries resources are important while formulations containing dipotassium salt exhibit lower organism toxicity and are more appropriate for use in fisheries areas.

Both the potassium and monoamine salt formulations of endothall have a similar environmental fate and exhibit a relatively short persistence time in aquatic environments. Low concentrations of endothall persist in water for up to several weeks, and complete degradation by microbial action occurs after 30-60 days. The half-life is five to ten days on average. Endothall is not expected to bioaccumulate or be absorbed into suspended solids or sediment. Each product label must be followed to adhere to post-treatment water use as these procedures vary among the different formulations. For all endothall products there is a drinking water standard of 0.1 ppm and they cannot be applied within 600 feet of a potable water source.

Fluridone (Sonar – EPA # 67690-4 or equivalent):

Fluridone is a systemic herbicide that can be utilized for multi-year control on several invasive aquatic vegetation species. It comes in two formulations, as an aqueous suspension and a slow-release pellet. The treatment acts to inhibit carotene synthesis, and results in plants being damaged through direct sunlight. Fluridone works through a waterbody quickly, though it takes several weeks to several months for the inhibiting process within the vegetation, followed by plant die-off from sunlight exposure. However, this slower rate reduces the risks of oxygen depletion. This herbicide is also beneficial for its use on selective major invasive species at lower doses, and its minimal direct risks to fauna. Fluridone is considered to have a low toxicity to invertebrates, fish, mammals, other aquatic wildlife, and humans.

Fluridone, when applied at recommended dosages, is generally viewed as having one of the most environmentally friendly toxicology profiles of all products currently on the market. The US EPA has approved a limit of 150 ppb to be allowed in water used for drinking. Ideally, fluridone treatments are initiated early in the growing season when target vegetation is low or starting emergence. Presently, liquid and granular formations of this herbicide are available and included under this management plan. For aqueous applications, this chemical will be placed into an onboard mixing tank, mixed with pond water and evenly distributed throughout the surface of the treatment area via boat. This herbicide will be injected under the water surface through trailing hoses, minimizing the chance of chemical drift and assuring accurate placement of over the target species. For granular applications, the herbicide will be placed into a herd spreader mounted to the bow of the treatment vessel and evenly distributed over the surface of the treatment area.

Imazamox (Clearcast – EPA # 241-437 or equivalent)

Imazamox is a post-emergent, selective, systemic herbicide. It moves throughout plant tissue after absorption, killing the plant. It is used to control a broad range of grasses and broadleaf weeds. Belonging to the imidazolinone chemical family, it works by inhibiting the acetolactate synthase enzyme (ALS), which is essential for plant growth. Imazamox

is commonly sold as a soluble concentrate or pre-mixed. It is effective at relatively low application rates, but overuse can lead to ALS-resistant weed populations.

Flumioxazin (Clipper – EPA # 71368-114 or equivalent)

Flumioxazin is a broad-spectrum, contact herbicide that disrupts chlorophyll production in plants. Treated vegetation typically responds quickly, resulting in rapid die-off and decomposition. The herbicide's half-life varies with water pH: in low-pH conditions, it ranges from approximately four to five days, while in high-pH waters it is one day or less. Flumioxazin has a low potential for leaching and does not persist in the environment.

The product is available in granular form (Clipper™) for the control of submerged aquatic plants and may also be applied as a foliar treatment to manage emergent and floating-leaf species. In addition, flumioxazin is effective against certain filamentous algae. Its use does not restrict swimming, consumption of fish from treated water bodies, or use of treated water for pets or livestock; however, a five-day restriction applies to irrigation following treatment.

Glyphosate (AquaPro - EPA # 62719-324-67690, Rodeo – EPA # 62719-324 or equivalent):

Glyphosate is a broad spectrum, systemic herbicide. It works by preventing plants from synthesizing protein and producing new tissue. Its aquatic formulation is effective against most emergent and floating plant species, and at recommended doses it is relatively non-toxic to aquatic fauna. Invertebrates do not appear to suffer any direct impacts from glyphosate treatments. Glyphosate quickly degrades into non-toxic components in aquatic environments. Direct contact with the plant's leaves can kill the entire plant, and it only requires a few hours of contact. Glyphosate does have potential to kill non-target species if it comes into direct contact with their leaves.

Pond Aeration:

Still Brook Pond is currently equipped with an aeriation system. Aeration systems function by introducing oxygen into the water column and promoting circulation, which helps prevent thermal stratification, reduces nutrient accumulation, and limits the growth of algae and nuisance vegetation. By maintaining higher oxygen levels throughout the pond, aeration supports fish, invertebrates, and other aquatic organisms while improving overall water quality. Over time, consistent aeration can help reduce conditions that favor excessive plant and algae growth, potentially decreasing reliance on herbicide treatments in the future. These systems are widely used in ponds and lakes across the state and pose no risk to human health or non-target wildlife when properly installed and maintained. The aeration system is operated at the discretion of the town or pond management team, year-round as needed based on water quality and vegetation conditions but would not be used when the conditions are frozen.

3.4.2 RISKS – MONITORING & PREVENTION

All potential treatments have some degree of temporary risk to water quality and fish safety. Risks associated with herbicide application within the ponds include oxygen depletion, water quality degradation, noxious odors, fish kills, and potentially impacting non-targeted species. However, when treatment is done properly by a qualified herbicide applicator, risks are significantly minimized. In addition, regular monitoring of the site will be conducted through evaluating the following characteristics of the pond to prevent the following problems from occurring.

3.4.3 IMPACTS TO RESOURCE AREAS

LUWW Impacts (Temporary)	Bank Impact	Riverfront Area Impact
439,956 SF of Pond Surface Area	0	0

Impacts to the resource areas on & around the pond include LUWW. Impacts to the LUWW will be temporary, and there are not expected to be any impacts to Bank, or any surrounding Riverfront Area cast off the streams flowing out of the pond. Impacts to LUWW will include the targeting, and removal, of the problematic species within the pond.

4.0 REGULATORY COMPLIANCE WITH WETLANDS PROTECTION ACT

Work within resource areas protected by the Wetlands Protection Act is being proposed. The project has been designed to meet the Wetlands Protection Act's general performance standards for work within resource areas and to minimize impacts to the extent practicable. Table 1 below outlines impacts to the resource area on site. Explanation on how the project meets the performance standards of each resource follows.

4.1 LAND UNDER WATER BODIES AND WATERWAYS

§ 10.56	**Land Under Water Bodies and Waterways**	
Performance Standards		**Compliance**
10.56 (4)(a)(1)	*Any proposed work within Land under Water Bodies and Waterways shall not impair the following:* *The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks.*	Treatment involved will not affect the carrying capacity of the pond.
10.56 (4)(a)(2)	*Ground and surface water quality.*	Ground water quality is not expected to be impacted from work. Surface water quality has the potential to be adversely impacted during treatment, but by following the procedures listed above in the Treatments section, water quality will not be impaired beyond the extreme short term and will be maintained or improve as positive overall in the longer term.
10.56 (4)(a)(3)	*The capacity of said land to provide breeding habitat, escape cover and food for fisheries.*	Vegetation management through treatment is expected to improve the habitat and cover quality of the pond, as the current dense coverages are at nuisance levels that obstruct fish movement. Biodiversity will also be improved.
10.56 (4)(a)(4)	*The capacity of said land to provide important wildlife habitat functions. A project or projects on a single lot,*	As listed above, treatment is expected to improve the quality of the pond's wildlife habitat functions

	for which Notice(s) of intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures established under 310 CMR 10.60.	by improving biodiversity, removing nuisance weeds that can obstruct dissolved oxygen levels, and clear up the pond so fish have improved visibility and less obstructions.

5.0 ALTERNATIVE ANALYSIS

Since some work is proposed within the Wetlands Protection Zone, the applicant has provided the following analysis of alternatives for pond treatment. Alternatives were analyzed for potential viability and practicality given the site's environmental constraints.

5.1 ALTERNATIVE A: NO MANAGEMENT

Performing zero management to the pond was considered as an alternative to the application of herbicides across the pond. Due to the dense growth of nuisance vegetation in the pond, no management is not recommended, as the continued lack of management limits biodiversity of the ponds and can deplete dissolved oxygen. No management of this impounded waterbody also threatens its functions as a body of water for recreational uses to the community.

5.2 ALTERNATIVE B: SEDIMENT EXCAVATION/DREDGING

Dredging nutrient rich sediment along the pond bottom is sometimes used as a method to control excessive weed growth. Conventional and hydraulic dredging requires an extensive and expensive project compared to herbicide treatment. Access and staging areas can also be a limiting factor to this management, combined with severe negative impacts to aquatic organisms with no guarantee of complete nuisance species removal. Permitting for dredging is also significantly more costly and time consuming, so dredging may not be required at this time.

5.3 ALTERNATIVE C: HAND REMOVAL/MECHANICAL REMOVAL

Hand or mechanical removal is not ideal due to the expensive costs with a possibility of control of the vegetation only being short-lived. Hand removal also requires multiple volunteers or a large budget for labor over several days, potentially multiple times in a single season for years on end. Additionally, for a pond of this size, it may be infeasible due to the amount of work required to reach suitable efficacy. Another option considered for submerged vegetation removal is DASH, or Diver Assisted Suction Harvesting, the process of a diver hand removing and delivering the removed plant through a suction hose for bulk removal. This, however, is difficult and time consuming. This method is also much more expensive compared to herbicide applications.

5.4 ALTERNATIVE D: BOTTOM WEED BARRIERS

Physical controls, such as the use of bottom weed barriers can be effective for small dense patches of nuisance vegetation but are not cost effective or feasible for large areas. Weed barriers are expensive to install and maintain at ~$1.75/ft2 (material & installation). This is extremely expensive for a pond the size of Still Brook

Pond relative to the return on investment. Semi-annual maintenance to retrieve, clean and re-deploy the barriers would be expensive and time consuming. Additionally, covering expansive areas of the pond bottom would very likely also have detrimental impacts on native plants, invertebrates and other types of wildlife.

5.5 ALTERNATIVE E: BIOLOGICAL

There are no proven biological controls available or approved by the State of Massachusetts for the control of the nuisance aquatic plant species present in the pond.

5.6 ALTERNATIVE F: POND MANAGEMENT VIA HERBICIDE TREATMENT AND AERATION

While no approach is perfect, the preferred alternative, which is holistic pond management including monitoring, supplemental aeration, and subsequent treatment as needed with a carefully chosen suite of herbicide and algaecide treatments to be applied when and where appropriate, represents the best balance of cost, efficacy, safety, and reliability in the eyes of the applicant. The risks outlined in section 3.4 are preventable with qualified personnel and regular, consistent monitoring of the pond's water quality and vegetation. The proposed plan stands out as the most conventional tried and tested method, with a long track record of success in comparable ponds which are valuable both for their ecological benefits and public recreation and use.

6.0 CONCLUSION

In summary, Goddard Consulting and SŌLitude Lake Management believe that the proposed treatment will not have any adverse impacts on the interests identified in the Wetlands Protection Act in the long term. Still Brook Pond is expected to be enhanced through the removal of excessive nuisance species and subsequent improvement of water quality and habitat. The proposed project meets all regulatory compliance standards under the Wetlands Protection Act; therefore, Goddard Consulting respectfully requests that the Agawam Conservation Commission issue an Order of Conditions approving the proposed project.

Please feel free to contact us if you have any questions about this Notice of Intent submission.

Sincerely,

Goddard Consulting, LLC & SŌLitude Lake Management



Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS
Principal Ecologist / Director of Operations



Owen Kramer, CESSWI
Lead Wetland Scientist

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment A: WPA Form 3 – Notice of Intent & Fee Transmittal Form

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date: 11/24/25

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date: 11/24/2025

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

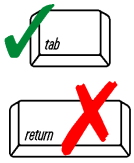
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Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

38 Tuckahoe Drive — a. Street Address
Agawam — b. City/Town
01030 — c. Zip Code

Latitude and Longitude:
42.050650 — d. Latitude
-72.686757 — e. Longitude

C7_2 — f. Assessors Map/Plat Number
C7_2_4 — g. Parcel /Lot Number

2. Applicant:

Jennifer — a. First Name
Bonfiglio — b. Last Name
Town of Agawam — c. Organization
36 Main Street — d. Street Address
Agawam — e. City/Town
MA — f. State
01001 — g. Zip Code
413-726-9742 — h. Phone Number
i. Fax Number
jbonfiglio@agawam.ma.us — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Owen — a. First Name
Kramer — b. Last Name
Goddard Consulting, LLC. — c. Company
1442 North Main Street — d. Street Address
Palmer — e. City/Town
MA — f. State
01609 — g. Zip Code
508-393-3784 — h. Phone Number
i. Fax Number
owen@goddardconsultingllc.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid
b. State Fee Paid
c. City/Town Fee Paid

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Provided by MassDEP:

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A. General Information (continued)

6. General Project Description:

The proposed project is seeking approval to implement pond management plan for Still Brook Pond. The focus of this management will be reducing and controlling nuisance aquatic vegetation using USEPA/MA registered aquatic herbicides.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☒ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

310 CMR 10.53(4)(e)(5) Control of non-native vegetation and improving habitat for native species

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Hampden	
a. County	b. Certificate # (if registered land)
8444	320
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☒ Land Under Waterbodies and Waterways	439,956 (temporary) 1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☐ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.
** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

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C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Bourne to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

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C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☐ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☐ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☐ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

■ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☐ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☐ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☐ List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☐ Attach NOI Wetland Fee Transmittal Form

9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ■ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name

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WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Eligibility Checklist

Provided by MassDEP:

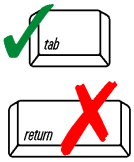
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This Ecological Restoration Limited Project Eligibility Checklist guides the applicant in determining if their project is eligible to file as an Inland or Coastal Ecological Restoration Limited Project (310 CMR 10.53(4) or 310 CMR 10.24(8) respectively). These criteria must be met when submitting the Ecological Restoration Limited Project Notice of Intent to ensure that the restoration and improvement of the natural capacity of a Resource Area(s) to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Regulatory Features of All Coastal and Inland Ecological Restoration Limited Projects

(a) May result in the temporary or permanent loss of/or conversion of Resource Area: An Ecological Restoration Limited Project that meets the requirements of 310 CMR 10.24(8) may result in the temporary or permanent loss of Resource Areas and/or the conversion of one Resource Area to another when such loss is necessary to the achievement of the project's ecological restoration goals.

(b) Exemption from wildlife habitat evaluation: A NOI for an Ecological Restoration Limited Project that meets the minimum requirements for Ecological Restoration Projects and for a MassDEP Combined Application outlined in 310 CMR 10.12(1) and (2) is exempt from providing a wildlife habitat evaluation (310 CMR 10.60).

Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

(c) The following are considerations for applicants filing an Ecological Restoration Limited Project NOI and for the issuing authority approving a project as an Ecological Restoration Limited Project:

☒ The condition of existing and historic Resource Areas proposed for restoration.

☒ Evidence of the extent and severity of the impairment(s) that reduce the capacity of the Resource Areas to protect and sustain the interests identified in M.G.L. c. 131, § 40.

☒ The magnitude and significance of the benefits of the Ecological Restoration Project in improving the capacity of the affected Resource Areas to protect and sustain the other interests identified in M.G.L. c. 131, § 40.

☒ The magnitude and significance of the impacts of the Ecological Restoration Project on existing Resource Areas that may be modified, converted and/or lost and the interests for which said Resource Areas are presumed significant in 310 CMR 10.00, and the extent to which the project will:

a. avoid adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that can be avoided without impeding the achievement of the project's ecological restoration goals.

b. minimize adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that are necessary to the achievement of the project's ecological restoration goals.

c. utilize best management practices such as erosion and siltation controls and proper construction sequencing to avoid and minimize adverse construction impacts to resource areas and the interests identified in M.G.L. c. 131, § 40.

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WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8))

Complete this Eligibility Criteria Checklist ***before*** filling out a Notice of Intent Application to determine if your project qualifies as a Coastal Ecological Restoration Limited Project. (310 CMR 10.24(8)) Sign the Eligibility Certification at the end of Appendix A, and attach the checklist with supporting documentation and the Eligibility Certification to your Notice of Intent Application.

General Eligibility Criteria for All Coastal Ecological Restoration Limited Projects

Notwithstanding the requirements of 310 CMR 10.25 through 10.35, 310 CMR 10.54 through 10.58, and the Wildlife Habitat evaluations in 310 CMR 10.60, the Issuing Authority may issue an Order of Conditions permitting an Ecological Restoration Project listed in 310 CMR 10.24(8)(e) as an Ecological Restoration Limited Project and impose such conditions as will contribute to the interests identified in the WPA M.G.L. provided that the project meets all the requirements in 310 CMR 10.24 (8).

☐ The project is an Ecological Restoration Project as defined in 310 CMR 10.04 and is a project type listed below [310 CMR 10.24(8)(e)].

☐ Tidal Restoration.

☐ Shellfish Habitat Restoration.

☐ Other Ecological Restoration Limited Project Type.

☐ The project will further at least one of the WPA (M.G.L. c. 131, § 40) interests identified below.

- ☐ Protection of public or private water supply.
- ☐ Protection of ground water supply.
- ☐ Flood control.
- ☐ Storm damage prevention.
- ☐ Prevention of pollution.
- ☐ Protection of land containing shellfish.
- ☐ Protection of fisheries.
- ☐ Protection of wildlife habitat.

☐ If the project will impact an area located within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands, a NHESP preliminary written determination is attached to the NOI submittal that the project will not have any adverse long-term and short-term effects on specified habitat sites of Rare Species or the project will be carried out in accordance with an approved NHESP habitat management plan.

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Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

General Eligibility Criteria for All Coastal Ecological Restoration Limited Projects (cont.)

☐ If the project is located in a Coastal Dune or Barrier Beach, the project avoids and minimizes armoring of the Coastal Dune or Barrier Beach to the maximum extent practicable.

☐ The project complies with all applicable provisions of 310 CMR 10.24(1) through (6) and 310 CMR 10.24(9) and (10).

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

These additional criteria must be met to qualify as an Ecological Restoration Limited Project to ensure that the restoration and improvement of the natural capacity of a Resource Area to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

☐ This Ecological Restoration Limited Project application meets the eligibility criteria for Ecological Restoration Limited Project [310 CMR 10.24(8)(a) through (d) and as proposed, furthers at least one of the WPA interests is for the project type identified below.

☐ **Tidal Restoration Projects**

☐ A project to restore tidal flow that will not significantly increase flooding or storm damage impacts to the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure.

☐ **Shellfish Habitat Restoration Projects**

☐ The project has received a Special Projects Permit from the Division of Marine Fisheries or, if a municipality, has received a shellfish propagation permit.

☐ The project is made of cultch (e.g., shellfish shells from oyster, surf or ocean clam) or is a structure manufactured specifically for shellfish enhancement (e.g., reef blocks, reef balls, racks, floats, rafts, suspended gear).

☐ **Other Ecological Restoration Projects** that meet the criteria set forth in 310 CMR 10.24(8)(a) through (d).

☐ Restoration, enhancement, or management of Rare Species habitat.

☐ Restoration of hydrologic and habitat connectivity.

☐ Removal of aquatic nuisance vegetation to impede eutrophication.

☐ Thinning or planting of vegetation to improve habitat value.

☐ Fill removal and re-grading.

☐ Riparian corridor re-naturalization.

☐ River floodplain re-connection.

Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

- ☐ In-stream habitat enhancement.
- ☐ Remediation of historic tidal wetland ditching.
- ☐ Eelgrass restoration.
- ☐ Invasive species management.
- ☐ Installation of fish passage structures.
- ☐ Other. Describe:

☐ This project involves the construction, repair, replacement or expansion of public or private infrastructure (310 CMR 10.24(9).

- ☐ The NOI attachment labeled _____ is an operation and maintenance plan to ensure that the infrastructure will continue to function as designed.
- ☐ The operation and maintenance plan will be implemented as a continuing condition in the Order of Conditions and the Certificate of Compliance.
- ☐ This project proposes to replace an existing stream crossing (310 CMR 10.24(10). The crossing complies with the Massachusetts Stream Crossing Standards to the maximum extent practicable with details provided in the NOI. The crossing type:
  - ☐ Replaces an existing non-tidal crossing that is part of an Anadromous/Catadromous Fish Run (310 CMR 10.35)
  - ☐ Replaces an existing tidal crossing that restricts tidal flow. The tidal restriction will be eliminated to the maximum extent practicable.
- ☐ At a minimum, in evaluating the potential to comply with the standards to the maximum extent practicable the following criteria have been consider site constraints in meeting the standard, undesirable effects or risk in meeting the standard, and the environmental benefit of meeting the standard compared to the cost, by evaluating the following:
  - ☐ The potential for downstream flooding;
  - ☐ Upstream and downstream habitat (in-stream habitat, wetlands);
  - ☐ Potential for erosion and head-cutting;
  - ☐ Stream stability;
  - ☐ Habitat fragmentation caused by the crossing;
  - ☐ The amount of stream mileage made accessible by the improvements;
  - ☐ Storm flow conveyance;

Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

- ☐ Engineering design constraints specific to the crossing;
- ☐ Hydrologic constraints specific to the crossing;
- ☐ Impacts to wetlands that would occur by improving the crossing;
- ☐ Potential to affect property and infrastructure; and
- ☐ Cost of replacement.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4))

Complete this Eligibility Criteria Checklist ***before*** filling out a Notice of Intent Application to determine if your project qualifies as an Inland Ecological Restoration Limited Project. (310 CMR 10.53(4)) Sign the Eligibility Certification at the end of Appendix A, and attach the checklist with supporting documentation and the Eligibility Certification to your Notice of Intent Application.

General Eligibility Criteria for All Inland Ecological Restoration Limited Projects

Notwithstanding the requirements of any other provision of 310 CMR 10.25 through 10.35, 310 CMR 10.54 through 10.58, and 310 CMR 10.60, the Issuing Authority may issue an Order of Conditions permitting an Ecological Restoration Project listed in 310 CMR 10.53(4)(e) as an Ecological Restoration Limited Project and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40, provided that:

☒ The project is an Ecological Restoration Project as defined in 310 CMR 10.04 and is a project type listed below [310 CMR 10.53(4)(e)].

- ☐ Dam Removal
- ☐ Freshwater Stream Crossing Repair and Replacement
- ☐ Stream Daylighting
- ☐ Tidal Restoration
- ☐ Rare Species Habitat Restoration
- ☐ Restoring Fish Passageways
- ☒ Other (describe project type): Removal of excessive nuisance aquatic vegetation in pond.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

General Eligibility Criteria for All Inland Ecological Restoration Limited Projects

☒ The project will further at least one of the WPA (M.G.L. c. 131, § 40) interests identified below.

- ☐ Protection of public or private water supply
- ☐ Protection of ground water supply
- ☐ Flood control
- ☐ Storm damage prevention
- ☐ Prevention of pollution
- ☐ Protection of land containing shellfish
- ☒ Protection of fisheries
- ☒ Protection of wildlife habitat

☐ If the project will impact an area located within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands, a NHESP preliminary written determination is attached to the NOI submittal that the project will have no adverse long-term and short-term effects on specified habitat sites of Rare Species or the project will be carried out in accordance with an approved NHESP habitat management plan.

☐ The project will be carried out in accordance with any time of year restrictions or other conditions recommended by the Division of Marine Fisheries for coastal waters and the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3).

☐ If the project involves the dredging of 100 cubic yards of sediment or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification has been applied for or obtained.

☒ The project complies with all applicable provisions of 310 CMR 10.53(1), (2), (7), and (8).

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

Additional Eligibility Criteria for Specific Inland Ecological Restoration Limited Project Types

These additional criteria must be met to qualify as an Ecological Restoration Limited Project to ensure that the restoration and improvement of the natural capacity of a Resource Area to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

☒ This project application meets the eligibility criteria for Ecological Restoration Limited Project in accordance with [310 CMR 10.53(4)(a) through (d) and as proposed, furthers at least one of the WPA interests is for the project type identified below:

☐ **Dam Removal**

☐ Project is consistent with MassDEP's 2007 Dam Removal Guidance.

☐ **Freshwater Stream Crossing Repair and Replacement**. The project as proposed and the NOI describes how:

☐ Meeting the eligibility criteria set forth in 310 CMR 10.13 would result in significant stream instability or flooding hazard that cannot otherwise be mitigated, and site constraints make it impossible to meet said criteria.

☐ The project design ensures that the stability of the bank is NOT impaired.

☐ To the maximum extent practicable, the project provides for the restoration of the stream upstream and downstream of the structure as needed to restore stream continuity and eliminate barriers to aquatic organism movement.

☐ The project complies with the requirements of 310 CMR 10.53(7) and (8).

☐ **Stream Daylighting Projects**

☐ The project meets the eligibility criteria for Ecological Restoration Limited Project [310 CMR 10.53(4)(a) through (d)] and as proposed the NOI describes how the proposed project meets to the maximum extent practicable, consistent with the project's ecological restoration goals, all the performance standards for Bank and Land Under Water Bodies and Waterways.

☐ The project meets the requirements of 310 CMR 10.12(1) and (2) and a wildlife habitat evaluation is not included in the NOI.

☐ **Tidal Restoration Project**

☐ Restores tidal flow.

☐ the project, including any proposed flood mitigation measures, will not significantly increase flooding or storm damage to the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

☒ **Other Ecological Restoration Projects** that meet the criteria set forth in 310 CMR 10.53 (4) (a) through (d).

- ☐ Restoration, enhancement, or management of Rare Species habitat.
- ☐ Restoration of hydrologic and habitat connectivity.
- ☒ Removal of aquatic nuisance vegetation to impede eutrophication.
- ☒ Thinning or planting of vegetation to improve habitat value.
- ☐ Riparian corridor re-naturalization.
- ☐ River floodplain re-connection.
- ☐ In-stream habitat enhancement.
- ☐ Fill removal and re-grading.
- ☐ Flow restoration.
- ☐ Installation of fish passage structures.
- ☐ Invasive species management.
- ☐ Other. Describe: _____

☐ This project involves the construction, repair, replacement or expansion of public or private infrastructure. (310 CMR 10.53(7))

- ☐ The NOI attachment labeled _____ is an operation and maintenance plan to ensure that the infrastructure will continue to function as designed.
- ☐ The operation and maintenance plan will be implemented as a continuing condition in the Order of Conditions and the Certificate of Compliance.

☐ This project replaces an existing stream crossing (310 CMR 10.53(8)). The crossing type:

- ☐ Replaces an existing non-tidal crossing designed to comply with the Massachusetts Stream Crossing Standards to the maximum extent practicable with details provided in the NOI.
- ☐ Replaces an existing tidal crossing that restricts tidal flow. The tidal restriction will be eliminated to the maximum extent practicable.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

☐ At a minimum, in evaluating the potential to comply with the standards to the maximum extent practicable the following criteria have been consider site constraints in meeting the standard, undesirable effects or risk in meeting the standard, and the environmental benefit of meeting the standard compared to the cost, by evaluating the following:

- ☐ The potential for downstream flooding;
- ☐ Upstream and downstream habitat (in-stream habitat, wetlands);
- ☐ Potential for erosion and head-cutting;
- ☐ Stream stability;
- ☐ Habitat fragmentation caused by the crossing;
- ☐ The amount of stream mileage made accessible by the improvements;
- ☐ Storm flow conveyance;
- ☐ Engineering design constraints specific to the crossing;
- ☐ Hydrologic constraints specific to the crossing;
- ☐ Impacts to wetlands that would occur by improving the crossing;
- ☐ Potential to affect property and infrastructure; and
- ☐ Cost of replacement.

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Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Required Actions (310 CMR 10.11)

Complete the Required Actions before submitting a Notice of Intent Application for an Ecological Restoration Project and submit a completed copy of this Checklist with the Notice of Intent.

☒ **Massachusetts Environmental Policy Act (MEPA) / Environmental Monitor**
https://www.mass.gov/service-details/the-environmental-monitor

For Ecological Restoration Limited Projects, there are no changes to MEPA requirements.

☒ Submit written notification at least 14 days prior to the filing of a Notice of Intent (NOI) to the Environmental Monitor for publication. A copy of the written notification is attached and provides at minimum:

☒ A brief description of the proposed project.

☒ The anticipated NOI submission date to the conservation commission.

☒ The name and address of the conservation commission that will review the NOI.

☒ Specific details as to where copies of the NOI may be examined or acquired and where to obtain the date, time, and location of the public hearing.

☐ **Massachusetts Endangered Species Act (MESA) /Wetlands Protection Act Review**

☐ Preliminary Massachusetts Endangered Species Act Review from the Natural Heritage and Endangered Species Program (NHESP) has been met and the written determination is attached.

☐ Supplemental Information for Endangered Species Review has been submitted.

1. ☐ Percentage/acreage of property to be altered:

   a. Within Wetland Resource Area _____ Percentage/acreage

   b. Outside Wetland Resource Area _____ Percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

3. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work.

4. ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

5. ☐ Photographs representative of the site

6. ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review)

Required Actions (310 CMR 10.11) (cont.)

Make check payable to "Commonwealth of Massachusetts - NHESP" and mail to NHESP:

Natural Heritage & Endangered Species Program
MA Division of Fisheries & Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

7. Projects altering 10 or more acres of land, also submit:

   a. ☐ Vegetation cover type map of site

   b. ☐ Project plans showing Priority & Estimated Habitat boundaries

OR Check One of the Following:

1. ☐ Project is exempt from MESA review.

Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/ma-endangered-species-act-mesa-overview; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59 – see C4 below)

2. ☐ Separate MESA review ongoing.

a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. ☐ Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

☐ **Estimated Habitat Map of State-Listed Rare Wetlands Wildlife**

If a portion of the proposed project is located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP), complete the portion below. To view habitat maps, see the **Massachusetts Natural Heritage Atlas** or view the maps electronically at: https://www.mass.gov/guides/masswildlife-publications#-massachusetts-natural-heritage-atlas-

☐ A preliminary written determination from Natural Heritage and Endangered Species Program (NHESP) must be obtained indicating that:

☐ Project will NOT have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP.

☐ Project will have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP. A copy of NHESP's written preliminary determination in accordance with 310 CMR 10.11(2) is attached. This specifies:

☐ Date of the map: _____

Required Actions (310 CMR 10.11) (cont.)

☐ If the Rare Species identified is/are likely to continue to be located on or near the project, and if so, whether the Resource Area to be altered is in fact part of the habitat of the Rare Species.

☐ That if the project alters Resource Area(s) within the habitat of a Rare Species:

☐ The Rare Species is identified;

☐ NHESP's recommended changes or conditions necessary to ensure that the project will have no short or long term adverse effect on the habitat of the local population of the Rare Species is provided; or

☐ An approved NHESP habitat management plan is attached with this Notice of Intent.

Send the request for a preliminary determination to:
Natural Heritage & Endangered Species Program
MA Division of Fisheries & Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

☐ **Division of Marine Fisheries**

☐ If the project will occur within a coastal waterbody with a restricted Time of Year, [see Appendix B of the Division of Marine Fisheries (DMF) Technical Report TR 47 "Marine Fisheries Time of Year Restrictions (TOYs) for Coastal Alteration Projects" dated April 2011 https://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/MA/TR-47.pdf].

☐ Obtain a DMF written determination stating:

☐ The proposed work does NOT require a TOY restriction.

☐ The proposed work requires a TOY restriction. Specific recommended TOY restriction and recommended conditions on the proposed work is attached.

☐ If the project may affect a diadromous fish run [re: Division of Marine Fisheries (DMF) Technical Reports TR 15 through 18, dated 2004: https://www.mass.gov/service-details/marine-fisheries-technical-reports]

☐ Obtain a DMF written determination stating:

☐ The design specifications and operational plan for the project are compatible with the passage requirements of the fish run.

☐ The design specifications and operational plan for the project are not compatible with the passage requirements of the fish run.

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Agawam
City/Town

Required Actions (310 CMR 10.11) (cont.)

Send the request for a written or electronic determination to:

South Shore – Bourne to Rhode Island border, and the Cape & Islands:
Division of Marine Fisheries –
South Coast Field Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore – Plymouth to New Hampshire border:
Division of Marine Fisheries –
North Shore Field Station
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

☐ **Division of Fisheries and Wildlife –** https://www.mass.gov/orgs/division-of-fisheries-and-wildlife

☐ Projects that involve silt-generating, in-water work that will impact a non-tidal perennial river or stream and the in-water work will not occur between May 1 and August 30.

☐ Obtain a written determination from the Division of Fisheries and Wildlife (DFW) as to whether the proposed work requires a TOY restriction.

☐ The proposed work does NOT require a TOY restriction.

☐ The proposed work requires a TOY restriction. The DFW determination with TOY restriction and other conditions is attached.

☐ **MassDEP Water Quality Certification**

☐ Project involves dredging of 100 cubic yards or more in a Resource Area or dredging of any amount in an Outstanding Resource Water (ORW). A copy and proof of the MassDEP Water Quality Certification pursuant to 314 CMR 9.00 is attached to the NOI.

☐ This project is a Combined Permit Application for 401 Dredging and Restoration (BRP WW 26).

☐ **MassDEP Wetlands Restriction Order**

Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

☐ Yes ☐ No

☐ **Department of Conservation and Recreation**

Office of Dam Safety

☐ For Dam Removal Projects, obtain a written determination from the Department of Conservation and Recreation Office of Dam Safety that the dam is not subject to the jurisdiction of the Office under 302 CMR 10.00, a written determination that the dam removal does not require a permit under 302 CMR 10.00 or a permit authorizing the dam removal in accordance with 302 CMR 10.00 has been issued.

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Required Actions (310 CMR 10.11) (cont.)

Areas of Critical Environmental Concern (ACECs)

Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations).

Name of ACEC

Minimum Required Documents (310 CMR 10.12)

Complete the Required Documents Checklist below and provide supporting materials before submitting a Notice of Intent Application for an Ecological Restoration Project.

☒ This Notice of Intent meets all applicable requirements outlined in for Ecological Restoration Projects in 310 CMR 10.12. Use the checklist below to ensure that all documentation is included with the NOI.

At a minimum, a Notice of Intent for an Ecological Restoration Project shall include the following:

☒ Description of the project's ecological restoration goals;

☒ The location of the Ecological Restoration Project;

☐ Description of the construction sequence for completing the project;

☐ A map of the Areas Subject to Protection Under M.G.L. c. 131, § 40, that will be temporarily or permanently altered by the project or include habitat for Rare Species, Habitat of Potential Regional and Statewide Importance, eel grass beds, or Shellfish Suitability Areas.

☐ The method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.) is attached with documentation methodology.

☒ List the titles and dates for all plans and other materials submitted with this NOI.

Project narratives & figures
a. Plan Title

Goddard Consulting, LLC.
b. Prepared by

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

11/18/2025
g. Date

☐ If there is more than one property owner, attach a list of these property owners not listed on this form.

☒ Attach NOI Wetland Fee Transmittal Form.

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Minimum Required Documents (310 CMR 10.12)

- ☐ An evaluation of any flood impacts that may affect the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure as well as any proposed flood impact mitigation measures;
- ☐ A plan for invasive species prevention and control;
- ☐ The Natural Heritage and Endangered Species Program written determination in accordance with 310 CMR 10.11(2), if needed;
- ☐ Any Time of Year restrictions and/or other conditions recommended by the Division of Marine Fisheries or the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3), (4), (5), if needed;
- ☒ Proof that notice was published in the Environmental Monitor as required by 310 CMR 10.11(1;
- ☒ A certification by the applicant under the penalties of perjury that the project meets the eligibility criteria set forth in 310 CMR 10.13;
- ☐ If the Ecological Restoration Project involves the construction, repair, replacement or expansion of infrastructure, an operation and maintenance plan to ensure that the infrastructure will continue to function as designed;
- ☐ If the project involves dredging of 100 cubic yards or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification issued by the Department pursuant to 314 CMR 9.00;
- ☐ If the Ecological Restoration Project involves work on a stream crossing, information sufficient to make the showing required by 310 CMR 10.24(10) for work in a coastal resource area and 310 CMR 10.53(8) for work in an inland resource area; and
- ☐ If the Ecological Restoration Project involves work on a stream crossing, baseline photo-points that capture longitudinal views of the crossing inlet, the crossing outlet and the upstream and downstream channel beds during low flow conditions. The latitude and longitude coordinates of the photo-points shall be included in the baseline data.
- ☐ This project is subject to provisions of the MassDEP Stormwater Management Standards. A copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) is attached.
- ☐ Provide information as the whether the project has the potential to impact private water supply wells including agricultural or aquacultural wells or surface water withdrawal points.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Certification that the Ecological Restoration Project Meets the Eligibility Criteria

I hereby certify under penalties of perjury that the Ecological Restoration Project Notice of Intent application does not meet the Eligibility criteria for an Ecological Restoration Order of Conditions set forth in 310 CMR 10.13, but does meet the Eligibility Criteria for a Ecological Restoration Limited Project set forth in 10.24(8) or 10.53(4) whichever is applicable. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Owen Kramer

Signature of Applicant or Authorized Agent

Owen Kramer

Printed Name of Applicant or Authorized Agent

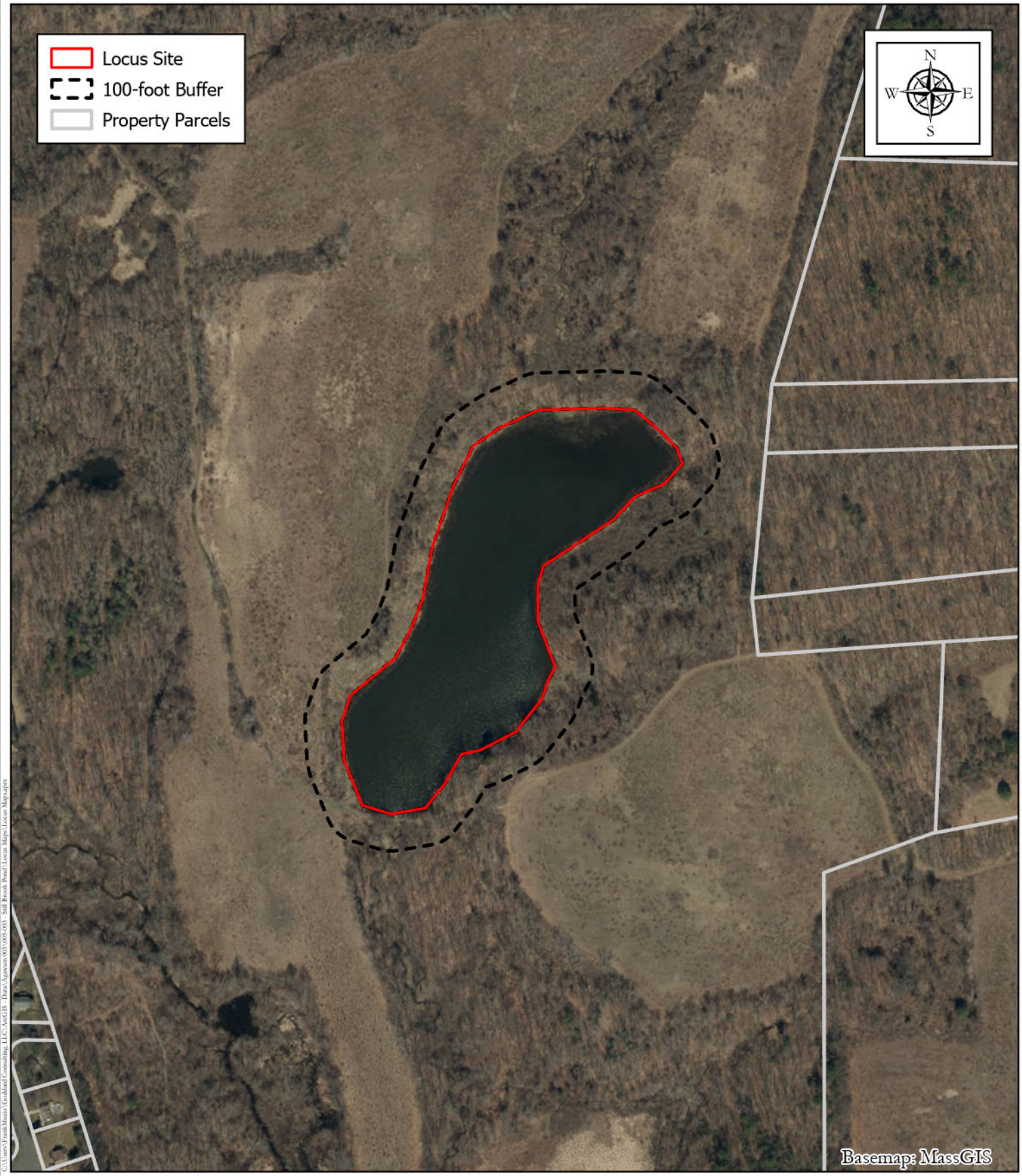
11/24/2025

Date

The certification must be signed by the applicant; however, it may be signed by a duly authorized agent (named in Item 2) if this form is accompanied by a statement by the applicant designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment B: Abutter Information



GODDARD CONSULTING
Strategic Ecological Consulting

Abutters Map (100-foot Buffer)

Still Brook Pond
Agawam, MA 01030

0 175 350 Feet 1" = 350'

72.6860089°W, 42.0513857°N

Parcel ID: C7_2_4

Date: 11/18/2025

To: The Environmental Monitor
From: Goddard Consulting, LLC
Date: 11/24/2025
Re: Notification of filing a Notice of Intent (NOI) for Still Brook Pond - Agawam, MA
Anticipated Date of Submission: 12/08/2025

The proposed project is seeking approval to implement an aquatic plant management program at Still Brook Pond in Agawam, MA. The focus of this management will be to reduce, control, and proactively manage nuisance aquatic vegetation using herbicide treatment. This project aims to protect the interests of the Wetlands Protection Act by slowing eutrophication and improving habitat value.

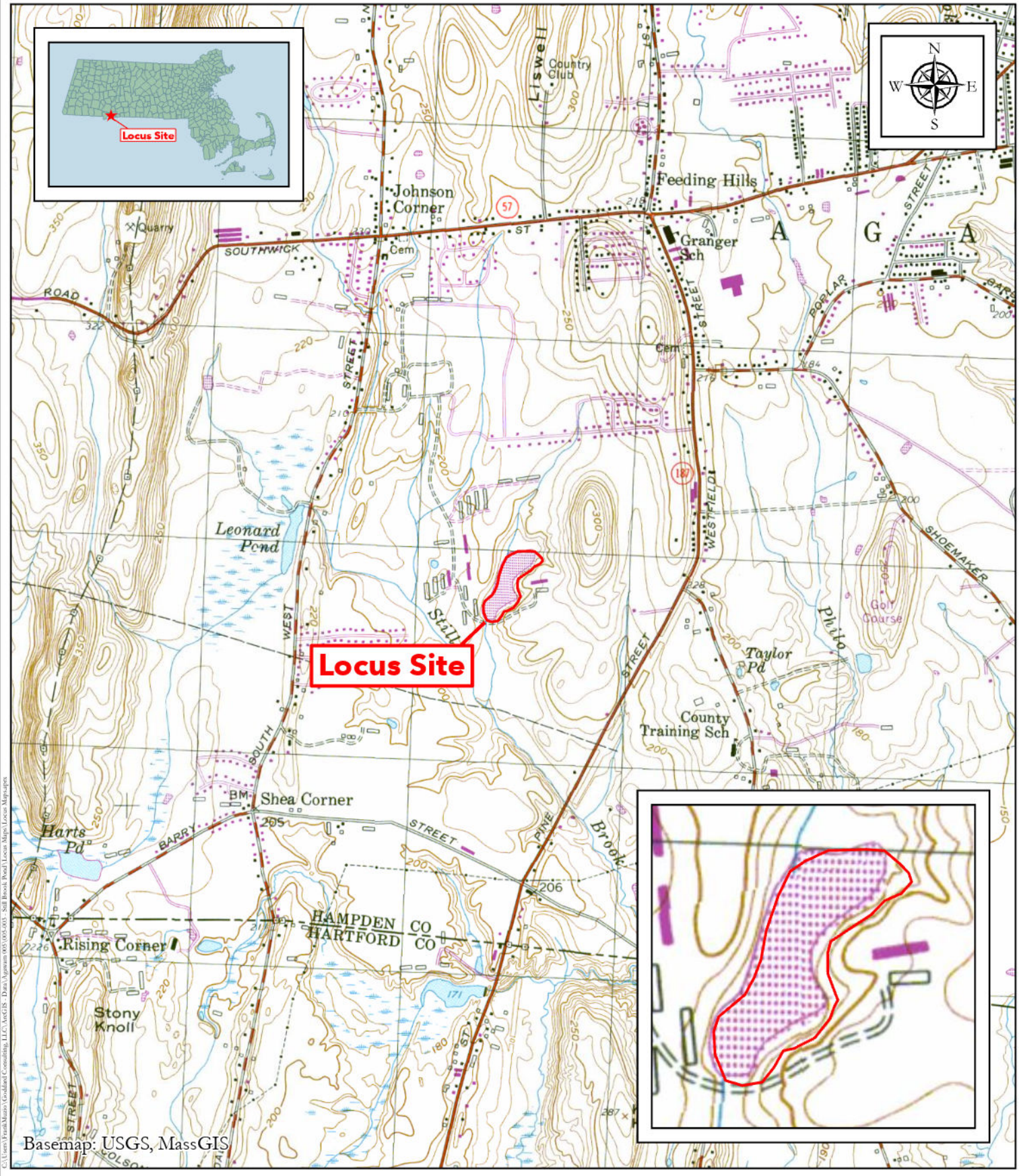
Reviewing Conservation Commissions
Agawam Conservation Commission
Town Hall
36 Main Street
Agawam, MA 01001

Copies of the Notice of Intent may be examined or acquired by contacting the applicant's representative, Goddard Consulting, LLC, at (508) 393-3784.

Please see the Agawam Conservation Commission website for the meeting schedule to confirm exact dates and agendas.

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment C: Locus Maps & Figures



GODDARD CONSULTING
Strategic Ecological Consulting

USGS of Locus Site

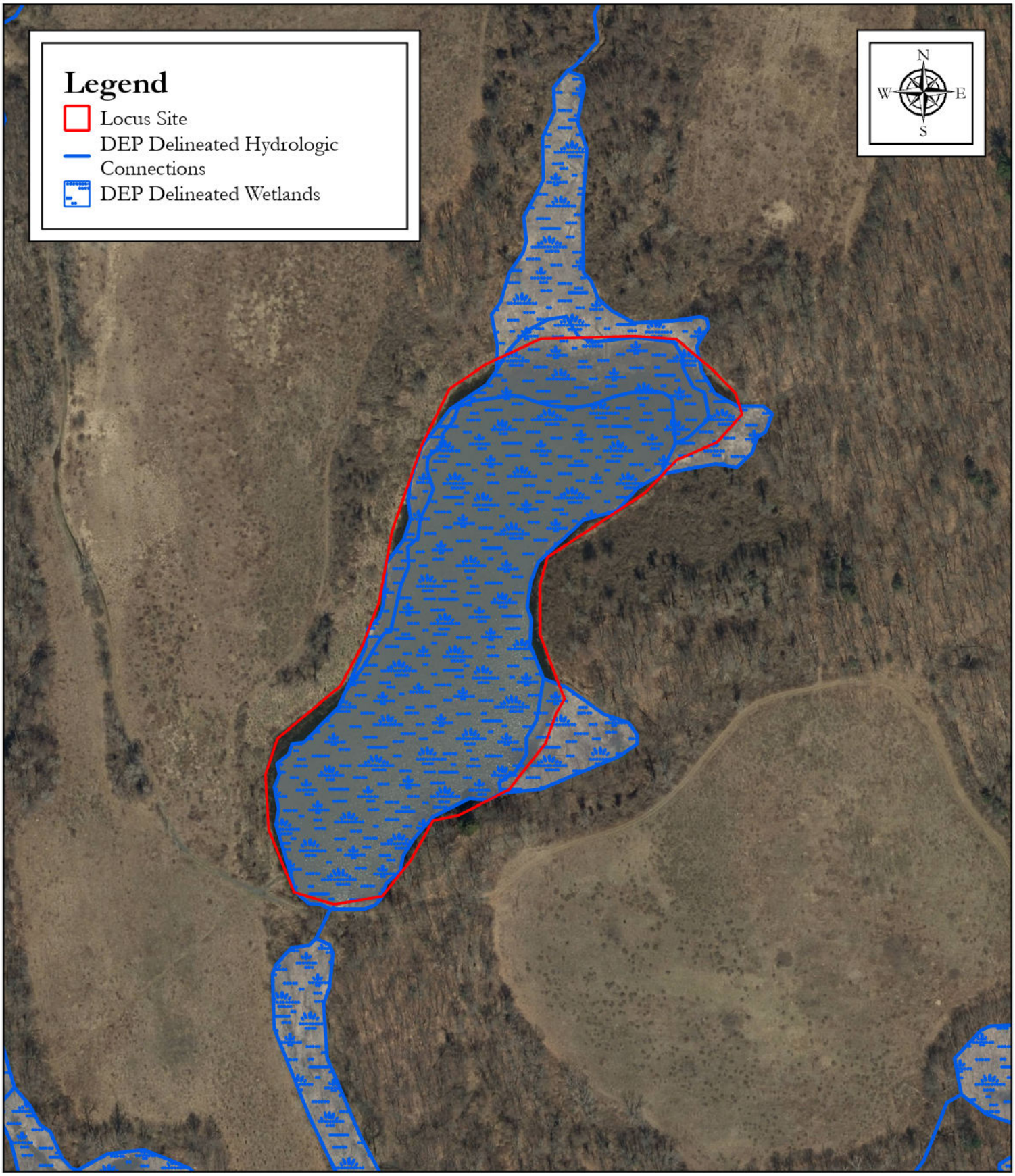
0 1,000 2,000 Feet 1" = 2,000'

72.6860196°W, 42.0512271°N

Date: 11/18/2025

Still Brook Pond
Agawam, MA 01030

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

Orthophoto of Locus Site

0 125 250 Feet

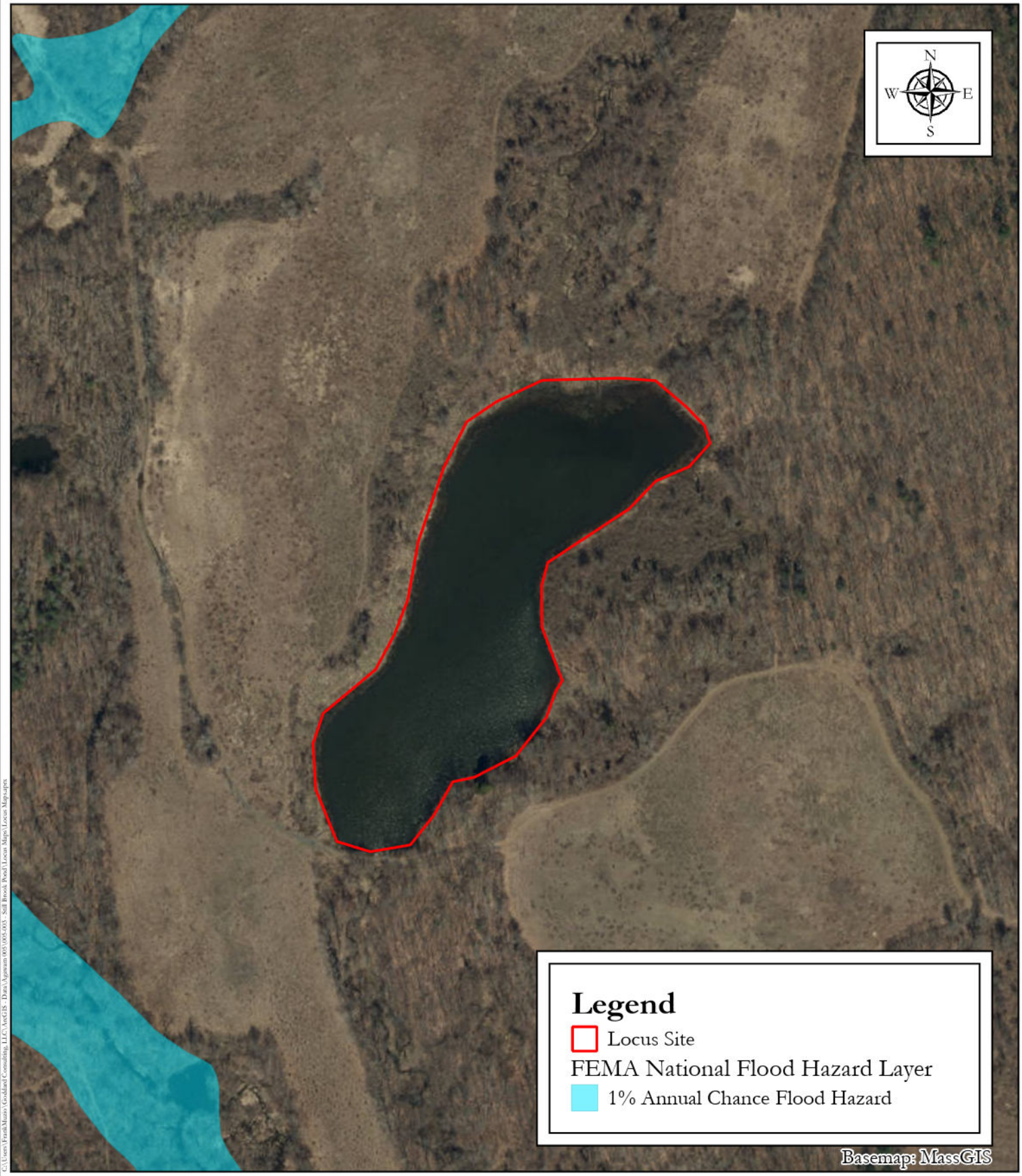
1" = 250'

72.6860089°W, 42.0513857°N

Still Brook Pond
Agawam, MA 01030

Date: 11/18/2025

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

FEMA Flood Map of Locus Site

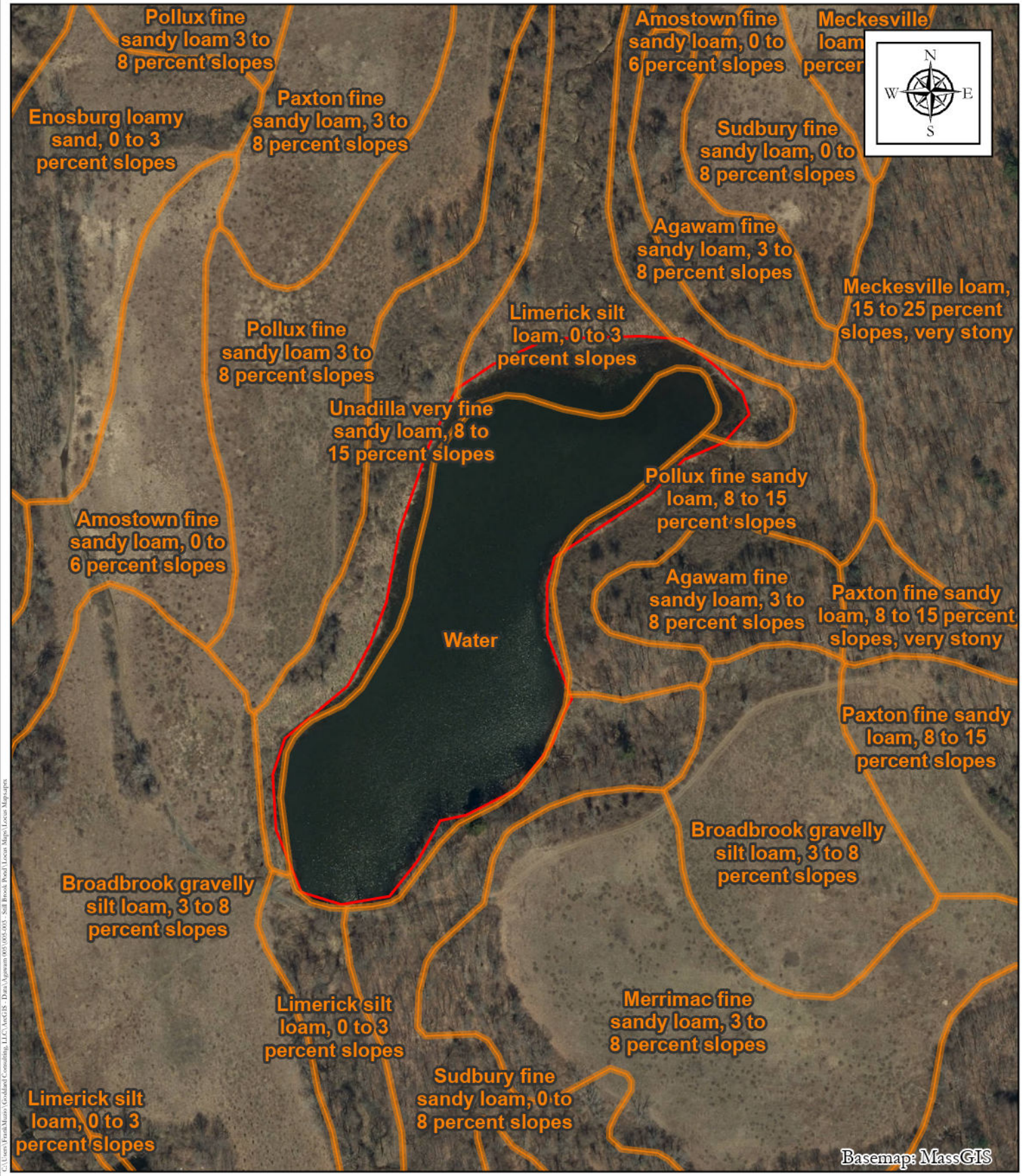
0 150 300 Feet 1" = 300'

72.6860089°W, 42.0513857°N

Still Brook Pond
Agawam, MA 01030

Date: 11/18/2025

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

NRCS Soil Survey of Locus Site

0 125 250 Feet 1" = 250'

72.6860089°W, 42.0513857°N

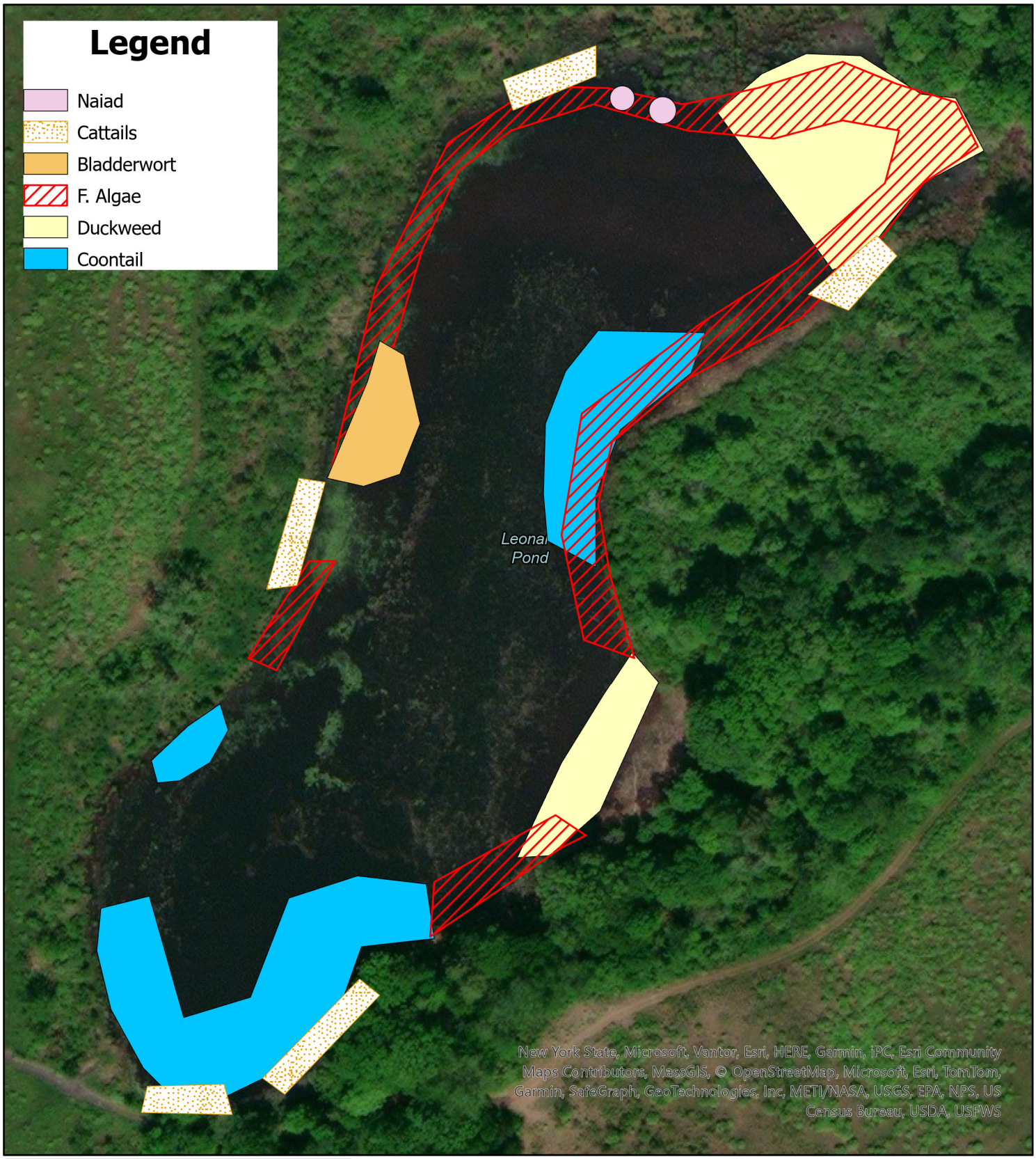
Date: 11/18/2025

Still Brook Pond
Agawam, MA 01030

Parcel ID: C7_2_4

Figure 1: Still Brook Pond Survey (07/18/2025)

SOLITUDE LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



STILL BROOK POND
AGAWAM, MA
HAMPDEN COUNTY

STILL BROOK POND
0 125 250 Feet
N
1:1,600

Map Date: 11/11/2025
Prepared by: TAP
Office: SHREWSBURY, MA

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment D: Safety Datasheets

Diquat Treatment
https://www.cdms.net/ldat/mp9UM003.pdf

Endothall Treatment
http://www.cleanlake.com/images/Aquathol_K_SDS_2022_.pdf

Fluridone Treatment
https://www.sepro.com/Documents/Sonar-AS_SDS.pdf

Imazamox Treatment
https://file.medchemexpress.com/batch_PDF/HY-100427/Imazamox-SDS-MedChemExpress.pdf

Flumioxazin Treatment
https://assets.greenbook.net/18-40-26-28-05-2019-Ms_384_RedEagle_Flumioxazin_51__WDG.pdf

Glyphosphate Treatment
https://cms2.revize.com/revize/claytownship/AquaPro_MSDS.pdf

Commonwealth of Massachusetts | Executive Office of Energy and Environmental Affairs

Department of Environmental Protection

Western Regional Office

Address: 436 Dwight St, Springfield, MA 01103 | **Phone:** 413-784-1100

Maura T. Healey	Kim Driscoll	Rebecca Tepper	Bonnie Heiple
Governor	Lieutenant Governor	Secretary	Commissioner

Matthew Nowak, Project Permitting and Compliance
Tennessee Gas Pipeline Company, LLC
1001 Louisiana Street, Suite 1000
Houston, Texas 77002
Matthew_Nowak@kindermorgan.com

February 5, 2026

Re: WATER QUALITY CERTIFICATION
Application for: BRP WW 10
MAJOR FILL AND EXCAVATION PROJECT
Line 261 Upgrade Projects (Line 261B Looping Project)
Tarkill, Threemile, and Worthington Brook Watersheds
Tennessee Gas Pipeline Company Line 261 Right-of-Way
Agawam, Massachusetts

USACOE Application Number:	NAE-2018-00162
MassDEP Wetlands File Number:	087-0644
MassNHESP File Number:	18-37497
MEPA EOEEA Number:	15879
Transmittal Number:	**X281739**

Dear Mr. Nowak,

The Massachusetts Department of Environmental Protection (hereinafter the Department) has reviewed the requisite submittals under Conditions 33 through 34 of the above referenced Water Quality Certification. The Department acknowledges Tennessee Gas Pipeline Company's findings that restoration goals were not achieved for "Wetland M" (-72.637106, 42.045371) located west of Suffield Street, due to landowner interference by way of frequent mowing of the identified in situ wetland restoration area. The Department finds that the above referenced landowner activity is independent of, and not attributable to, the overall restoration goals approved under this Certification.

Therefore, as a result of the submittals and other pertinent records, the Department has determined that all work has been satisfactorily completed in compliance with the terms and

conditions of the Certification. The sites are in final, stable condition, and all Waters of the United States within the Commonwealth have been restored or mitigated for in full accordance with 314 CMR 9.06(2) and the plans of record approved in the Certification.

Should you have any questions relative to this matter, please contact Daizha Baptiste-Johnson at 857 278-3427.

Sincerely,

Michael McHugh

Michael McHugh, Chief
Wetlands Program
Bureau of Water Resources

ec:

Taryn, Egerton
Agawam Conservation Commission
TEgerton@agawam.ma.us

261B Upgrade Project
Tennessee Gas Pipeline Company, L.L.C.
Post Site Visit Action Items
December 11, 2025

Before	After
No MassDEP Sign (Removed During Site Cleanup)	
	
	













Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

November 17, 2025

Ms. Taryn Egerton
Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

TEgerton@agawam.ma.us

Re: Year 5 Post-Construction Monitoring Reports
MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739
261B Upgrade Projects
Tennessee Gas Pipeline Company, L.L.C.
Town of Agawam, Hampden County, Massachusetts

Dear Ms. Egerton:

Tennessee Gas Pipeline Company, L.L.C. ("Tennessee") is pleased to submit the attached Year 5 Post-Construction Monitoring Report for the 261B Upgrade Projects. If you would like to receive a hard copy of this report, please let me know and I will arrange to have one sent to you.

Tennessee intends for this to serve as the final monitoring report for the project, as restoration has been successfully achieved in compliance with all project conditions. A Request for Certificate of Compliance was submitted to your office on November 12, 2025.

Please feel free to contact me using the information below if you have any questions.

Respectfully,

Tennessee Gas Pipeline Company, L.L.C.

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell: 413-695-7001
E-Mail: matthew_nowak@kindermorgan.com

In-situ Compensatory Mitigation Areas Monitoring Report-TGPC Agawam, Massachusetts

261 Upgrade Projects
Year 5 (2025)



Prepared by:

Tetra Tech, Inc.
301 Ellicott Street
Buffalo, New York 14203

Prepared for:

Tennessee Gas Pipeline Company, L.L.C.
1001 Louisiana Street, Suite 1000
Houston, Texas 77002

November 2025

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B.3 Riverfront Area-Buffer Zone Plant Species List
B.2 Pre- and Post-Construction Photologs
B.3 Monitoring Data Forms

1.0 INTRODUCTION

Tennessee Gas Pipeline Company, L.L.C. (Tennessee) contracted Tetra Tech, Inc. (Tetra Tech) to conduct post-construction monitoring for the 261 Upgrade Projects' Looping Project (Project), located in Agawam, Massachusetts (the 261 Upgrade Projects also included the HP Replacement Project, which is not the subject of this report). These activities were conducted in accordance with federal, state, and local authorizations and approvals, including Massachusetts Department of Environmental Protection (DEP) Water Quality Certification Conditions (WQC), Agawam Conservation Commission Order of Conditions (OOC), and Federal Energy Regulatory Commission's (FERC) May 2013 Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures; FERC 2013).

Project construction and initial restoration was completed in fall of 2020. In May 2021, an inspection was completed of each *Waters of the United States within the Commonwealth* that met the jurisdictional definition of bordering vegetated wetland (BVW) or isolated vegetated wetland (IVW), as well as other Massachusetts (MA) Resource Areas that were specified within the OOC where temporary earthen fills, trenching, and construction mats have been removed and the topography reestablished. Results of this inspection indicated that there was no noticeable adverse impact at all but three of the BVWs. An e-mail communication dated May 20, 2021 was submitted to the Massachusetts DEP and Agawam Conservation Commission describing four areas of soil subsidence over the Project's pipeline centerline that were adversely affecting microtopography of three BVWs (Wetlands N, L, and K). These areas of subsidence were repaired in accordance with the approved Corrective Plan of Action outlined in the May 20, 2021 e-mail and the June 30, 2021 Letter of Certification. Additional inspections of Wetlands N, L, and K were completed in October 2021. As reported in a subsequent Letter of Certification dated October 13, 2021, in-situ restoration was complete in all BVWs, including Wetlands N, L, and K. In 2022, all wetlands were considered fully revegetated.

This report provides the results of Year 5 (2025) monitoring efforts and includes a summary of the relevant permit conditions and monitoring success criteria (Section 2.0), background information including a brief description of preconstruction conditions (Section 3.0), a summary of findings from in-situ postconstruction wetland monitoring (Section 4.0), and a summary of findings from Massachusetts Resource Area (MA Resource Area) monitoring (Section 5.0). Two appendices provide the specific field data collected under the following authorizations and approvals:

- Appendix A – Post-construction wetland monitoring required under WQC Condition Number (No.) 33, OOC No. SP27, and the FERC Procedures.
- Appendix B – MA Resource Area monitoring required under OOC No. SP27.

2.0 PERMIT CONDITIONS AND SUCCESS CRITERIA

2.1 PERMIT CONDITIONS

Monitoring was conducted to document current conditions to address the following requirements:

- Massachusetts DEP WQC Condition Number (No.) 33: "The wetland scientist(s) approved by the Department or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" and the BVW [Bordering Vegetated Wetland] Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation

Areas function in accordance with 314 CMR 9.06(2), as established by data collected during monitoring. Monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form-Northcentral and Northeast Region" (as found within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Department (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens. All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Department on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Department within thirty (30) calendar days of the receipt of draft comments by the Department, if any.

- Agawam Conservation Commission OOC No. SP27: “The wetland scientist(s) approved by the Commission or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled “Temporary Fill/In-Situ Restoration/Temporal Loss” and the Resource Area Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 310 CMR 10.55(4), as established by data collected during monitoring.

  BVW monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form-Northcentral and Northeast Region" (as found within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvai·, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Department (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens.

Riverfront Area and Buffer Zone monitoring shall include at a minimum, detail the status of non-indigenous plant species control efforts, planting/seeding success, substrate stabilization, provision of characteristics conducive to the "interests" of the Act, and any recommended adjustments that will meet the intent of 310 CMR I 0.60(2)(d), and 310 CMR 10.60(3); and 310 CMR I0.58(4)(d)l.a. and c. and 310 CMR I0.60(2)(e). Minimally, each report shall contain a floral inventory for each of the entire "Restoration Areas", with indigenous status, and relative abundance for each documented species (abundant, common, uncommon, trace), and adequate photo-documentation from fixed and repeatable stations.

All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Commission on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Commission within thirty (30) calendar days of the receipt of draft comments by the Commission, if any.

- FERC Procedures VI.D4. and 5:

  4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.

  and

  5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:

  a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);

  b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;

  c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and

  d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

2.2 SUCCESS CRITERIA

Based on the above-described permit conditions, the following criteria were used to evaluate wetland restoration success:

- Restored wetland must meet the definition of a jurisdictional wetland;
- Vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; and
- Plant species composition is consistent with early successional wetland plant communities in the affected ecoregion.

3.0 BACKGROUND

Pre-construction field verification and delineation surveys for all wetlands in the Project area were completed in November 2017, May 2018, and July 2018. A Determination of Applicability confirming the accuracy of the boundaries was issued by the Agawam Conservation Commission on October 26, 2018. A boundary audit was performed by the Massachusetts DEP in November 2018 which resulted in adjusted boundaries to several wetlands. Wetlands were generally categorized as either emergent marsh, scrub shrub, or forested wetlands. Preconstruction invasive species surveys indicated that species including, but not limited to, buckthorns (*Frangula* spp.), invasive honeysuckles (*Lonicera* spp.), Asiatic bittersweet (*Celastrus orbiculatus*), were ubiquitous throughout the Project area. Pre-construction photos of each wetland were taken in June 2020 (Appendix A).

Since invasive species and noxious weeds prior to construction were mapped within the wetlands in the Project area and are abundant in adjacent areas, the presence or absence of invasive species and noxious weeds is not included within the success criteria.

During restoration, all 11 wetlands that were located within the Project limit of disturbance (LOD) were reseeded with the approved New England Wetmix from New England Wetland Plants, Inc at a rate of 18 pounds of seed per acre. Further, the forested and scrub shrub portions of Wetlands S, N, H, G, GA, and E that were used as temporary workspace and are outside of the area of the Project right-of-way (ROW) that is subject to regular vegetative clearing were replanted with woody hydrophytes.

4.0 IN-SITU COMPENSATORY MITIGATION WETLAND MONITORING

This section summarizes the in-situ wetland restoration monitoring along the Project LOD per WQC Condition Number No. 33, and Agawam Conservation Commission OOC No. SP27.

4.1 METHODS

The WQC Condition No. 33, Agawam Conservation Commission OOC No. SP27, maps and reports for the Project, and publicly available information (e.g., aerial imagery, land use and land cover data) were reviewed prior to conducting field work. Monitoring consisted of documenting the status of each impacted BVW and IVW as shown on the plans of record and labeled "Proposed Activities by Type and In-Situ Restoration Plans of Record for Water Quality Certification X281739" prepared by BL Companies, and dated January 31, 2020.

In accordance with the FERC Procedures, the percentage of wetland vegetation, plant species composition, and physical character of the habitat was visually estimated and noted. The presence and relative abundance of invasive species and noxious weeds were estimated using the following cover classes: trace (less than 1 percent), uncommon (1–10 percent), common (11–45 percent), and abundant (46–100 percent). Fish and wildlife use, depth of open water, as well as overall status of wetland restoration success were also noted.

Fixed observation plots were established in each wetland; vegetated wetland monitoring included the collection of all data required in pages 1 and 2 of the U.S. Army Corps of Engineers' *Wetland Determination Data Form Northcentral and Northeast Region* (USACE 2012) including basic information about the Project, hydrologic indicators, classification according to the National Wetlands Inventory hierarchy (Cowardin 1979), and vegetation by strata. All planted woody hydrophytes were mapped and assessed and the number of dead or failing specimens was documented. General notes on suspected causes of planted

woody hydrophytes mortality (e.g., rodent damage, herbivory, and third-party impacts) were also noted, if evident. Data on the indigenous status and relative abundance of each documented species were also noted using the cover classes described above.

Digital color photographs were collected in all four cardinal directions (north, south, east, and west) from the center of each wetland observation point. In addition, photographs were collected from locations corresponding to the pre-construction photo stations.

Wetland data and photographs were collected electronically on a tablet using the ESRI Field Maps application. EOS Arrow Global Positioning System units tethered to the tablet provided approximately 1-meter accuracy for data collection. All monitoring was completed under the supervision and direction of a wetland scientist accepted in writing by the Massachusetts DEP and Agawam Conservation Commission.

4.2 WETLAND OBSERVATION PLOT RESULTS

Field surveys were completed in two multiday field visits. The first field visit occurred June 16–17, 2025 (summer monitoring event) and the second occurred September 29-30, 2025 (fall monitoring event). Fixed observation plots for each wetland were established along the Project ROW in 2021 for a total of 11 stations (Figure 1). These plots were revisited and assessed for vegetation and hydrology characteristics. All vegetation identified to the species level within the wetlands, including invasive species, are summarized in the wetland plant species list provided in Appendix A.1. Photo-documentation from preconstruction and postconstruction photo stations located along the Project ROW, as well as photos taken at each wetland observation plot are provided in Appendix A.2. Completed *Wetland Determination Data Form* documenting percentage of wetland vegetation, plant species composition, physical character of the habitat, and notes on fish and wildlife are provided in Appendix A.3.

Postconstruction wetland monitoring results are summarized in Table 1. Depth of open water was not measured since there were no open waterbodies (i.e., lakes or ponds) within the monitored wetlands. In 2025, the inventory of planted woody species was complicated by a multitude of factors including; unmarked or unprotected plantings, density of volunteer sapling growth, and additional plantings since the woody planting data layer was created. As a result of these complications in data collection a qualitative assessment was completed to contextualize the state of woody planting success. All wetlands that contained planted woody species greatly exceed the revegetation requirement when volunteer species are included. Throughout the designated planting areas, volunteer shrubs and saplings have become established in all wetlands along with tree and shrub plantings. The tree protection cages, sleeves, and tags had been removed since the last survey because they were inhibiting the growth of the planted woody species. A description of each wetland with comments on the status of woody hydrophytes and overall restoration success are provided below. Background information for each wetland was obtained from the Final Environmental Impact Report (SWCA 2019), Project Plans of Record, and the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (NRCS 2021). Wetlands are discussed in order of pipeline mile post (MP) beginning at MP 0.0.

Wetland B. This palustrine emergent (PEM) wetland is located upslope from Stream MA-1. and to the northwest of Wetland C. The Project ROW intersects Wetland B just north of MP 0.0. Most of the wetland is located outside of the Project's LOD. During Project construction, 0.09 acre of this wetland was impacted. During both the summer and fall 2025 monitoring events, Wetland B was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included narrow-leaf cattail (*Typha angustifolia*), reed canary grass (*Phalaris arundinacea*), New England aster (*Symphyotrichum novae-angliae*), swamp verbena (*Verbena hastata*), shallow sedge (*Carex lurida*), and common soft rush (*Juncus effusus*). Purple loosestrife (*Lythrum salicaria*) was present but not

dominant. Vegetation was similar during fall monitoring. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland B meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by Project construction. This wetland meets restoration requirements.

Wetland A. This PEM wetland is located upslope from Stream MA-1 and intersects with the Project ROW near MP 0.1. During Project construction, 0.15 acre of this wetland was impacted. During both the summer and fall 2025 monitoring events, Wetland A was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included white meadowsweet (*Spiraea alba*), common horsetail (*Equisetum arvense*), and shallow sedge; and during the fall monitoring event, dominant hydrophytic vegetation included common horsetail, shallow sedge, and woolgrass (*Scirpus cyperinus*). These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland A meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by Project construction. This wetland meets restoration requirements.

Wetland S. This palustrine forested (PFO) and PEM wetland is located on the west side of Suffield Street and to the south of Stream MA-6. The Project pipeline runs the length of the wetland from approximately MP 0.25 to 0.35. During Project construction, 0.90 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland S was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. During the summer 2025 monitoring event, dominant vegetation included quaking aspen (*Populus tremuloides*) and silky dogwood (*Cornus amomum*) along with fringed sedge (*Carex crinita*), shallow sedge, and common soft rush; during the fall monitoring event vegetation dominance was similar to summer. These and other plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM/PFO wetlands in this ecoregion. Wetland S meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland N. This PFO/PSS/PEM wetland is located on the west side of Suffield Street and to the north of Stream MA-6 and Wetland S. The Project pipeline runs the length of the wetland from approximately MP 0.35 to 0.65. During Project construction, 1.97 acres of this wetland were impacted. During both summer and fall 2025 monitoring events, Wetland N was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. During the summer 2025 monitoring event, dominant vegetation included quaking aspen, eastern cottonwood (*Populus deltoides*), silky dogwood, shallow sedge, and fringed sedge. During the fall 2025 monitoring event, vegetation was dominated by vegetation cover similar to the summer event. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO/PSS/PEM wetlands in this ecoregion. Wetland N meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland M. This PEM wetland is located on the west side of Suffield Street and immediately south of Wetland L. The Project pipeline runs the length of the wetland at approximately MP 0.9. During Project construction, 0.11 acres of this wetland was impacted. During the summer and fall 2025 monitoring events Wetland M had recently been mowed by others not affiliated with Tennessee. During the summer 2025 monitoring event, Wetland M exhibited wetland hydrology in the form of surface water but lacked any indicator of wetland hydrology during the fall 2025 monitoring event. Due to the aforementioned mowing,

vegetation was difficult or impossible to identify but assumptions based on surrounding vegetation indicate that the wetland is dominated by reed canary grass, fowl blue grass (*Poa palustris*), and Kentucky blue grass (*Poa pratensis*). Clover (*Trifolium spp.*) was identifiable during both monitoring events. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland M only partially meets the criteria of a wetland and contained 80 percent vegetative cover but, other than clover, species identification was speculative and it is difficult to say which plants in adjacent areas not disturbed by Project construction would appear if wetland was left undisturbed.

Wetland L. This PSS/PEM wetland is located between Wetland M and Wetland K. The Project pipeline runs the length of the wetland from approximately MP 0.95 to 1.50. During Project construction, 0.95 acres of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland L was dominated by hydrophytic vegetation and exhibited wetland hydrology. In both visits, dominant vegetation included American elm (*Ulmus americana*), green alder (*Alnus viridis)*, and black elderberry (*Sambucus nigra*) in the PSS canopy. The PEM herbaceous layer was dominated by common soft rush, and spotted jewelweed (*Impatiens capensis*). These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PSS/PEM wetlands in this ecoregion. The subsidence observed over the Project pipeline centerline at the north end of the wetland in 2023 was no longer apparent in 2025. Restoration for subsidence occurred previously in this wetland during the 2021 monitoring event and has fully revegetated. Wetland L meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland K. This PEM wetland is located between Wetland L and Wetland H and current land use is grazing land for livestock. The Project pipeline runs the length of the wetland from approximately MP 1.05 to 1.20. During Project construction, 0.76 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland K was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included Long's sedge (*Carex longii*), common soft rush, shallow sedge, perennial rye grass (*Lolium perenne*), and wrinkle-leaf goldenrod (*Solidago rugosa*). During the fall 2025 monitoring event, dominant vegetation included New England aster and fowl blue grass. In addition to the dominating grasses, harlequin blueflag (*Iris versicolor*) and green bulrush (*Scirpus atrovirens*) were identified. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PEM wetlands in this ecoregion. The fence along the eastern edge of the LOD (between the landowner's field and a parking lot) was reinforced in 2022. During the June 2023 monitoring event, it appeared that new fencing had been installed. The pipeline right-of-way was observed to have been relatively recently mowed during the fall 2025 event. Wetland K meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland H. This PFO/PEM wetland is located in a forested area between Wetland K to the south and Wetland G to the north. The Project pipeline runs the length of the wetland at approximately MP 1.25. During Project construction, 0.05 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland H was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Dominant vegetation included shallow sedge, common soft rush, spotted jewelweed, and green bulrush during both 2025 monitoring events. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PFO/PEM wetlands in this ecoregion. Wetland H meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland G. This PFO wetland is located in a forested area between Wetland H to the south and Wetland GA and Stream MA-4 to the north. The Project pipeline runs alongside the wetland at approximately MP 1.25. During Project construction, 0.05 acre of this wetland was impacted. During both 2025 monitoring events, Wetland G was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Dominant vegetation included red maple (*Acer rubrum*), gray birch (*Betula populifolia*), eastern white pine (*Pinus strobus*), and black willow (*Salix nigra*) with common soft rush, woolgrass, fringed sedge, and spotted jewelweed. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Wetland G meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Wetland GA. This PFO wetland is located in a forested area and straddles Stream MA-4. The Project pipeline runs adjacent to the wetland at approximately MP 1.25. During Project construction, 0.02 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland GA was dominated by hydrophytic vegetation and exhibited wetland hydrology. During both 2025 monitoring events, vegetation was dominated by red osier dogwood (*Cornus sericea*), black willow, common soft rush, shallow sedge, and spotted jewelweed. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Wetland GA meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Wetland E. This PFO/PEM wetland is located in a forested area and straddles Stream MA-3. The Project pipeline runs the length of the wetland from approximately MP 1.65 to 1.8. During Project construction, 0.81 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland E was dominated by hydrophytic vegetation and exhibited wetland hydrology. During both summer and fall 2025 monitoring events dominant vegetation included willow (*Salix spp.*), common soft rush, shallow sedge, broadleaf cattail (*Typha latifolia*), fowl blue grass, pointed broom sedge (*Carex scoparia*), spotted jewelweed, and common boneset (*Eupatorium perfoliatum*). These plants were observed in adjacent and nearby wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Purple loosestrife is present in abundance throughout wetland. There is an active trail that enters the LOD from the west, south of Wetland E, and continues north through the wetland. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Wetland E meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Table 1. In-Situ Postconstruction Wetland Monitoring Results at the 261 Upgrade Projects (Looping Project), 2025

Wetland ID	State Wetland Type[1]	Pre-construction Cowardin Classification[2]	Meets Definition of Jurisdictional Wetland	Vegetation is 80% of the Cover in Adjacent Areas Not Disturbed by Construction	Plant Species Composition Consistent with Early Successional Wetland Plant Communities	Summary Notes and Restoration Status
B	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements
A	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements
S	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
N	BVW	PFO/PSS/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
M	IVW	PEM	No	No	No	Lacked wetland hydrology during fall (slight drought during dry season) monitoring event. Orientation to adjacent, undisturbed wetland suggests that restoration requirements would be met in absence of landowner-disturbance.
L	BVW	PSS/PEM	Yes	Yes	Yes	Meets restoration requirements.
K	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements.
H	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
G	BVW	PFO	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
GA	BVW	PFO	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
E	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements. woody hydrophytes well established at approximate success criterion threshold.

1. BVW=bordering vegetated wetland, IVW=isolated vegetated wetland
2. PEM=palustrine emergent wetland, PSS=palustrine scrub shrub wetland, PFO=palustrine forested wetland

4.3 PLANTED TREE AND SHRUB ASSESSMENT RESULTS

During the 2025 field effort, methodology was updated to account for a number of factors complicating the collection of accurate quantitative data. First, fresh plantings were found throughout the study area for which no location data was provided so as to account for this change in planting distribution. Second, the success of colonization by quaking aspen and eastern cottonwood created large stands of dense vegetation impenetrable for observation of plantings geolocated within. Third, absence of any indication of planted species (*i.e*., enclosures, tags) made differentiating between plantings and volunteers impossible. It is likely that some planted species have been outcompeted by rhizomatous colonization of *Populus spp*. but attaining a quantitative demonstration was impossible. Nonetheless, since *Populus spp.* were included as an approved species in the planting plan, the aforementioned successful colonization demonstrates a woody-revegetation accomplishment though species diversity might be lower than expected.

Many other species (*Salix spp*., *Cornus spp*., speckled alder [*Alnus incana]*, and *Sambucus spp*.) were also observed as volunteers, most notably throughout Wetland E but with varying degrees of presence throughout the survey area.

Throughout the corridor containing the MA4N and MA4S riverfronts and wetlands GA, G, and H, *Populus spp*. were thriving but not to the extent observed in Wetlands S and N. Along the western edge of the survey area, red maple and yellow birch (*Betula alleghaniensis*) were healthier than those found further east from the forested boundary. Throughout, *Quercus spp*., black willow, *Cornus spp*., and shadbush (*Amelanchier canadensis*) were thriving.

Though a numerical analysis of collected data was impossible due to aforementioned confounding factors, success criteria for the permit requirements state:

- Vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; and
- Plant species composition is consistent with early successional wetland plant communities in the affected ecoregion.

While planting success could not be rigorously quantified all the wetlands had vegetative cover of volunteer trees and shrubs exceeding that of the plantings. Shrub coverage in these wetlands exceeded what would be expected if only planted shrubs were present. Estimates of sapling/shrub cover are based on visual field estimates and confirmed with photo-documentation and review of wetland observation plot data. Ocular estimation of the area confirms that through the use of both “natural” and “active revegetation” all wetlands satisfy the criteria outlined in the permit requirements and are successfully revegetated to at least the 80% threshold.

4.4 CONCLUSION

Based on the results of the wetland monitoring events in June and September 2025, it was determined through professional qualitative assessment that all wetlands meet the criteria for successful revegetation. While accurate quantification of planting success disallowed the production of desired percentages, all of these wetlands include substantial volunteer shrub and sapling coverage. Planting enclosures were removed as recommended and volunteer saplings were present, which complicates differentiation between planted and volunteer individuals. Wetland H, noted in 2024 as having low planting success and few shrub/sapling volunteers, has since progressed to the successional status of a palustrine scrub-shrub wetland, dominated by those species outlined in the planting protocol. An area of potential subsidence, that

was observed over the pipeline at the north end of Wetland L in 2022 has filled in with grass and no erosion was observed. The area was monitored and no subsidence was observed. Wetland M was disturbed, potentially from mowing during saturated soil conditions. Persistent depressions along the edges of the wetlands and LOD caused by erosion control device (ECD) removal in 2022 are no longer evident.

5.0 IN-SITU COMPENSATORY MITIGATION MA RESOURCE AREA MONITORING

This section summarizes the in-situ post-construction monitoring of inland Banks, Land Under Waterbodies and Waterways (LUWW), and upland portions of Riverfront Area that was performed during the fifth growing season after the Project was constructed (2025).

In accordance with OOC No. SP27, Riverfront Area and Buffer Zone monitoring shall include at a minimum: status of non-indigenous plant species, planting/seeding success, and substrate stabilization.

5.1 METHODS

The Agawam Conservation OOC, maps and reports for the Project, and publicly available information (e.g., aerial imagery, land use and land cover data) were reviewed prior to conducting field work. Each MA Resource Area (Figure 1) was documented via photographs upstream, downstream, and a view of each stream bank. The presence and relative abundance of invasive species and noxious weeds were estimated using the following cover classes: trace (less than 1 percent), uncommon (1–10 percent), common (11–45 percent), and abundant 46–100 percent). All tagged planted woody hydrophytes were inspected and the number of dead or failing specimens was noted. Data on the indigenous status and relative abundance of each documented species were recorded using the cover classes described above for invasive species.

Substrate stabilization was evaluated based on the following criteria: (1) stream banks stabilized and contours blend into adjacent areas; (2) particle size of stream substrate similar to adjacent areas; (3) channel free of obstructions or debris from construction; and (4) no depressions observed over the trench line indicative of slumping. An *Aquatic Resource Inspection Data Form* was completed for each upland Riverfront Area and Buffer Zone.

5.2 RESULTS

Vegetation identified within each upland Riverfront Area and Buffer Zone, including the presence and relative abundance of invasive species and noxious weeds, is summarized in Appendix B.1. Photo-documentation is provided in Appendix B.2 and includes pre-construction and post-construction views for each area. The *Aquatic Resource Inspection Data Forms* for each area are provided in Appendix B.3. The status of restoration is summarized in Table 2. Planted woody hydrophyte quantification was similarly complicated to that mentioned above regarding the wetland plantings. Regardless, planted or volunteer tree and shrub cover were well established and exceed what would be expected with plantings alone. Staghorn sumac (*Rhus typhina)* and the *Acer spp*. are having the most difficulty in establishing in MA4N riverfront, though survivors are in excess of seven feet in height. This observation conforms to quantitative data collected in previous field efforts.

Throughout the corridor containing the MA4N and MA4S riverfronts and wetlands GA, G, and H, *Populus spp*. were thriving but not to the extent observed in Wetlands S and N. Along the western edge of the survey area red maple and yellow birch were healthier than those found further east from the forested boundary.

Throughout, *Quercus spp*., black willow, *Cornus spp*., and shadbush were thriving. Individual descriptions of each upland Riverfront Area and Buffer Zone are provided below and are discussed in order of pipeline mile post (MP) beginning at MP 0.0.

Table 2. Summary of Post-construction MA Resource Area Monitoring Results at the 261 Upgrade Projects (Looping Project), 2025

Criteria	Stream ID (USGS Stream Name)			
	MA 1 (Worthington Brook)	MA 6 (Worthington Brook)	MA 4 (Tarkill Brook)	MA 3 (Threemile Brook)
Status of Non-Indigenous Plant Species	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas
Planting/Seeding Success	Vegetation is established	Variable planting success in adjacent wetlands/ high herbaceous and shrub vegetation coverage	70 percent planting survival/ herbaceous and shrub vegetation established	Vegetation is established
Stream banks and contours	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas
Stream Particle Size	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas
Construction debris/obstructions	Removed	Removed	Removed	Removed
Trenchline	No depressions observed	No depressions observed	No depressions observed	No depressions observed
Restoration Status	Meets restoration requirements	Meets restoration requirements	Meets restoration requirements	Meets restoration requirements

Stream MA-1. This perennial stream is an unnamed tributary to Worthington Brook, flows through Wetland A, and crosses the LOD at approximately MP 0.1 (Figure 1). During Project construction, the crossing width was approximately 15 feet and the crossing method was dam and pump. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; black locust (*Robinia pseudoacacia*) and multiflora rose (*Rosa multiflora*) were common and six species were uncommon, but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). Reed canary grass was abundant and purple loosestrife was uncommon but both of these species were observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.3). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-1 has been determined to meet restoration requirements.

Stream MA-6. This perennial stream, also known as Worthington Brook, flows between Wetland N to the north and Wetland S to the south and crosses the LOD at approximately MP 0.35 (Figure 1). During Project construction, the crossing width was approximately 13 feet using the flume crossing method. Resources

protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; perennial rye grass, and Ribgrass plantain (*Plantago lanceolata*) were abundant; mugwort (*Artemisia vulgaris*), red fescue (*Festuca rubra*), annual rye (*Lolium multiflorum*) birdsfoot-trefoil (*Lotus corniculatus*), Timothy (*Phleum pratense*), multiflora rose, Chinese foxtail (*Setaria faberi*), and Alsike clover (*Trifolium hybridum*) were common; five species were uncommon; and nine species were trace; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). No non-indigenous species were present within the LOD at Stream MA-6 (Appendix B.3). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-6 has been determined to meet restoration requirements.

Stream MA-4. This perennial stream, also known as Tarkill Brook, flows through Wetland GA and crosses the LOD at approximately MP 1.25 (Figure 1). During Project construction, the crossing width was approximately 14 feet using the flume crossing method. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; reed canary grass was abundant; Queen Anne's lace (*Daucus carota*), barnyard grass (*Echinochloa crus-galli*), red fescue, perennial rye grass, common plantain (*Plantago major*), multiflora rose, Alsike clover, and white clover (*Trifolium repens*) were common; and six species were uncommon; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). One non-indigenous species was present within the LOD at Stream MA-4. Multiflora rose was uncommon but was observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.3).Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, planted trees and shrubs were alive and healthy, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-4 has been determined to meet restoration requirements.

Stream MA-3. This perennial stream is an unnamed tributary to Threemile Brook that flows through Wetland E and crosses the LOD at approximately MP 1.8 (Figure 1). During Project construction, the crossing width was less than 60 feet using the dam and pump method. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; Queen Anne's lace, purple loosestrife, black locust, and Alsike clover were common; two species were uncommon; and five species were trace; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-3 has been determined to meet restoration requirements.

5.3 CONCLUSIONS

In the upland Riverfront Areas and the Buffer Zones, the status of non-indigenous plant species is similar to adjacent undisturbed areas and restoration plantings were alive and healthy. Furthermore, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to

adjacent areas, obstructions or debris from construction were not present within the channels. Areas where ECDs were removed are now indistinguishable from unaffected adjacent areas. Further, important wildlife habitat functions, such as food, shelter, migratory and overwintering areas as well as breeding areas for birds, mammals and reptiles appear consistent with expectations for fifth year monitoring and are reverting to pre-construction use of the area and/or similar to adjacent areas. Based on the data collected during the 2025 monitoring event, restoration of all MA Resource Areas has been successful.

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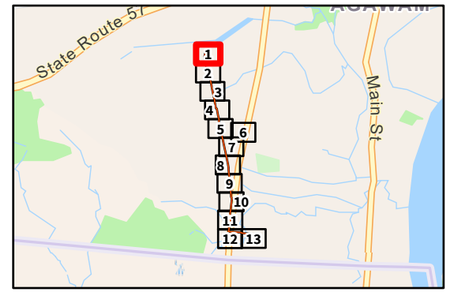
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Figure 1. **In-Situ Post-construction Wetland Monitoring Stations and MA Resource Areas at the 261 Upgrade Projects Monitoring Year 5 (2025); Agawam, Massachusetts**



Legend

- Limit of Disturbance
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 1 of 13

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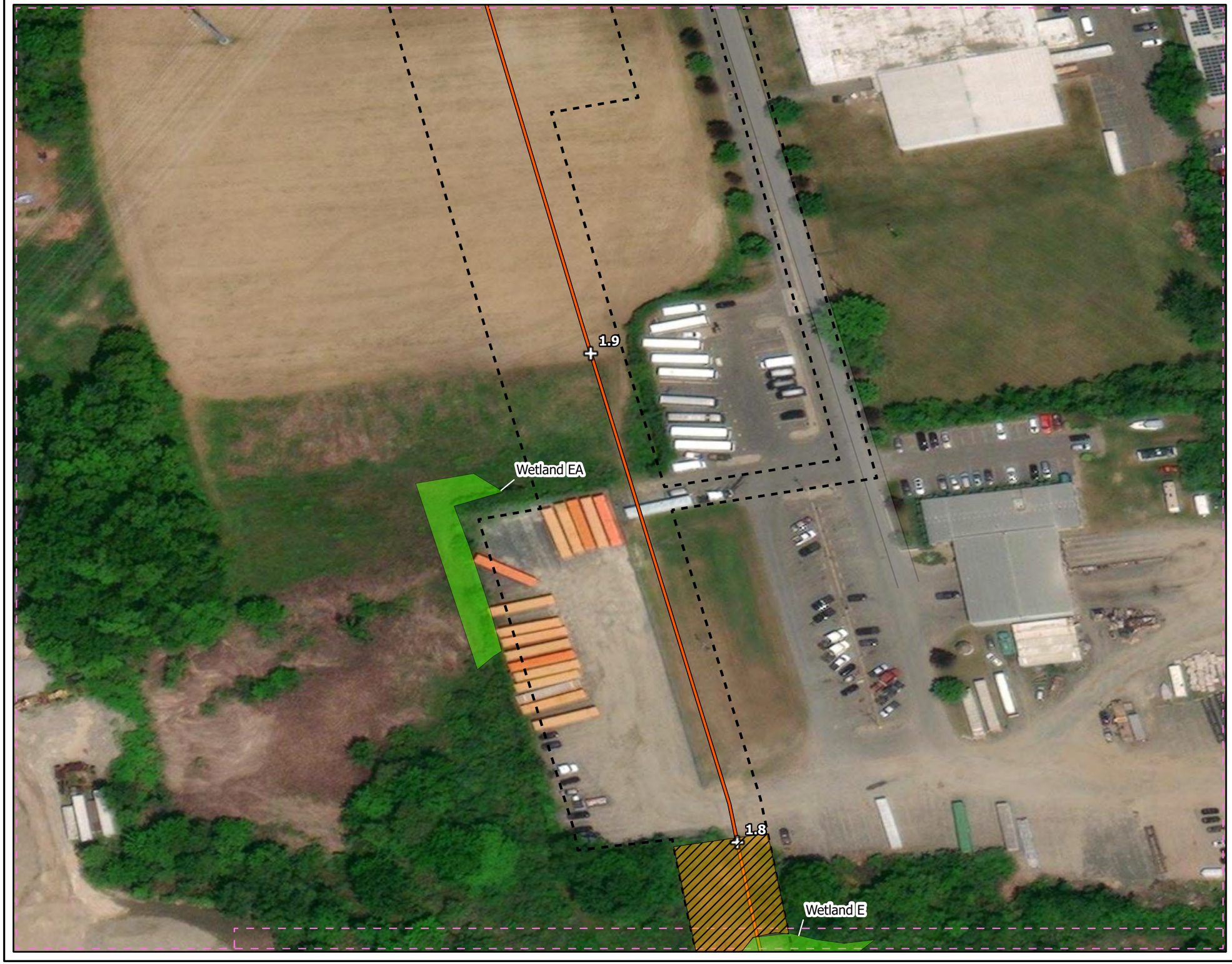
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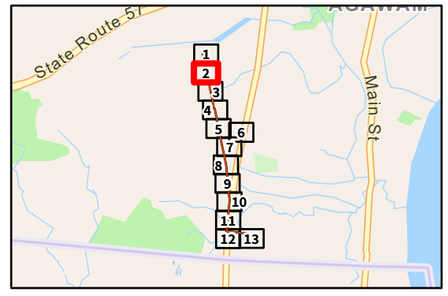
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 2 of 13

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Prepared By: TETRA TECH

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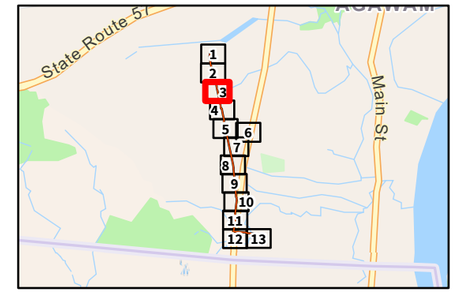
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 3 of 13

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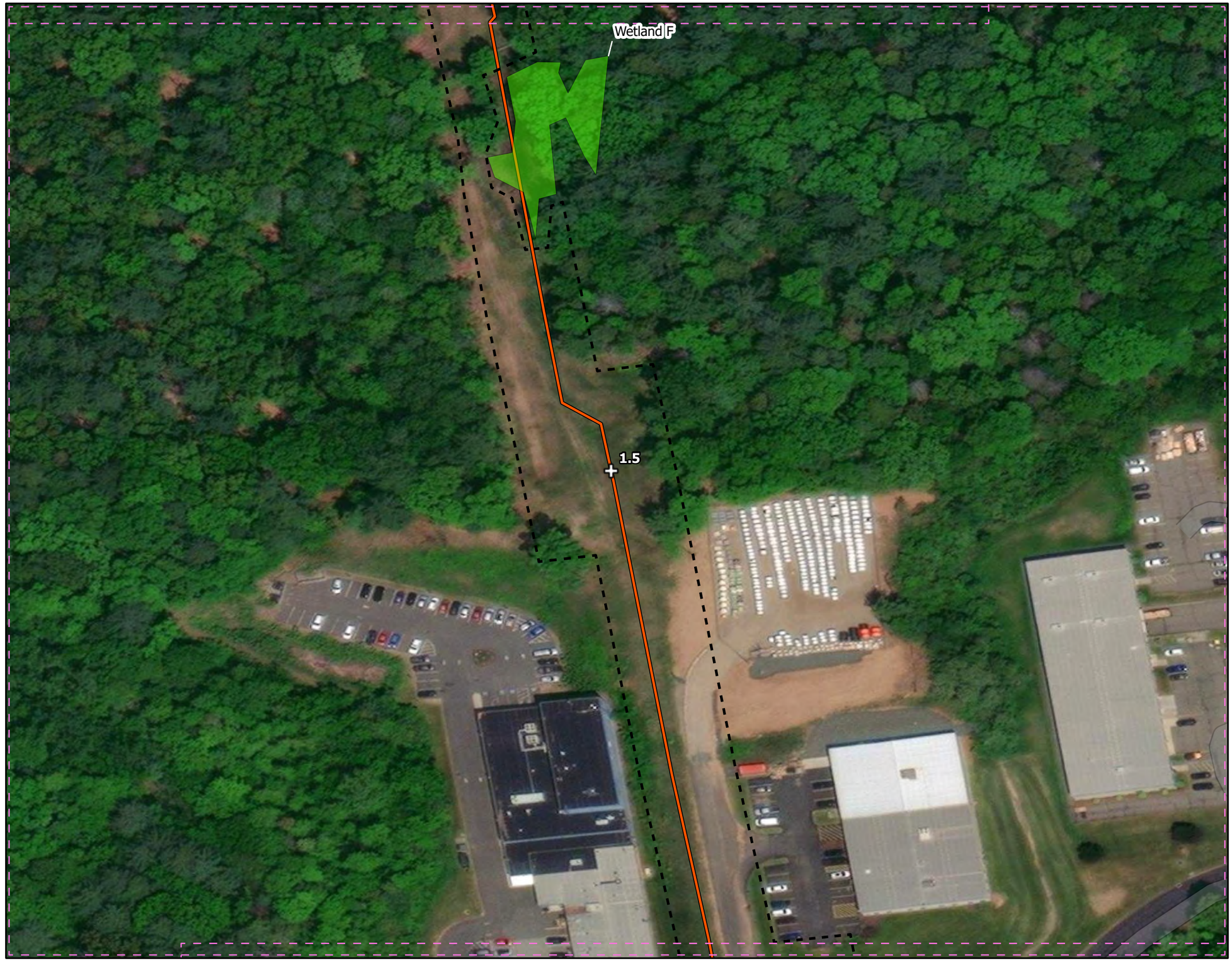
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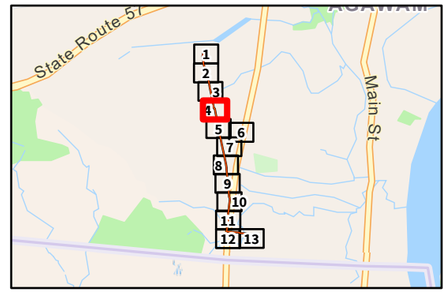
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 4 of 13

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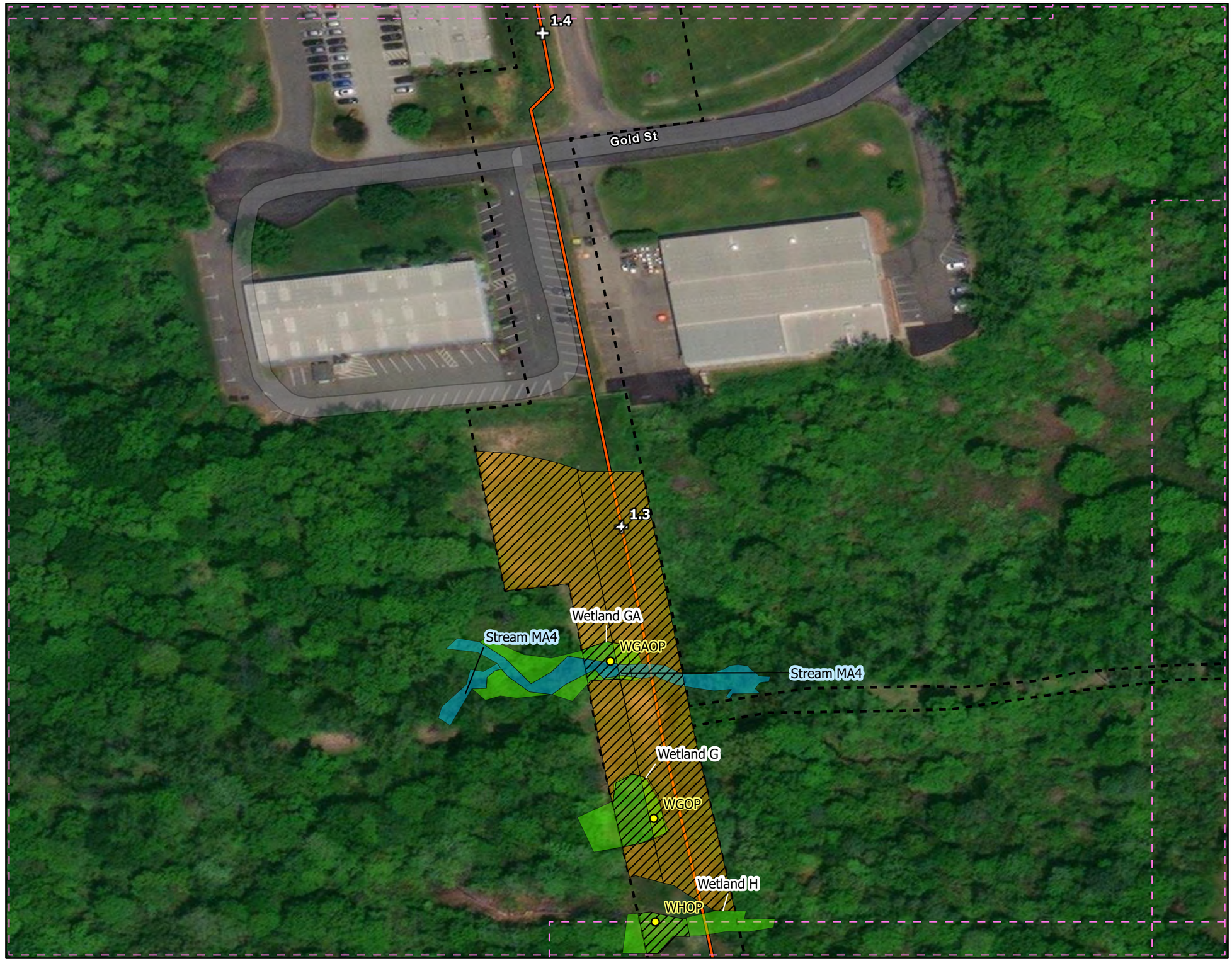
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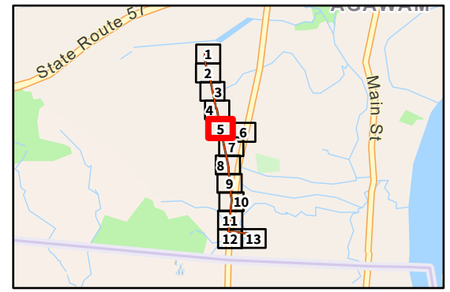
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 5 of 13

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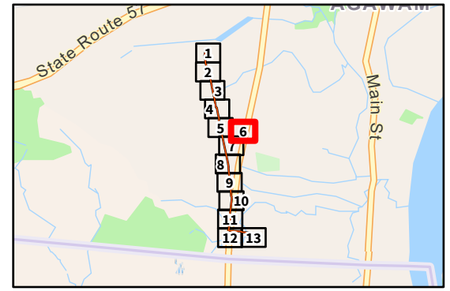
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 6 of 13

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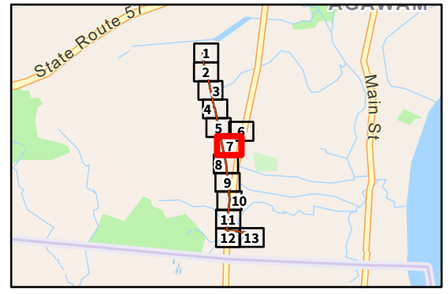
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 7 of 13

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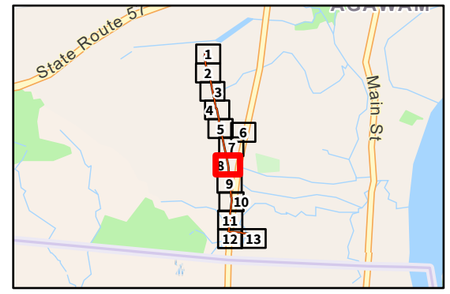
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 8 of 13

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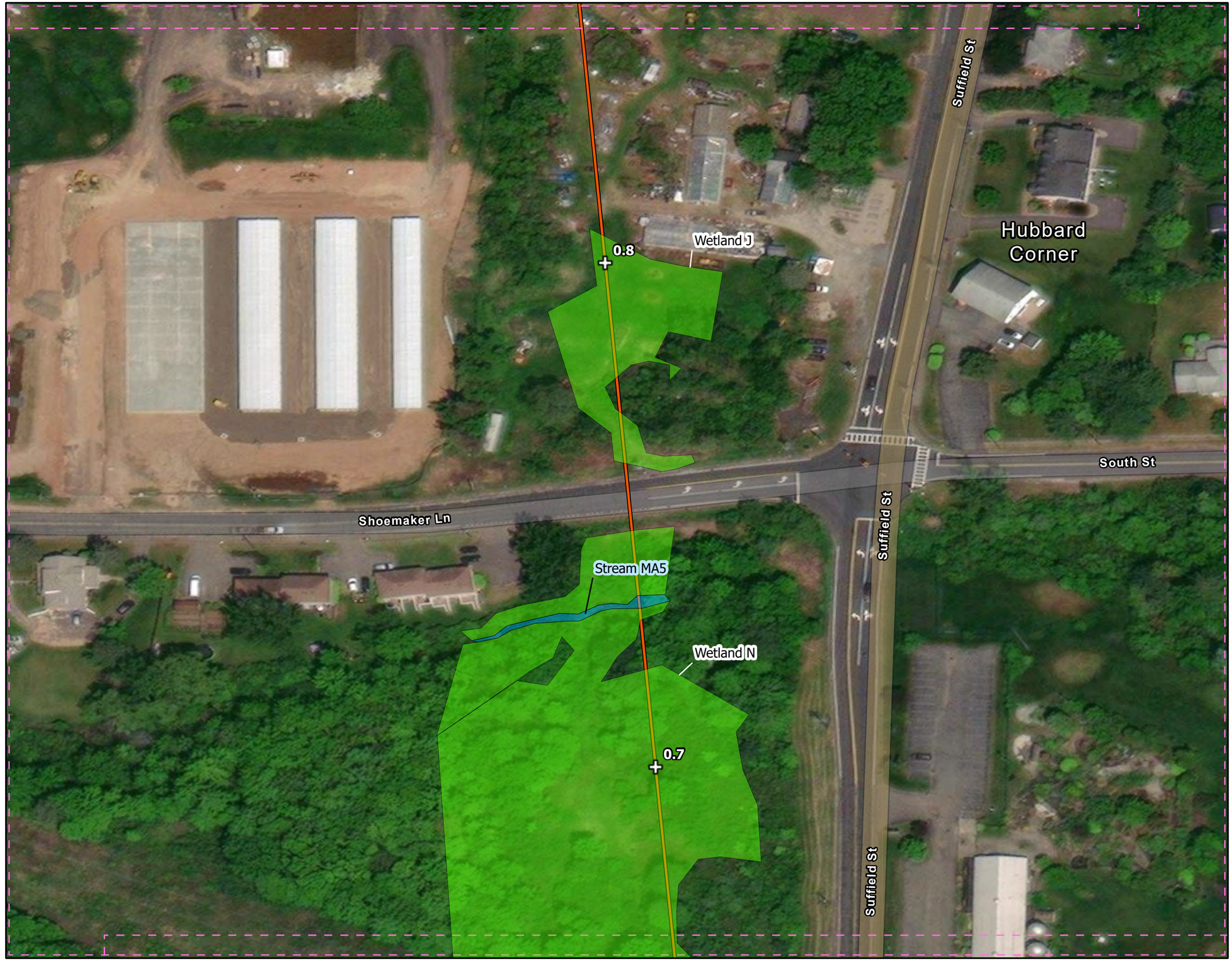
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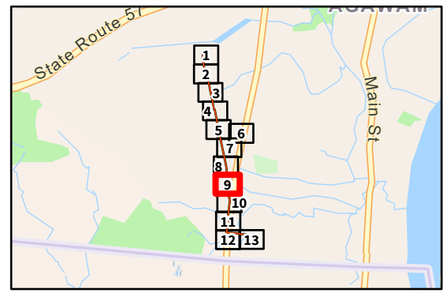
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Legend

- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 9 of 13

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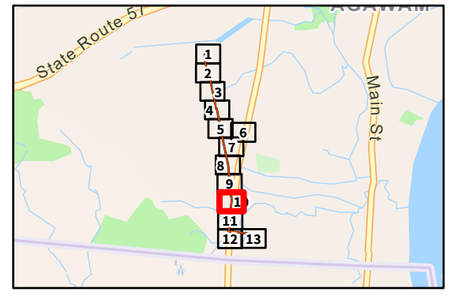
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 10 of 13

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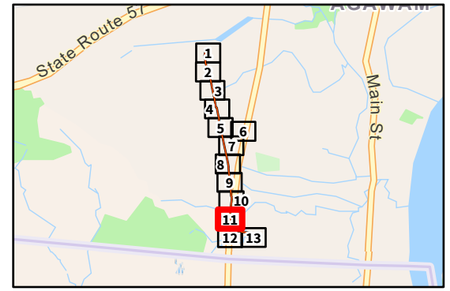
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Worthington Brook
Wetland N
WNOP
Suffield St
0.4
Dogwood Ln
Worthington Brook
Stream MA6
Wetland S
WSOP
0.3
Stream MA1

Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 11 of 13

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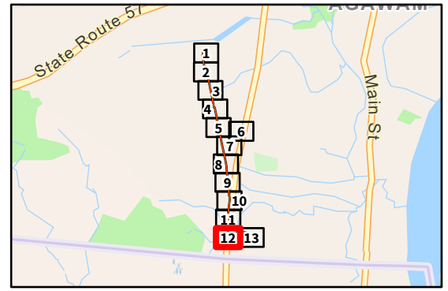
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Legend

- Limit of Disturbance
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N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 12 of 13

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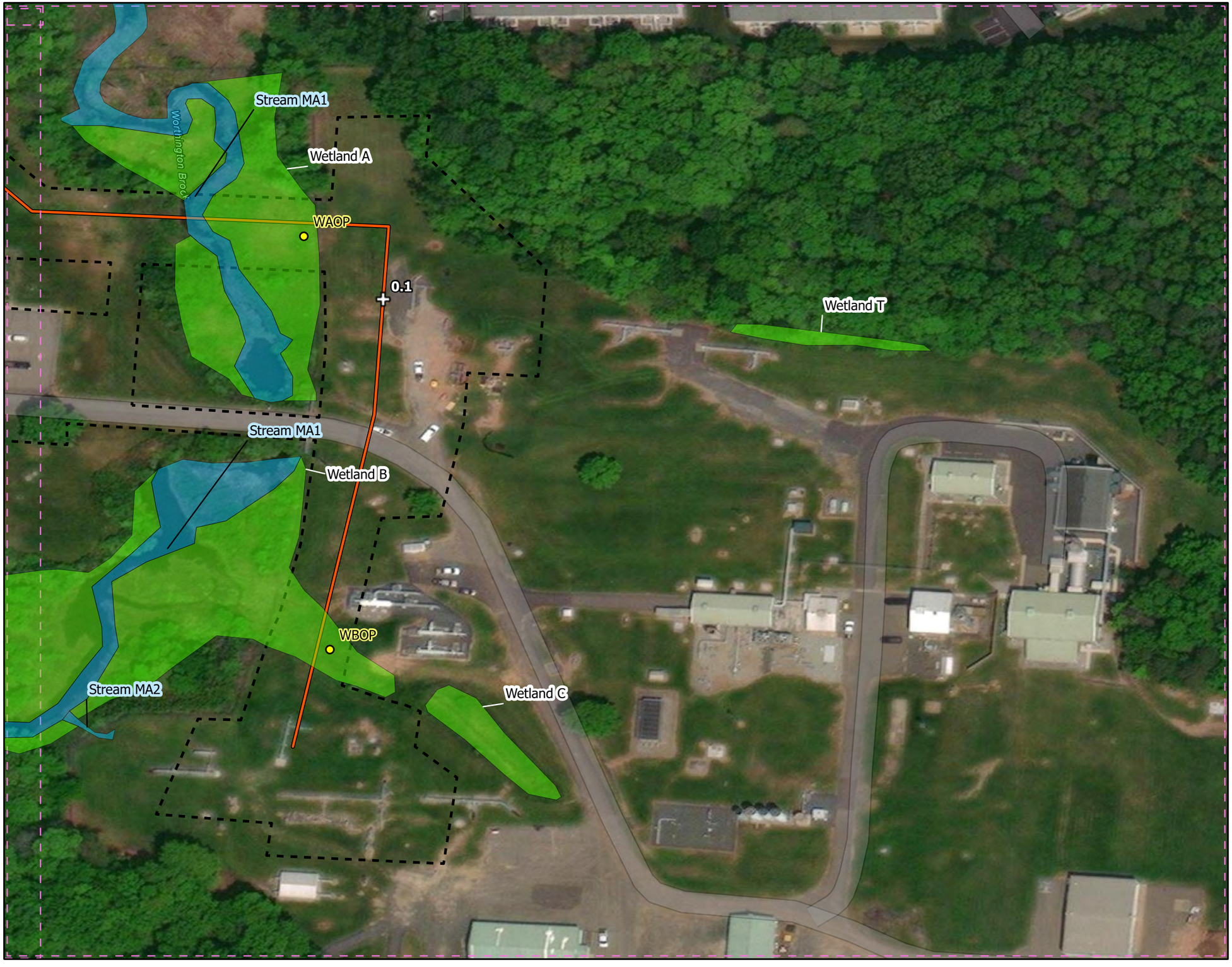
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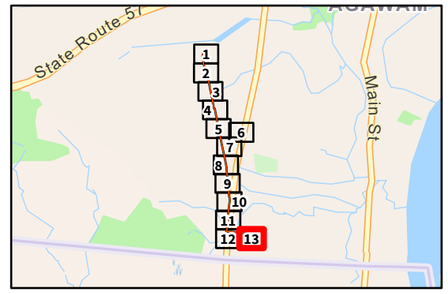
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Legend

- Limit of Disturbance
- Delineated Wetland
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N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 13 of 13

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Prepared By: TETRA TECH

Date: 11/2024

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Appendix A

In-Situ Post-Construction Wetland Monitoring

A.1 Wetland Plant Species List
A.2 Pre- and Post-Construction Photologs
A.3 Observation Plot Data

Appendix A.1

Wetland Plant Species List

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Acer rubrum	Red maple	N	C		C	A	U	C		T		A	A
Achillea millefolium	Common yarrow	N		T			T	T				T	
Agalinis tenuifolia	Slender gerardia	N					U					U	T
Alisma subcordatum	Water plantain	N		U	C								
Allium vineale	Field garlic	I								U			
Alnus incana	Speckled alder	N				T	T			U		C	C
Alnus viridis	Green Alder	N								U		U	
Ambrosia artemesiifolia	Ragweed	N	U	U	C				U			U	C
Ambrosia trifida	Giant ragweed	N								T			
Amphicarpaea braceata	American hog-peanut	N				U							
Arctium minus	Common burdock	I					U		U				
Arisaema triphyllum	Jack in the pulpit	N			U		C						U
Artemisia vulgaris	Mugwort	I		C	C		U	U	U		C	C	C
Asclepias incarnata	Swamp milkweed	N	T	T								T	T
Asclepias syriaca	Common milkweed	N		C					C				
Betula alleghaniensis	Yellow birch	N			T	U		T				T	T
Betula populifolia	Gray birch	N			U	C		C				U	U
Bidens cernua	Nodding bur-marigold	N			U								
Bidens sp.	Bur-marigold	*			C		U			T		T	
Calamagrostis canadensis	Bluejoint grass	N		C				U	U				
Caltha palustris	Marsh marigold	N							T	C			
Calystegia sepium	Hedge bindweed	*	U	U	U	U	C	U		C		T	
Carex crinita	Awned sedge	N	U		C		C					C	
Carex lurida	Sallow sedge	N	A	C	C	A	A	C	C	A	C	C	C
Carex scoparia	Pointed broom sedge	N	A	U	C		A	C	C	A	T	A	C
Carex sp.	Sedge species	n/a	T				C	A	C	C		C	C
Carex tribuloides	Blunt broom sedge	N			U	U							
Carex vulpinoidea	Fox sedge	N	U		A			U	C	C	C	C	C
Carex crinita	Fringed sedge	N	C		C						A	U	A
Celastrus orbiculatus	Asiatic bittersweet	I	C				U		U			C	T
Chamaecrista nictitans	Wild sensitive plant	N					U						
Circium sp.	Thistle	n/a	T	U						T			T
Cornus (Swida) amomum	Silky dogwood	N	C	C	C	U	T	U			C	C	A
Cornus (Swida) sericea	Red-osier dogwood	N			C	U				C		U	U
Cyperus strigosus	Straw-colored flatsedge	N	U	U		A	A	A					
Daucus carota	Queen Anne's lace	I	U				U					T	
Dennstaedtia punctilobula	Hay-scented fern	N			U								

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Dicanthelium clandestinum	Deer-tongue	N	C		U		U	C		T		U	C
Echinochloa crus-galli	Barnyard grass	I						U	U				U
Elaeagnus angustifolia	Russian olive	I										-	
Elaeagnus umbellata	Autumn olive	I	U	U	T						T	U	U
Eleocharis obtusa	Spike-rush	N			A	A	C				T		
Elymus canadensis	Great Plains wild-rye	N	C							C			U
Elymus virginicus	Common eastern wild rye	N					C					U	C
Epilobium coloratum	Eastern willowherb	N		A	U	U		U					T
Equisetum arvense	Field horsetail	N	A							A			
Erechtites hieracifolia	American burnweed	N	U	T	U	C		U		U		U	U
Erigeron annuus	Daisy fleabane	N			U		C		C	C	T	C	C
Erigeron canadensis	Horseweed	N	U		U		T					T	
Eupatorium perfoliatum	Boneset	N	C	U	C		U			U		C	C
Euthamia graminifolia	Slender-leaved goldenrod	N	U	U	C	C		T	U	U		A	C
Eutrochium maculatum	Spotted joe-pye-wee	N	C		C			T		U		C	U
Fallopia japonica	Japanese knotweed	I								U			
Fallopia scandens	Climbing false buckwheat	N				C		U				U	
Festuca rubra	Red fescue	I					C	C	C				
Frangula alnus	Glossy buckthorn	I	U		C	A	C	C	T			A	C
Frangula sp.	Buckthorn	n/a										A	C
Fraxinus pennsyvlanica	Green ash	N	T					T		U	U	C	U
Gallium mollugo	Whorled bedstraw	I				U			U			U	
Glyceria striata	Fowl mannagrass	N			C		C		C			C	
Houstonia caerulea	Bluets	N			U	U		U				C	U
Houstonia purpurea	Calycose bluets	W										T	
Hypericum mutilum	Dwarf S.t John's-wort	N										C	
Hypericum perforatum	Common St. John's-wort	I						T				T	
Hypericum prolificum	Shrubby St. John's-wort	*					U						
Ilex verticillata	Common winterberry	N				U							
Impatiens capensis	Orange jewelweed	N	C	U	A	U	C	A		C		C	C
Iris versicolor	Blue flag	N							U			U	U
Juncus effusus	Soft rush	N		C	A	A	A	C	C	A	T	C	C
Juncus sp.	Rush species	n/a		C									U
Lactuca canadensis	Yellow wild lettuce	N					T					T	
Lathyrus sylvestris	Narrow-leaved vetchling	I		U								T	
Leersia oryzoides	Rice cut grass	N	C			C	C	U	C				
Leucantemum vulgare	Ox-eye daisy	I							t				

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Lindera benzoin	Spicebush	N			C	U	T	T					
Lolium multiflorum	Annual rye	I	C					C		T		U	T
Lolium perenne	Perennial rye-grass	I	A	A	C	T	C	C	C	U		A	C
Lonicera morrowii	Morrow's honeysuckle	I				T	T						
Lonicera sp.	Bush honeysuckle	n/a		T		T	C					C	U
Ludwigia alternifolia	Seedbox	N				U		U					
Ludwiga palustris	Common water-primrose	N	C		C		C						
Lythrum salicaria	Purple loosestrife	I	U	C	C			C	A	A	U	C	U
Malus fusca	Oregon crabapple												
Onoclea sensibilis	Sensitive fern	N	C	U	C		C	U		C	C	C	C
Osmunda regalis	Royal fern	N			T								
Panicum capillare	Witch-grass	N										U	U
Parthenocissus quinquefolia	Virginia creeper	N			U		U	C		U		U	T
Paulownia tomentosa	Princess tree	I					T						
Penstemon sp.	Beard-tongue	n/a								C			
Perilla vulgaris	Heal-all	N		T				T	T			T	
Persicaria arifolia	Halberd-leaf tearthumb	N			U		T						
Persicaria hydropiper	Water-pepper	I			U		U		U		U		
Persicaria maculosa	Lady's thumb	I		T	T	T							
Persicaria pensylvanicum	Pinkweed	N						U					
Persicaria sagittata	Arrow-leaf tearthumb	N	C	A	A	A	T	C		C		C	U
Phalaris arundinacea	Reed canary grass	"I?"	C	C	U					C	C	U	U
Phleum pratense	Timothy	I	U		U			C	C	U	C		
Phlox paniculata	Summer phlox	I										T	
Phragmites australis	Common reed	I		C	U					U		T	
Phytolacca americana	American pokeweed	N							U				
Pilea pumila	Clearweed	N					U						
Pinus strobus	Eastern white pine	N			U	C	U	U					
Plantago lanceolata	Ribgrass plantain	I					U		U				
Plantago major	Common plantain	I		U				U	A			U	U
Poa palustris	Fowl meadowgrass	N	C		C	U	C	C	A	A	A		C
Populus deltoides	Eastern cottonwood	N	T		C		C	C		U	C	C	C
Populus tremuloides	Quaking aspen	N		T	C	C	C	U			C	C	A
Potentilla reptans	Creeping cinquefoil	I						T				T	
Potentilla simplex	Common cinquefoil	N								U		U	U
Prunus serotina	Black cherry	N			T	T							
Prunus sp.	Cherry species	n/a											U

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Pycnanthemum muticum	Blunt Mountain-mint	N					U			U		U	U
Pycnanthemum tenuifolium	Narrow-leaved mountain-mint	N		U								C	C
Pycnanthemum virginianum	Virginia mountain-mint	N				U						U	
Pyrus calleryana	Callery pear	I										T	T
Quercus bicolor	Swamp white oak	N			T	U					U	U	U
Quercus palustris	Pin oak	N						U					U
Ranunculus repens	Creeping buttercup	I			T				U			U	T
Rhamnus alnifolia	Alder buckthorn	N										U	
Rhus hirta	Staghorn sumac	N	U				T			T			
Rosa multiflora	Multiflora rose	I	C		C	C	C	C	T	U		C	U
Rubus hispidus	Bristly dewberry	N								T			
Rubus sp.	Blackberry	n/a	U		U		U					C	
Rudbeckia hirta	black-eyed susan	N		U			T			T			
Rumex crispus	Curly dock	I			C		U		U		U	T	
Rumex sp.	Dock	n/a							U				
Salix eriocephala	Heart-leaved willow	N			C								
Salix nigra	Black willow	N			U	U	U					T	T
Salix sp.	Willow	n/a	U		C		U						
Sambucus canadensis	Common elderberry	N	C	U	T	T				U		T	T
Scirpus atrovirens	Dark green Bulrush	N	U		C			C	U	C	T	U	U
Scirpus cyperinus	Woolgrass	N		U	C			U				C	C
Scutellaria galericulata	Marsh skullcap	N									U	U	
Setaria faberi	Chinese foxtail	I											T
Setaria pumila	Yellow foxtail	I											U
Solidago altissima	Tall goldenrod	N	C		U	C	U			U		C	C
Solidago candensis	Canada goldenrod	N	C	C	C	C	T			U		C	
Solidago gigantea	Giant/smooth goldenrod	N					U						
Solidago rugosa	Rough goldenrod	N	C	C	C	C	U	U	C	U		A	C
Solidago sp.	Goldenrod	n/a	C					U		C		C	C
Sorgastrum nutans	Indian grass	N		C									U
Spiraea alba	Meadowsweet	N	C		U					U		U	C
Symphyotrichum dumosum	Bushy American aster	N	U							U		U	
Symphyotrichum ericoides	Heath-aster	N		U				U				C	C
Symphyotrichum novae-angliae	New England aster	N	U	C	U		U			C	U	C	C
Symphyotrichum pilosum	Awl American aster	N										C	T
Symplocarpus foetidus	Skunk cabbage	N			C		C						
Toxicodendron radicans	Poison ivy	N	C				U	T				C	T

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Trifolium hybridum	Alsike clover	I	U	U				U				U	U
Trifolium pratense	Red clover	I			T			U		U			C
Trifolium repens	White clover	I							U			U	
Typha angustifolia	Narrowleaf cattail	N		C						C		T	
Typha latifolia	Broadleaf cattail	N	C		C								
Typha sp.	Cattail	n/a							C				
Ulmus americana	American elm	N										C	
Ulmus sp.	Elm	n/a				U						C	U
Unknown graminoid		n/a			T				C	C	C		
Verbena hastata	Blue vervain	N		C	U	C	U	U			C	C	C
Verbena urticifolia	White vervain	N					U						U
Vernonia urticifolia	New York ironweed	N	U	U	C					U		C	C
Viburnum dentatum	Arrow-wood	N	T		U	T		U		C		A	C
Viburnum nudum	Wild raisin	N	C		C			C		U		C	C
Vicia cracca	Bird vetch	I			T						U		U
Vicia tetrasperma	Four-seeded vetch	I	T			T							
Vitis aestivalis	Summer grape	N				U	U	T		U		C	T
Vitis labrusca	Fox grape	N		T			U	U		U		T	
Vitis riparia	River-bank grape	N					C	C		U		U	
Vitis sp.		n/a	T						U	T			
Xanthium strumarium	Cocklebur	N			U								

Notes:

[1]Nomenclature (inlcuding status) follows *The Vascular Plants of Massachusetts: A County Checklist* , First Revision (Cullina et. al 2011)

[2]Status: N=Native, I=Introduced, ?=implies uncertainty or doubt (Cullina et. al. 2011), W=waif, *=unknown, n/a=not identified to species/depends on species

[3]Relative abundance: T=trace (less than 1 percent); U=uncommon (1–10 percent); C=common (11–45 percent); A=abundant (46–100 percent)

Appendix A.2

Pre-Construction Photolog
Post-Construction Photolog (2025)

Pre-Construction Photolog

261B Pre-construction Photos

Wetland A

6-18-20



261_WetlandA_ViewN_2020-6-18TR



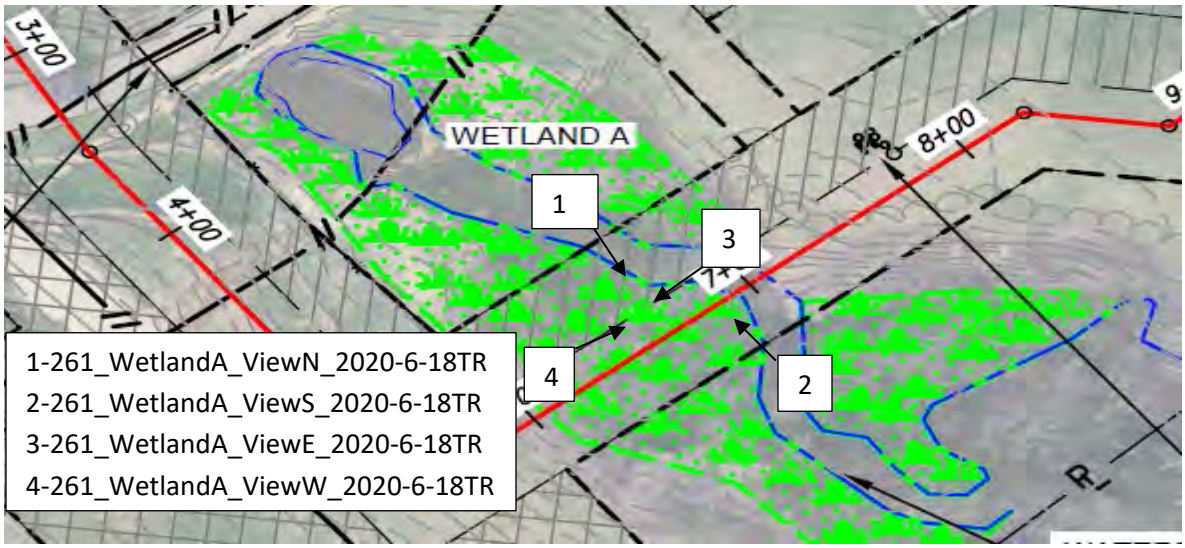
261_WetlandA_ViewS_2020-6-18TR



261_WetlandA_ViewE_2020-6-18TR



261_WetlandA_ViewW_2020-6-18TR



261B Pre-construction Photos
Wetland B
6-18-20 & 6-19-20



261_WetlandB_ViewN_2020-6-18TR



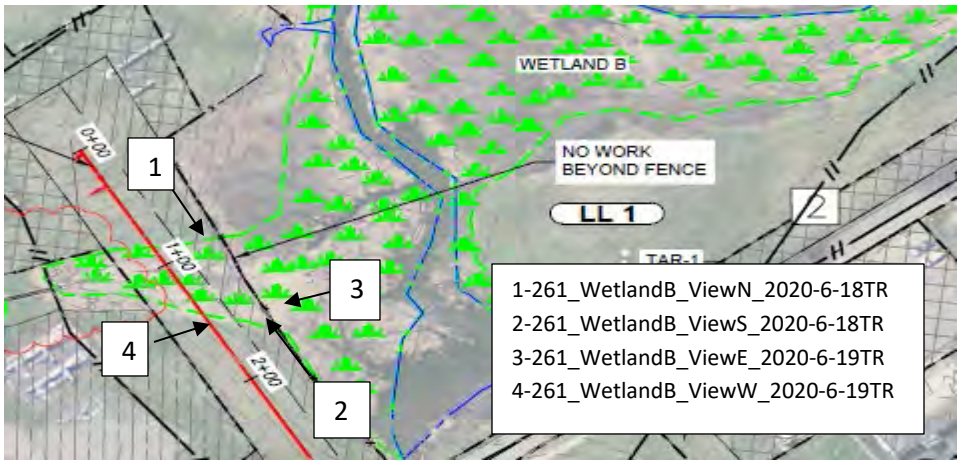
261_WetlandB_ViewS_2020-6-18TR



261_WetlandB_ViewE_2020-6-19TR



261_WetlandB_ViewW_2020-6-19TR



261B Pre-construction Photos
Wetland E
6-19-20



261_WetlandE_ViewN_2020-6-19TR



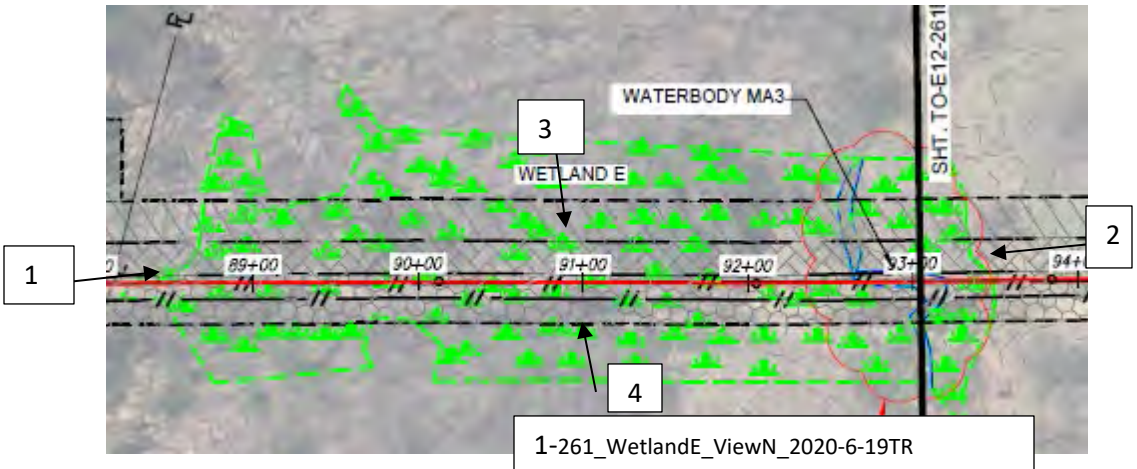
261_WetlandE_ViewS_2020-6-19TR



261_WetlandE_ViewE_2020-6-19TR



261_WetlandE_ViewW_2020-6-19TR



1-261_WetlandE_ViewN_2020-6-19TR
2-261_WetlandE_ViewS_2020-6-19TR
3-261_WetlandE_ViewE_2020-6-19TR
4-261_WetlandE_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland G
6-19-20



261_WetlandG_ViewN_2020-6-19TR



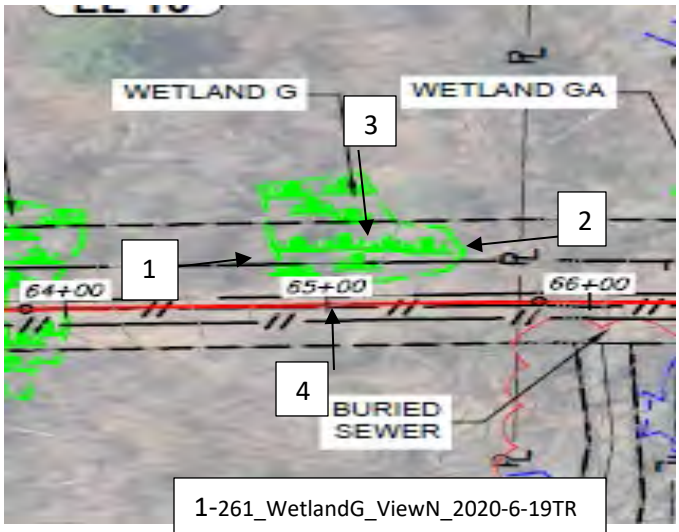
261_WetlandG_ViewS_2020-6-19TR



261_WetlandG_ViewE_2020-6-19TR



261_WetlandG_ViewW_2020-6-19TR



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2-261_WetlandG_ViewS_2020-6-19TR
3-261_WetlandG_ViewE_2020-6-19TR
4-261_WetlandG_ViewW_2020-6-19TR

261B Pre-construction Photos

Wetland GA

6-19-20



261_WetlandGA_ViewN_2020-6-19TR



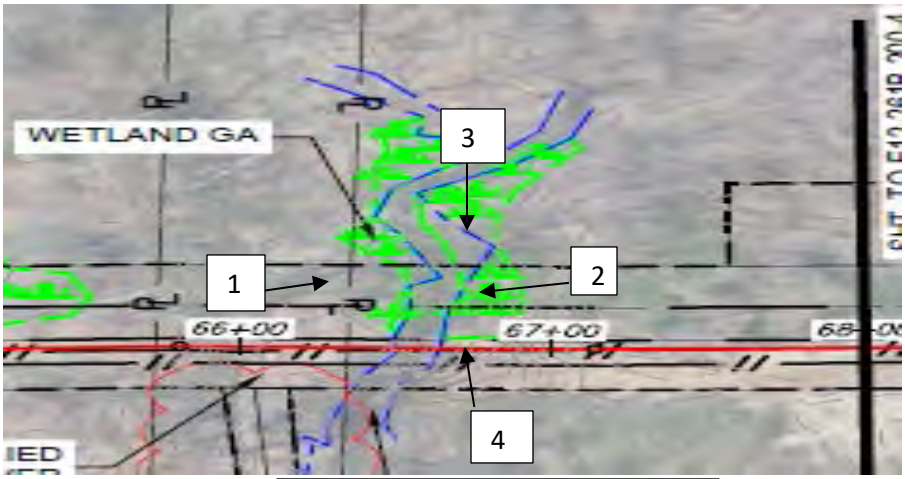
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261_WetlandGA_ViewE_2020-6-19TR



261_WetlandGA_ViewW_2020-6-19TR



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2-261_WetlandGA_ViewS_2020-6-19TR
3-261_WetlandGA_ViewE_2020-6-19TR
4-261_WetlandGA_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland H
6-19-20



261_WetlandH_ViewN_2020-6-19TR



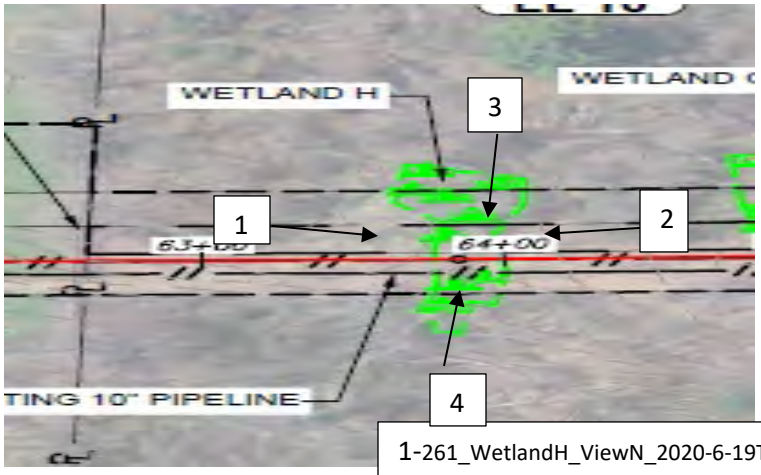
261_WetlandH_ViewS_2020-6-19TR



261_WetlandH_ViewE_2020-6-19TR



261_WetlandH_ViewW_2020-6-19TR



1-261_WetlandH_ViewN_2020-6-19TR
2-261_WetlandH_ViewS_2020-6-19TR
3-261_WetlandH_ViewE_2020-6-19TR
4-261_WetlandH_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland K
6-19-20



261_WetlandK_ViewN_2020-6-19TR



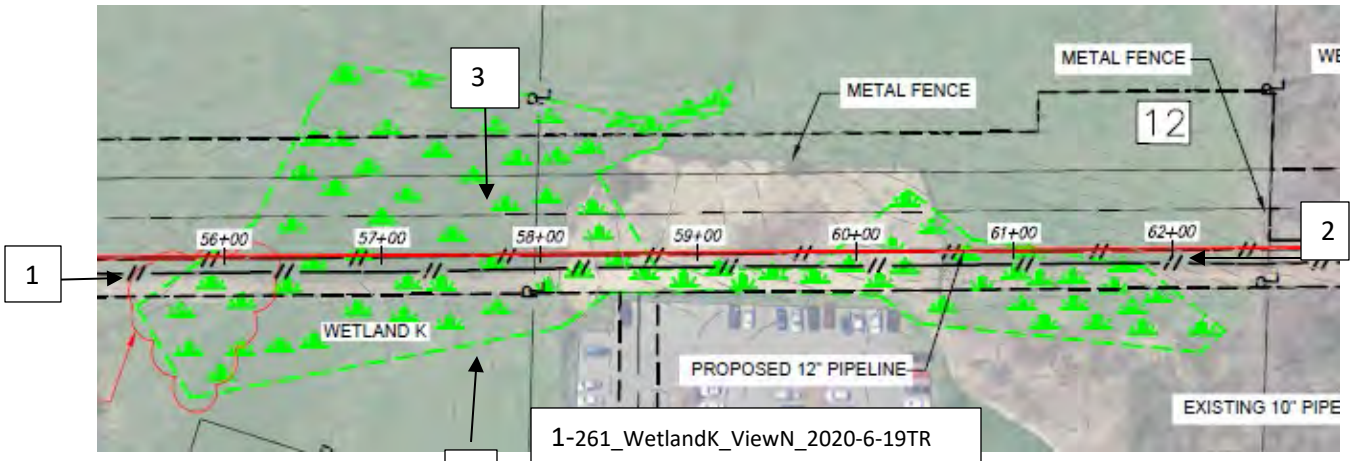
261_WetlandK_ViewS_2020-6-19TR



261_WetlandK_ViewE_2020-6-19TR



261_WetlandK_ViewW_2020-6-19TR



261B Pre-construction Photos

Wetland L

6-19-20



261_WetlandL_ViewN_2020-6-19TR



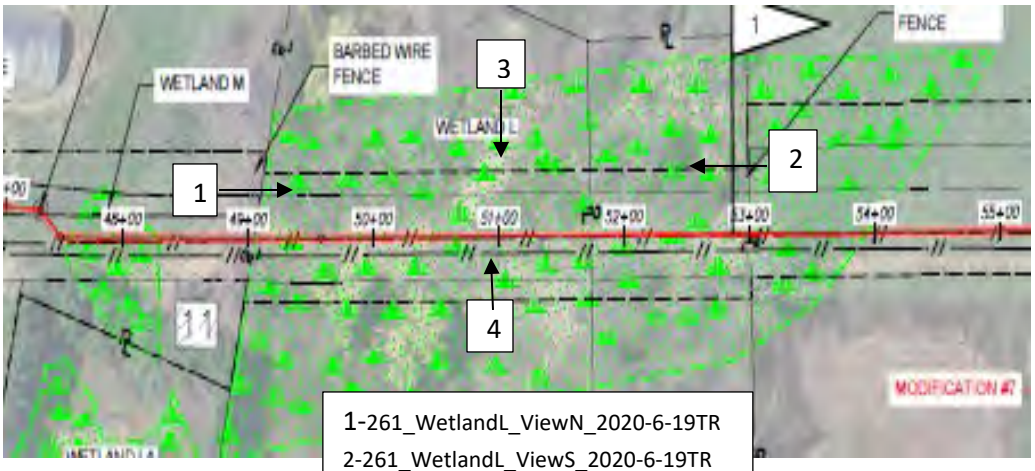
261_WetlandL_ViewS_2020-6-19TR



261_WetlandL_ViewE_2020-6-19TR



261_WetlandL_ViewW_2020-6-19TR



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2-261_WetlandL_ViewS_2020-6-19TR
3-261_WetlandL_ViewE_2020-6-19TR
4-261_WetlandL_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland M
6-19-20



261_WetlandM_ViewN_2020-6-19TR



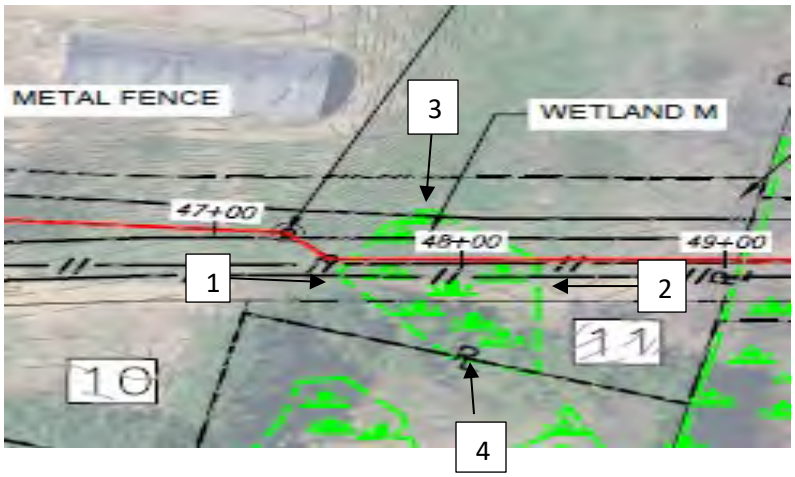
261_WetlandM_ViewS_2020-6-19TR



261_WetlandM_ViewE_2020-6-19TR



261_WetlandM_ViewW_2020-6-19TR



1-261_WetlandM_ViewN_2020-6-19TR
2-261_WetlandM_ViewS_2020-6-19TR
3-261_WetlandM_ViewE_2020-6-19TR
4-261_WetlandM_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland N
6-18-20 & 6-19-20



261_WetlandN_ViewN_2020-6-18TR



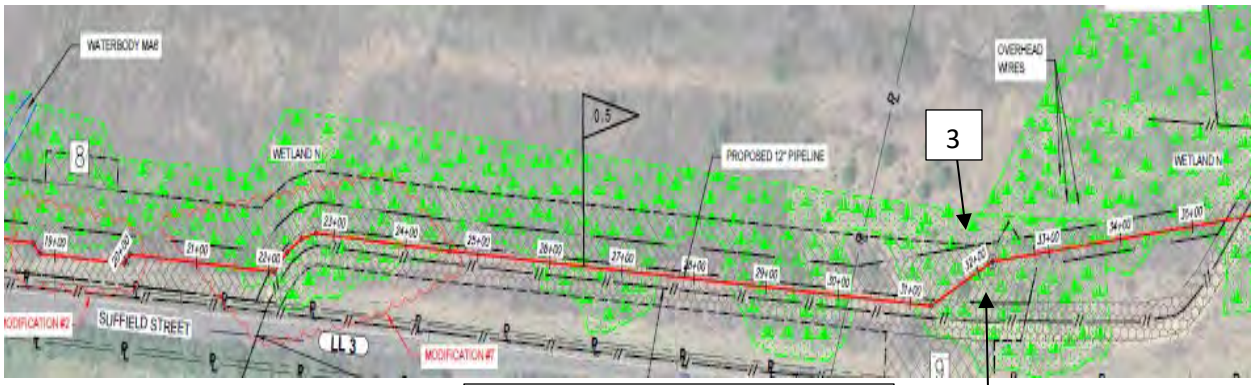
261_WetlandN_ViewS_2020-6-18TR



261_WetlandN_ViewE_2020-6-18TR



261_WetlandN_ViewW_2020-6-19TR



1-261_WetlandN_ViewN_2020-6-18TR
2-261_WetlandN_ViewS_2020-6-18TR
3-261_WetlandN_ViewE_2020-6-18TR
4-261_WetlandN_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland S
6-18-20



261_WetlandS_ViewN_2020-6-18TR



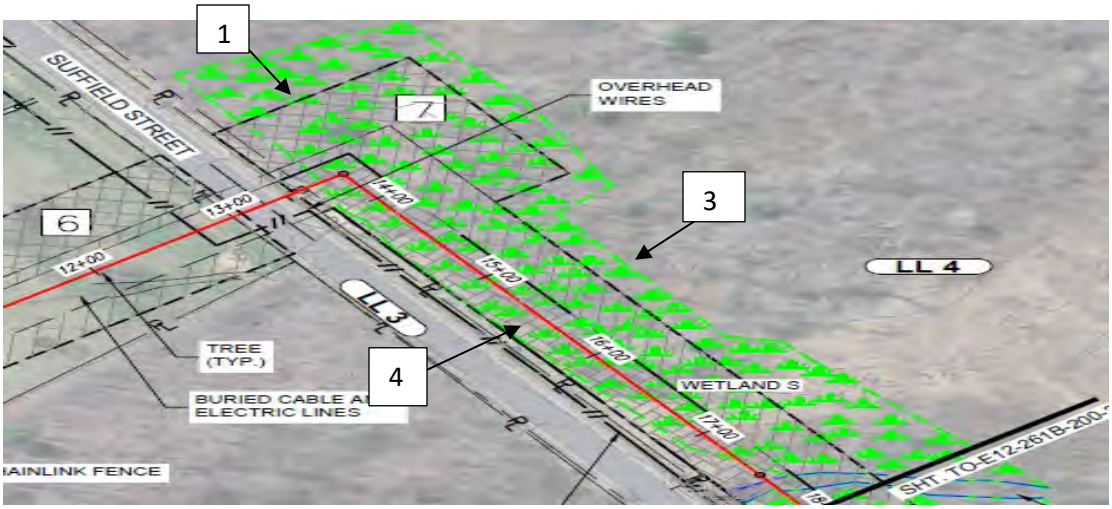
261_WetlandS_ViewS_2020-6-18TR



261_WetlandS_ViewE_2020-6-18TR



261_WetlandS_ViewW_2020-6-18TR



1-261_WetlandS_ViewN_2020-6-18TR
2-261_WetlandS_ViewS_2020-6-18TR
3-261_WetlandS_ViewE_2020-6-18TR
4-261_WetlandS_ViewW_2020-6-18TR

Post-Construction Photolog (2025)

261B Post-construction Photos

Wetland A

9-29-25



1- 2025-29-09_261_WetlandA-N



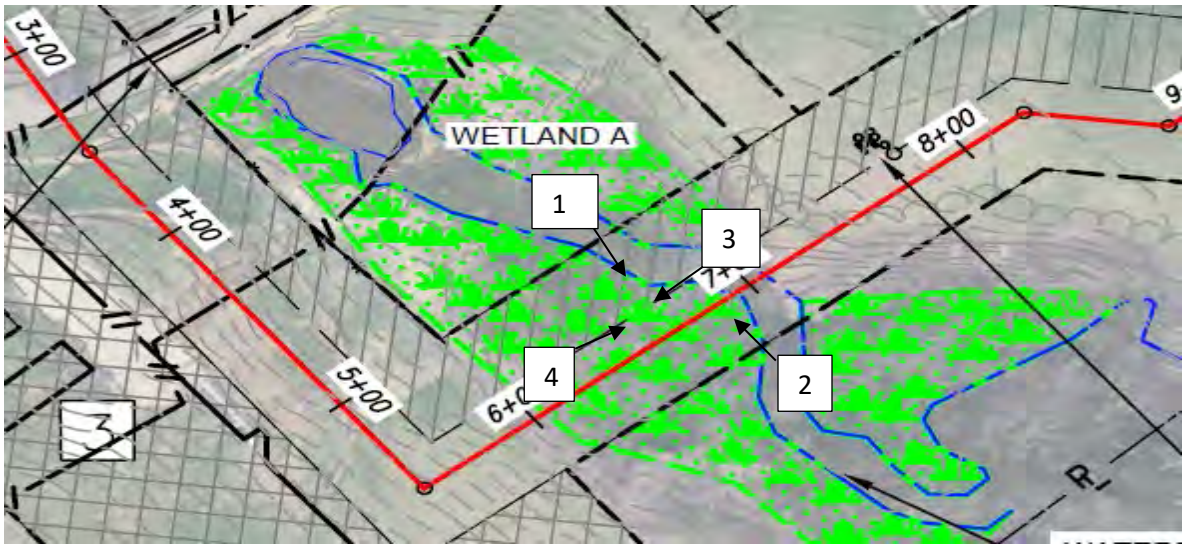
2- 2025-29-09_261_WetlandA-S



3- 2025-29-09_261_WetlandA-E



4- 2025-29-09_261_WetlandA-W



261B Post-construction Photos
Wetland B
6-16-2025 and 9-29-25



1- 2025-16-06_261_WetlandB_N



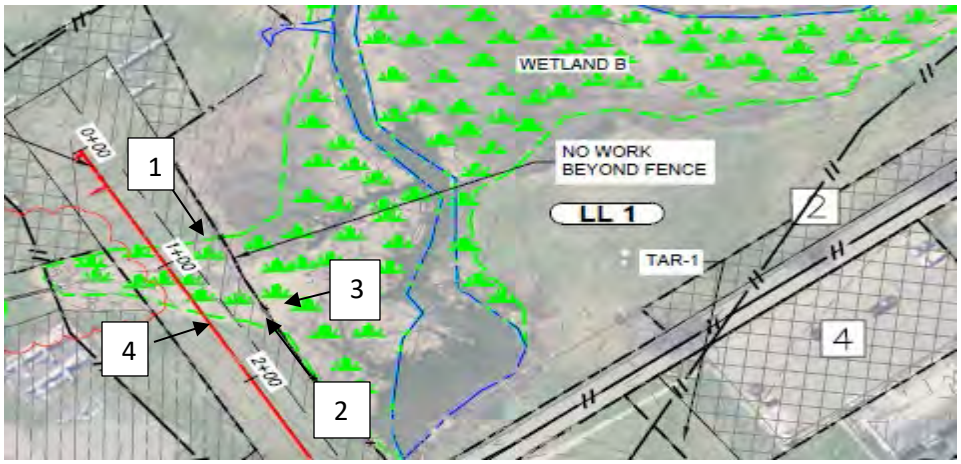
2- 2025-29-09_261_WetlandB_S



3- 2025-29-09_261_WetlandB_E



4- 2025-29-09_261_WetlandB_W



261B Post-construction Photos
Wetland E
9-29-25



1- 2025-09-29_261_WetlandE-N



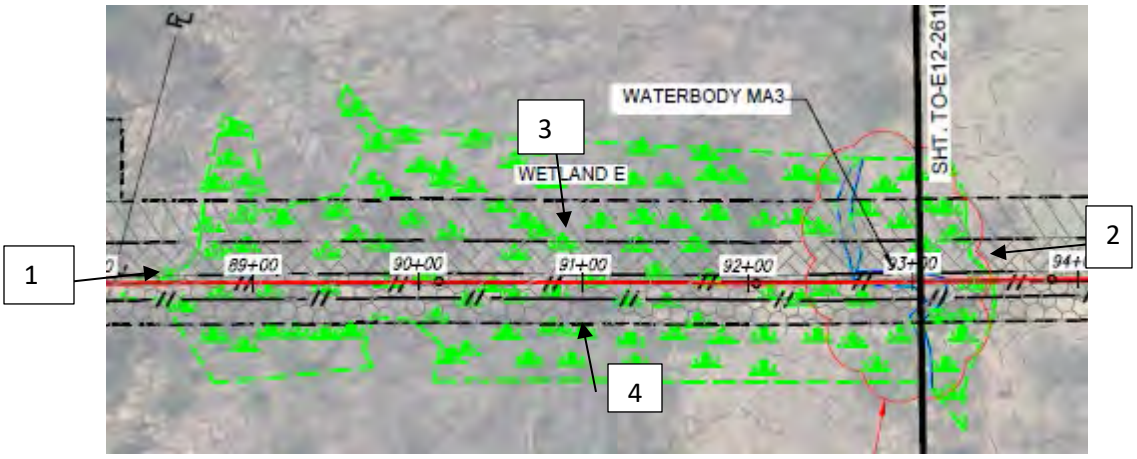
2- 2025-09-29_261_WetlandE-S



3- 2025-09-29_261_WetlandE-E



4- 2025-09-29_261_WetlandE-W



261B Post-construction Photos
Wetland G
9-30-25



1- 2025-09-30_261_WetlandG_N



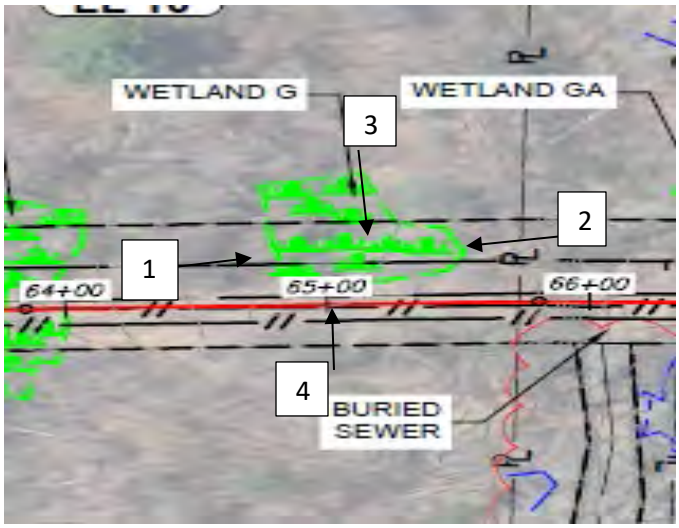
2- 2025-09-30_261_WetlandG_S



3- 2025-09-30_261_WetlandG_E



4- 2025-09-30_261_WetlandG_W



261B Post-construction Photos

Wetland GA

9-30-25



1- 2025-09-30_ 261_WetlandGA_N



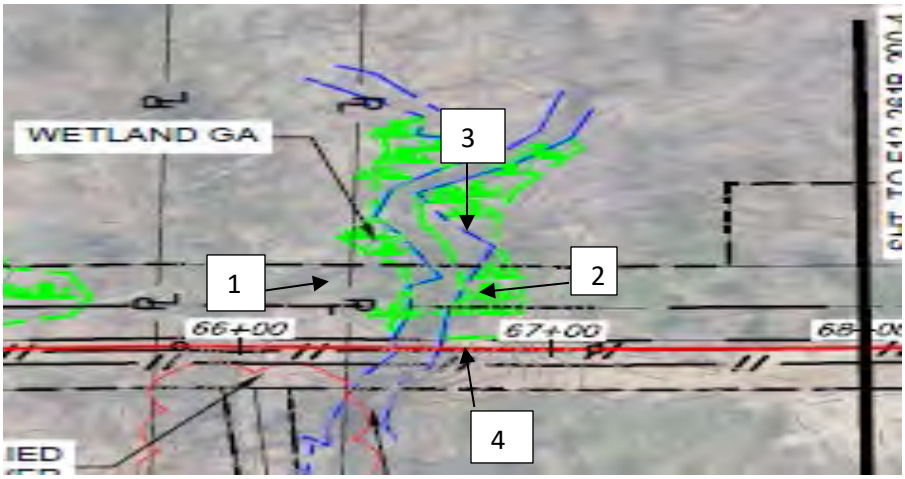
2- 2025-09-30_ 261_WetlandGA_S



3- 2025-09-30_261_WetlandGA_E



4- 2025-09-30_ 261_WetlandGA_W



261B Post-construction Photos
Wetland H
9-30-25



1- 2025-09-30_261_WetlandH_N



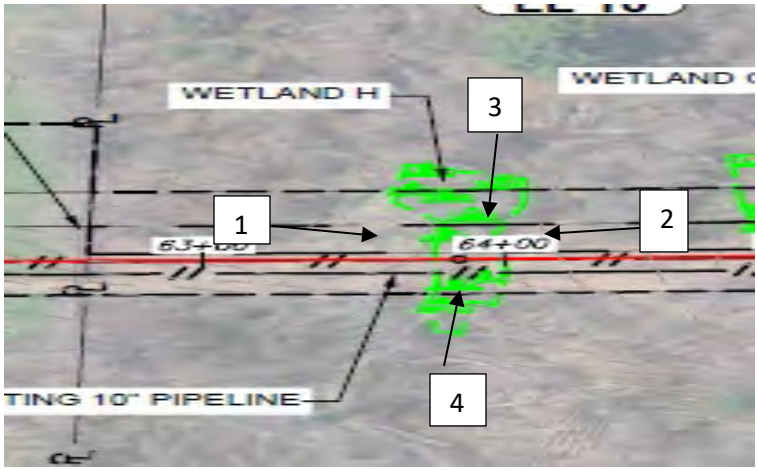
2- 2025-09-30_261_WetlandH_S



3- 2025-09-30_261_WetlandH_E



4- 2025-09-30_261_WetlandH_W



261B Post-construction Photos
Wetland K
9-30-25



1- 2025-09-30_261_WetlandK_N



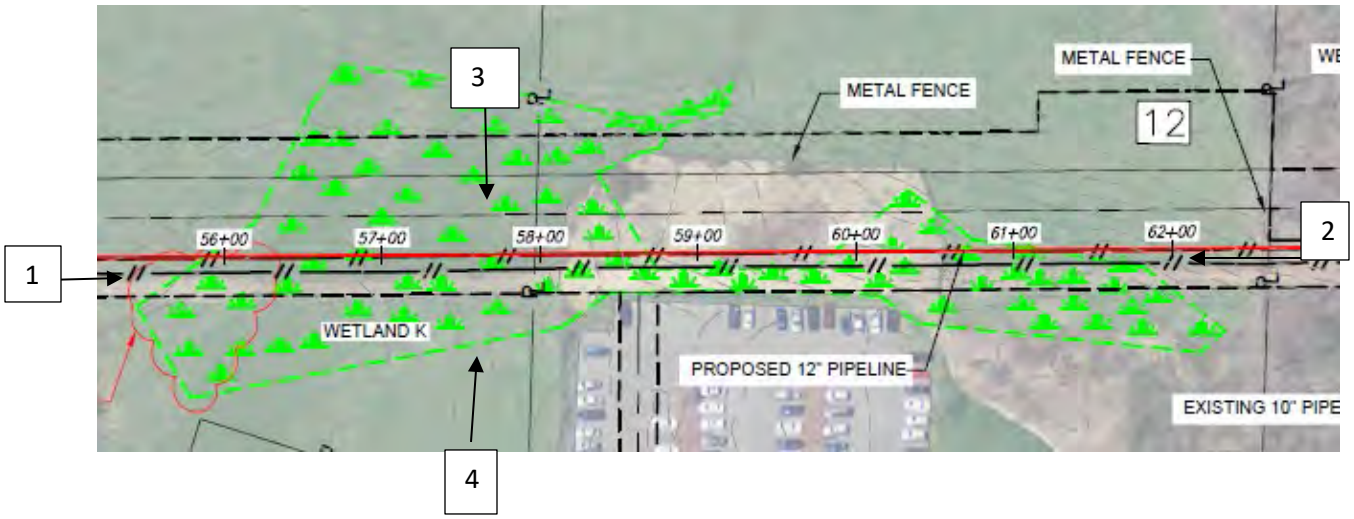
2- 2025-09-30_261_WetlandK_S



3- 2025-09-30_261_WetlandK_E



4- 2025-09-30_261_WetlandK_W



261B Post-construction Photos

Wetland L

9-30-25



1- 2025-09-30_261_WetlandL_N



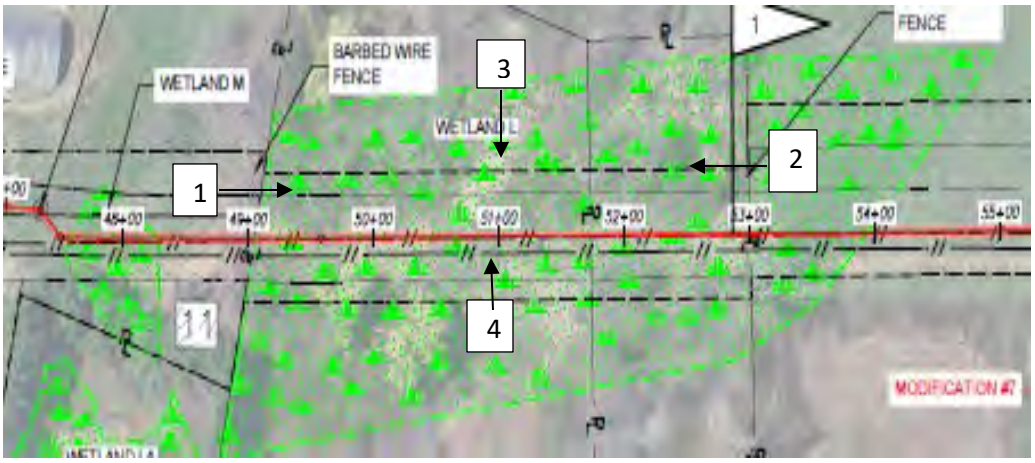
2- 2025-09-30_261_WetlandL_S



3- 2025-09-30_261_WetlandL_E



4- 2025-09-30_261_WetlandL_W



261B Post-construction Photos

Wetland M

9-30-25



1- 2025-09-30_261_WetlandM_N



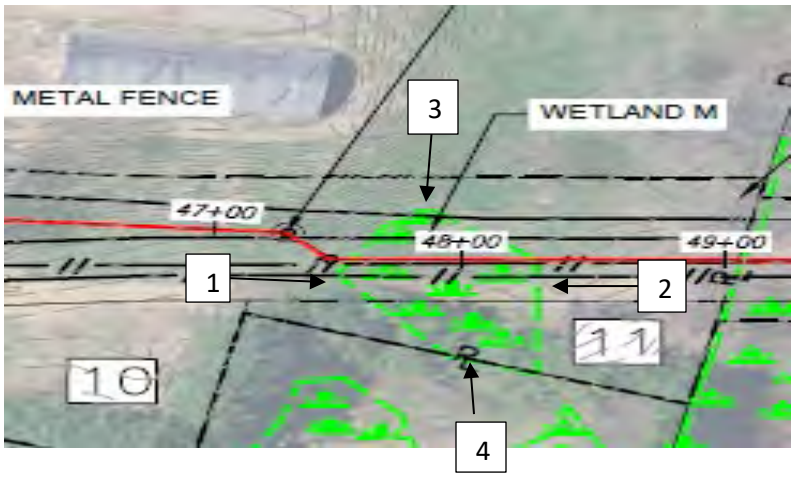
2- 2025-09-30_261_WetlandM_S



3- 2025-09-30_261_WetlandM_E



4- 2025-09-30_261_WetlandM_W



261B Post-construction Photos
Wetland N
9-29-25



1- 2025-09-29_261_WetlandN_N



2- 2025-09-29_261_WetlandN_S



3- 2025-09-29_261_WetlandN_E



4- 2025-09-29_261_WetlandN_W



261B Post-construction Photos
Wetland S
9-29-25



1- 2025-09-29_261_WetlandS_N



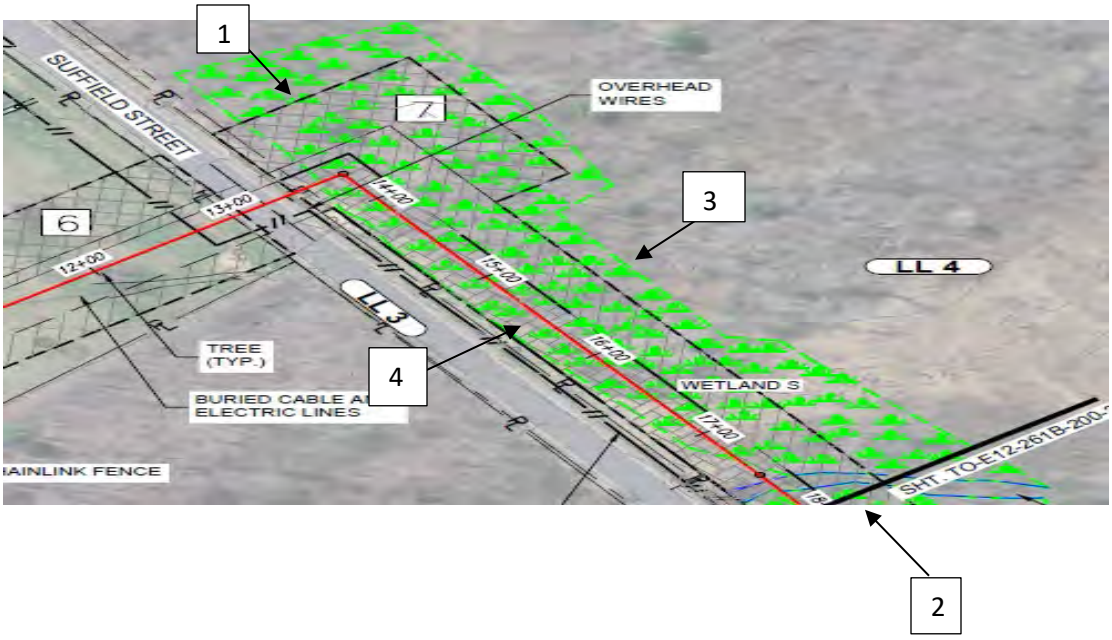
2- 2025-09-29_261_WetlandS_S



3- 2025-09-29_261_WetlandS_E



4- 2025-09-29_261_WetlandS_W



Appendix A.3

Observation Plot Photologs
Observation Plot Data Forms

Observation Plot Photologs

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland A Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandA_ (North)



2025-06-16_261_WetlandA_ (East)



2025-06-16_261_WetlandA_ (South)



2025-06-16_261_WetlandA_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland B Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandB_ (North)



2025-06-16_261_WetlandB_ (East)



2025-06-16_261_WetlandB_ (South)



2025-06-16_261_WetlandB_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland E Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandE_ (North)



2025-06-16_261_WetlandE_ (East)



2025-06-16_261_WetlandE_ (South)



2025-06-16_261_WetlandE_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland G Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandG_ (North)



2025-06-16_261_WetlandG_ (East)



2025-06-16_261_WetlandG_ (South)



2025-06-16_261_WetlandG_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland GA Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandGA_ (North)



2025-06-16_261_WetlandGA_ (East)



2025-06-16_261_WetlandGA_ (South)



2025-06-16_261_WetlandGA_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland H Observation Plot Photographs 2025-06-16



2025-06-16_261_WHOP_ (West)



2025-06-16_261_WHOP_ (North)



2025-06-16_261_WHOP_ (East)



2025-06-16_261_WHOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland K Observation Plot Photographs 2025-06-16



2025-06-16_261_WKOP_ (North)



2025-06-16_261_WKOP_ (East)



2025-06-16_261_WKOP_ (South)



2025-06-16_261_WKOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland L Observation Plot Photographs 2025-06-16



2025-06-16_261_WLOP_ (East)



2025-06-16_261_WLOP_ (South)



2025-06-16_261_WLOP_ (West)



2025-06-16_261_WLOP_ (North)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland M Observation Plot Photographs 2025-06-16



2025-06-16_261_WMOP_ (North)



2025-06-16_261_WMOP_ (East)



2025-06-16_261_WMOP_ (South)



2025-06-16_261_WMOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland N Observation Plot Photographs 2025-06-16



2025-06-16_261_WNOP_ (North)



2025-06-16_261_WNOP_ (East)



2025-06-16_261_WNOP_ (South)



2025-06-16_261_WNOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland S Observation Plot Photographs 2025-06-16



2025-06-16_261_ WSOP_ (North)



2025-06-16_261_ WSOP_ (East)



2025-06-16_261_ WSOP_ (South)



2025-06-16_261_ WSOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland A Observation Plot Photographs 2025-09-29



2025-09-29_261_WAOP_ (North)



2025-09-29_261_WAOP_ (South)



2025-09-29_261_WAOP_ (East)



2025-09-29_261_WAOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland B Observation Plot Photographs 2025-09-29



2025-09-29_261_WBOP_ (North)



2025-09-29_261_WBOP_ (East)



2025-09-29_261_WBOP_ (West)



2025-09-29_261_WBOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland E Observation Plot Photographs 2025-09-29



2025-09-29_261_WEOP_ (North)



2025-09-29_261_WEOP_ (East)



2025-09-29_261_WEOP_ (South)



2025-09-29_261_WEOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland G Observation Plot Photographs 2025-09-29



2025-09-29_261_WGOP_ (North)



2025-09-29_261_WGOP_ (East)



2025-09-29_261_WGOP_ (South)



2025-09-29_261_WGOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland GA Observation Plot Photographs 2025-09-29



2025-09-29_261_WGAOP_ (North)



2025-09-29_261_WGAOP_ (East)



2025-09-29_261_WGAOP_ (South)



2025-09-29_261_WGAOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland H Observation Plot Photographs 2025-09-30



2025-09-30_261_WHOP_ (West)



2025-09-30_261_WHOP_ (North)



2025-09-30_261_WHOP_ (East)



2025-09-30_261_WHOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland K Observation Plot Photographs 2025-09-30



2025-09-30_261_WKOP_ (North)



2025-09-30_261_WKOP_ (East)



2025-09-30_261_WKOP_ (South)



2025-09-30_261_WKOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland L Observation Plot Photographs 2025-09-30



2025-09-30_261_WLOP_ (East)



2025-09-30_261_WLOP_ (South)



2025-09-30_261_WLOP_ (West)



2025-09-30_261_WLOP_ (North)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland M Observation Plot Photographs 2025-09-30



2025-09-30_261_WMOP_ (North)



2025-09-30_261_WMOP_ (East)



2025-09-30_261_WMOP_ (South)



2025-09-30_261_WMOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland N Observation Plot Photographs 2025-09-30



2025-09-30_261_WNOP_ (North)



2025-09-30_261_WNOP_ (East)



2025-09-30_261_WNOP_ (South)



2025-09-30_261_WNOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland S Observation Plot Photographs 2025-09-30



2025-09-30_261_WSOP_ (North)



2025-09-30_261_WSOP_ (East)



2025-09-30_261_WSOP_ (South)



2025-09-30_261_WSOP_ (West)

Observation Plot Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WA-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodway depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.035755 Long: -72.634303 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes X No ___ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 20% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WA-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Spiraea alba* / White meadowsweet	30	Yes	FACW
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Sambucus nigra* / Black elderberry	10	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
5. *Acer rubrum* / Red maple	5	No	FAC
6.			
7.			
	75	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Equisetum arvense* / Common horsetail	75	Yes	FAC
2. *Carex lurida* / Shallow sedge	70	Yes	OBL
3. *Onoclea sensibilis* / Sensitive fern	30	No	FACW
4. *Carex scoparia* / Pointed broom sedge	20	No	FACW
5. *Carex crinita* / Fringed sedge	20	No	OBL
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
7. *Convolvulus arvensis* / Field bindweed, Bindweed, Orchard r	5		NI
8. *Clematis virginiana* / Devil's-darning-needles	5	No	FAC
9. *Toxicodendron radicans* / Eastern poison ivy	5	No	FAC
10. *Solidago canadensis* / Canada goldenrod	5	No	FACU
11.			
12.			
	250	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	110	x 2 =	220
FAC species	110	x 3 =	330
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	325 (A)		700 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WA-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WA-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodway depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.035755 Long: -72.634303 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 15% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WA-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Spiraea alba* / White meadowsweet	20	Yes	FACW
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Sambucus nigra* / Black elderberry	15	Yes	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
5. *Acer rubrum* / Red maple	5	No	FAC
6.			
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Equisetum arvense* / Common horsetail	50	Yes	FAC
2. *Carex lurida* / Shallow sedge	45	Yes	OBL
3. *Scirpus cyperinus* / Woolgrass	35	Yes	OBL
4. *Onoclea sensibilis* / Sensitive fern	25	No	FACW
5. *Symphyotrichum novae-angliae* / New england american-ast	15	No	FACW
6. *Carex scoparia* / Pointed broom sedge	15	No	FACW
7. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
8. *Carex crinita* / Fringed sedge	15	No	OBL
9. *Symphyotrichum puniceum* / Purple-stem american-aster	10	No	OBL
10. *Solidago canadensis* / Canada goldenrod	5	No	FACU
11.			
12.			
	230	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	110	x 2 =	220
FAC species	75	x 3 =	225
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	305 (A)		610 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WA-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WB-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 3-8%
Subregion (LRR or MLRA): LRR R Lat: 42.034572 Long: -72.634228 Datum: WGS84
Soil Map Unit Name: Pollux fine sandy loam, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 15% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WB-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	10	Yes	FACW
2. *Carya ovata* / Shag-bark hickory	1	No	FACU
3.			
4.			
5.			
6.			
7.			
	11	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	5	Yes	FACW
2. *Cornus amomum* / Silky dogwood	5	Yes	FACW
3. *Lonicera maackii* / Amur honeysuckle	2	No	NI
4. *Elaeagnus umbellata* / Autumn olive	2	No	NI
5.			
6.			
7.			
	14	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Symphyotrichum novae-angliae* / New england american-ast	25	Yes	FACW
2. *Phalaris arundinacea* / Reed canary grass	20	Yes	FACW
3. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	Yes	OBL
4. *Galium album* / White bedstraw	15	Yes	NI
5. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	15	Yes	OBL
6. *Verbena hastata* / Swamp verbena	15	Yes	FACW
7. *Carex lurida* / Shallow sedge	15	Yes	OBL
8. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
9. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
10. *Carex scoparia* / Pointed broom sedge	10	No	FACW
11. *Phragmites australis* / Common reed	5	No	FACW
12. *Asclepias incarnata* / Swamp milkweed	2		OBL
	162	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	19	x 5 =	95
Column Totals:	185 (A)		369 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WB-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WB-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR R Lat: 42.034572 Long: -72.634228 Datum: WGS84
Soil Map Unit Name: Pollux fine sandy loam, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WB-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	10	Yes	FACW
2. *Elaeagnus umbellata* / Autumn olive	5	Yes	NI
3. *Frangula alnus* / Glossy false buckthorn	5	Yes	FAC
4. *Carya ovata* / Shag-bark hickory	2	No	FACU
5.			
6.			
7.			
	22	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	10	Yes	FACW
2. *Cornus amomum* / Silky dogwood	10	Yes	FACW
3. *Lonicera maackii* / Amur honeysuckle	5	No	NI
4. *Elaeagnus umbellata* / Autumn olive	2	No	NI
5.			
6.			
7.			
	27	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	Yes	OBL
2. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	20	Yes	OBL
3. *Galium album* / White bedstraw	15	Yes	NI
4. *Verbena hastata* / Swamp verbena	15	Yes	FACW
5. *Symphyotrichum novae-angliae* / New england american-ast	15	Yes	FACW
6. *Carex lurida* / Shallow sedge	15	Yes	OBL
7. *Carex scoparia* / Pointed broom sedge	10	No	FACW
8. *Symphyotrichum puniceum* / Purple-stem american-aster	10	No	OBL
9. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
10. *Phalaris arundinacea* / Reed canary grass	10	No	FACW
11. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
12. *Phragmites australis* / Common reed	8	No	FACW
	158	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 81.8 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	77	x 1 =	77
FACW species	98	x 2 =	196
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	27	x 5 =	135
Column Totals:	209 (A)		431 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WB-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WE-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3%
Subregion (LRR or MLRA): LRR R Lat: 42.05731 Long: -72.639537 Datum: WGS84
Soil Map Unit Name: Enosburg loamy sand, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No
If yes, optional Wetland Site ID:

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No Depth (inches): 4
Water Table Present? Yes X No Depth (inches): 0
Saturation Present? Yes X No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WE-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
2. *Pinus strobus* / Eastern white pine	5	Yes	FACU
3. *Acer rubrum* / Red maple	2	No	FAC
4.			
5.			
6.			
7.			
	12	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix sp.* / Willow	20	Yes	NI
2. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	25	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Carex lurida* / Shallow sedge	40	Yes	OBL
3. *Typha latifolia* / Broadleaf cattail, Broad-leaved cattail	30	Yes	OBL
4. *Poa palustris* / Fowl bluegrass, Fowl blue grass	25	Yes	FACW
5. *Lythrum salicaria* / Purple loosestrife	25	Yes	OBL
6. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
7. *Carex scoparia* / Pointed broom sedge	25	Yes	FACW
8. *Onoclea sensibilis* / Sensitive fern	20	No	FACW
9. *Scirpus atrovirens* / Green bulrush	15	No	OBL
10. *Eupatorium perfoliatum* / Common boneset	15	No	FACW
11. *Verbena hastata* / Swamp verbena	10		FACW
12.			
	280	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	160	x 1 =	160
FACW species	110	x 2 =	220
FAC species	2	x 3 =	6
FACU species	15	x 4 =	60
UPL species	20	x 5 =	100
Column Totals:	307 (A)		546 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WE-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/30/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WE-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.05731 Long: -72.639537 Datum: WGS84
Soil Map Unit Name: Enosburg loamy sand, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 2
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WE-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor* / Swamp white oak	10	Yes	FACW
2. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
3. *Acer rubrum* / Red maple	2	No	FAC
4. *Pinus strobus* / Eastern white pine	2	No	FACU
5.			
6.			
7.			
	19	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix sp.* / Willow	30	Yes	FACW
2. *Sambucus nigra* / Black elderberry	15	Yes	FACW
3. *Cornus sericea* / American dogwood	10	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
5. *Betula alleghaniensis* / Yellow birch	5	No	FAC
6. *Robinia pseudoacacia* / Black locust	5	No	FACU
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	35	Yes	OBL
2. *Typha latifolia* / Broadleaf cattail, Broad-leaved cattail	30	Yes	OBL
3. *Eupatorium perfoliatum* / Common boneset	30	Yes	FACW
4. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
5. *Carex lurida* / Shallow sedge	25	Yes	OBL
6. *Lythrum salicaria* / Purple loosestrife	25	Yes	OBL
7. *Scirpus atrovirens* / Green bulrush	15	No	OBL
8. *Verbena hastata* / Swamp verbena	10	No	FACW
9. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
10. *Carex scoparia* / Pointed broom sedge	10	No	FACW
11. *Poa palustris* / Fowl bluegrass, Fowl blue grass	10	No	FACW
12. *Phragmites australis* / Common reed	5	No	FACW
	230	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	165	x 2 =	330
FAC species	7	x 3 =	21
FACU species	17	x 4 =	68
UPL species	0	x 5 =	0
Column Totals:	319 (A)		549 (B)

Prevalence Index = B/A = 1.72

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WE-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WG-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR or MLRA): LRR R Lat: 42.049977 Long: -72.638076 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes/Mecksville loam, 3-8% NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):	
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	1

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WG-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	20	Yes	FAC
2. *Pinus strobus* / Eastern white pine	20	Yes	FACU
3. *Betula populifolia* / Gray birch	10	No	FAC
4. *Quercus rubra* / Northern red oak	5	No	FACU
5.			
6.			
7.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
2. *Betula populifolia* / Gray birch	10	Yes	FAC
3. *Salix nigra* / Black willow	5	No	OBL
4. *Quercus bicolor* / Swamp white oak	2	No	FACW
5. *Frangula alnus* / Glossy false buckthorn	2	No	FAC
6.			
7.			
	29	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	75	Yes	OBL
2. *Solidago rugosa* / Wrinkle-leaf goldenrod	25	No	FAC
3. *Carex crinita* / Fringed sedge	20	No	OBL
4. *Solidago canadensis* / Canada goldenrod	15	No	FACU
5. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	145	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	12	x 2 =	24
FAC species	67	x 3 =	201
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	229 (A)		525 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

Tree/shrub plantings not included in vegetation inventory

SOIL

Sampling Point: WG-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WG-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR or MLRA): LRR R Lat: 42.049977 Long: -72.638076 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes / Mecksville loam, 3-8% NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No
If yes, optional Wetland Site ID:

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No Depth (inches): 1
Water Table Present? Yes No X Depth (inches):
Saturation Present? Yes No X Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WG-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus* / Eastern white pine	15	Yes	FACU
2. *Acer rubrum* / Red maple	15	Yes	FAC
3. *Quercus bicolor* / Swamp white oak	10	Yes	FACW
4.			
5.			
6.			
7.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Cornus amomum* / Silky dogwood	15	Yes	FACW
2. *Alnus incana* / Gray alder	10	Yes	FACW
3. *Betula populifolia* / Gray birch	10	Yes	FAC
4. *Betula alleghaniensis* / Yellow birch	5	No	FAC
5. *Frangula alnus* / Glossy false buckthorn	5	No	FAC
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	20	Yes	FACW
3. *Carex crinita* / Fringed sedge	20	Yes	OBL
4. *Scirpus cyperinus* / Woolgrass	20	Yes	OBL
5. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
6. *Solidago canadensis* / Canada goldenrod	10	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	135	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	55	x 2 =	110
FAC species	50	x 3 =	150
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	220 (A)		450 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WG-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WGA-OP_Spring2
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.050428 Long: -72.638201 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WGA-OP_Spring2

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Acer rubrum* / Red maple	10	Yes	FAC
3. *Pinus strobus* / Eastern white pine	10	Yes	FACU
4.			
5.			
6.			
7.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix nigra* / Black willow	15	Yes	OBL
2. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
3. *Populus tremuloides* / Quaking aspen	10	Yes	FACU
4. *Rhus typhina* / Staghorn sumac	5	No	NI
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex lurida* / Shallow sedge	50	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
3. *Lolium perenne* / Perennial rye grass	30	No	FACU
4. *Impatiens capensis* / Spotted jewelweed	15	No	FACW
5. *Carex scoparia* / Pointed broom sedge	10	No	FACW
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
7. *Solidago canadensis* / Canada goldenrod	10	No	FACU
8. *Verbena hastata* / Swamp verbena	5	No	FACW
9. *Eutrochium maculatum* / Spotted trumpetweed	5	No	OBL
10.			
11.			
12.			
	185	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	10	Yes	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	30	x 2 =	60
FAC species	25	x 3 =	75
FACU species	100	x 4 =	400
UPL species	5	x 5 =	25
Column Totals:	280 (A)		680 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

Tree/shrub plantings not included in vegetation inventory

SOIL

Sampling Point: WGA-OP_Spring2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WGA-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.050428 Long: -72.638201 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WGA-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	10	Yes	FAC
2. *Populus tremuloides* / Quaking aspen	10	Yes	FACU
3. *Pinus strobus* / Eastern white pine	5	Yes	FACU
4.			
5.			
6.			
7.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix nigra* / Black willow	25	Yes	OBL
2. *Cornus sericea* / American dogwood	15	Yes	FACW
3. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
4. *Rhus typhina* / Staghorn sumac	5	No	NI
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Cornus racemosa* / Gray dogwood	5	No	FAC
7.			
	65	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	40	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
4. *Artemisia vulgaris* / Common wormwood	15	No	UPL
5. *Eutrochium maculatum* / Spotted trumpetweed	10	No	OBL
6. *Verbena hastata* / Swamp verbena	10	No	FACW
7. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
8. *Solidago canadensis* / Canada goldenrod	10	No	FACU
9. *Carex scoparia* / Pointed broom sedge	10	No	FACW
10.			
11.			
12.			
	160	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	5	Yes	FACU
2.			
3.			
4.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	20	x 5 =	100
Column Totals:	255 (A)		575 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WGA-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WH-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.04968 Long: -72.638072 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	**Is the Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No	If yes, optional Wetland Site ID:	

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):		
Water Table Present?	Yes	No X	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	1	**Wetland Hydrology Present?** Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WH-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	20	Yes	FAC
2. *Pinus strobus* / Eastern white pine	10	Yes	FACU
3. *Betula populifolia* / Gray birch	5	No	FAC
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	15	Yes	FACU
2. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
3. *Cornus amomum* / Silky dogwood	10	Yes	FACW
4. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
5.			
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Carex lurida* / Shallow sedge	40	Yes	OBL
3. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
4. *Scirpus atrovirens* / Green bulrush	25	Yes	OBL
5. *Poa palustris* / Fowl bluegrass, Fowl blue grass	20	No	FACW
6. *Lolium perenne* / Perennial rye grass	20	No	FACU
7. *Carex scoparia* / Pointed broom sedge	20	No	FACW
8. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
9. *Euthamia graminifolia* / Flat-top goldentop	5	No	FAC
10. *Arisaema triphyllum* / Jack-in-the-pulpit	2	No	FAC
11.			
12.			
	222	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	5	Yes	FACU
2.			
3.			
4.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	75	x 2 =	150
FAC species	57	x 3 =	171
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	302 (A)		656 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WH-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WH-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.04968 Long: -72.638072 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WH-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	15	Yes	FAC
2. *Pinus strobus* / Eastern white pine	10	Yes	FACU
3. *Betula populifolia* / Gray birch	5	No	FAC
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus sp.* / Blackberry	25	Yes	NI
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Populus deltoides* / Eastern cottonwood	10	No	FAC
4. *Populus tremuloides* / Quaking aspen	10	No	FACU
5. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
6. *Frangula alnus* / Glossy false buckthorn	5	No	FAC
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex lurida* / Shallow sedge	40	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	40	Yes	OBL
3. *Scirpus atrovirens* / Green bulrush	30	Yes	OBL
4. *Carex scoparia* / Pointed broom sedge	25	No	FACW
5. *Impatiens capensis* / Spotted jewelweed	25	No	FACW
6. *Poa palustris* / Fowl bluegrass, Fowl blue grass	20	No	FACW
7. *Scirpus cyperinus* / Woolgrass	10	No	OBL
8. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
9. *Euthamia graminifolia* / Flat-top goldentop	5	No	FAC
10. *Verbena hastata* / Swamp verbena	5	No	FACW
11. *Lactuca serriola* / Prickly lettuce	5	No	FACU
12.			
	215	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	3	No	FACU
2.			
3.			
4.			
	3	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	90	x 2 =	180
FAC species	50	x 3 =	150
FACU species	33	x 4 =	132
UPL species	25	x 5 =	125
Column Totals:	318 (A)		707 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WH-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WK-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.047987 Long: -72.637545 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WK-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	1	No	FACU
2. *Frangula alnus* / Glossy false buckthorn	1	No	FAC
3.			
4.			
5.			
6.			
7.			
	2	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Poa pratensis* / Kentucky blue grass	50	Yes	FACU
2. *Carex longii* / Green-and-white sedge, Green-and-white sedg	25	Yes	OBL
3. *Juncus effusus* / Common bog rush, Soft or lamp rush	15	Yes	OBL
4. *Carex lurida* / Shallow sedge	15	Yes	OBL
5. *Lolium perenne* / Perennial rye grass	15	Yes	FACU
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	Yes	FAC
7. *Holcus lanatus* / Common velvetgrass, Common velvet grass	10	No	FACU
8. *Scirpus atrovirens* / Green bulrush	5	No	OBL
9. *Iris versicolor* / Harlequin blueflag	5	No	OBL
10. *Ranunculus arvensis* / Field buttercup	2		FAC
11.			
12.			
	157	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	16	x 3 =	48
FACU species	76	x 4 =	304
UPL species	0	x 5 =	0
Column Totals:	157 (A)		417 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WK-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WK-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.047987 Long: -72.637545 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No
If yes, optional Wetland Site ID:

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No Depth (inches): 1
Water Table Present? Yes No X Depth (inches):
Saturation Present? Yes No X Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WK-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	1	No	FACU
2. *Frangula alnus* / Glossy false buckthorn	1	No	FAC
3.			
4.			
5.			
6.			
7.			
	2	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Symphyotrichum novae-angliae* / New england american-ast	60	Yes	FACW
2. *Poa palustris* / Fowl bluegrass, Fowl blue grass	40	Yes	FACW
3. *Poa pratensis* / Kentucky blue grass	40	Yes	FACU
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	No	OBL
5. *Carex lurida* / Shallow sedge	15	No	OBL
6. *Carex longii* / Green-and-white sedge, Green-and-white sedg	15	No	OBL
7. *Iris versicolor* / Harlequin blueflag	10	No	OBL
8. *Scirpus atrovirens* / Green bulrush	5	No	OBL
9. *Lolium perenne* / Perennial rye grass	5	No	FACU
10.			
11.			
12.			
	210	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	100	x 2 =	200
FAC species	1	x 3 =	3
FACU species	46	x 4 =	184
UPL species	0	x 5 =	0
Column Totals:	212 (A)		452 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WK-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WL-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.046308 Long: -72.637226 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes / Buxton variant silt loam, 0-8% slopes NWI classification: PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	5	Yes	FACW
2. *Acer rubrum* / Red maple	2	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	7	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Alnus viridis* / Green alder	10	Yes	FAC
2. *Sambucus nigra* / Black elderberry	10	Yes	FACW
3. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
4. *Cornus alba* / Red osier	2	No	FACW
5. *Fraxinus americana* / White ash	2	No	FACU
6.			
7.			
	29	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	75	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
3. *Phalaris arundinacea* / Reed canary grass	20	No	FACW
4. *Onoclea sensibilis* / Sensitive fern	20	No	FACW
5. *Carex stipata* / Awlfruit sedge	15	No	OBL
6. *Phragmites australis* / Common reed	10	No	FACW
7. *Calystegia sepium* / Western hedge bindweed	10	No	FAC
8. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	5	No	OBL
9. *Solidago canadensis* / Canada goldenrod	2	No	FACU
10. *Lotus corniculatus* / Bird's foot trefoil, Bird's-foot trefoil	2	No	FACU
11. *Solidago rugosa* / Wrinkle-leaf goldenrod	2		FAC
12.			
	186	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	92	x 2 =	184
FAC species	22	x 3 =	66
FACU species	11	x 4 =	44
UPL species	0	x 5 =	0
Column Totals:	220 (A)		389 (B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WL-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WL-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.046308 Long: -72.637226 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	15	Yes	FACW
2. *Acer rubrum* / Red maple	2	No	FAC
3.			
4.			
5.			
6.			
7.			
	17	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	15	Yes	FACW
2. *Alnus viridis* / Green alder	10	Yes	FAC
3. *Cornus alba* / Red osier	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
5. *Fraxinus americana* / White ash	2	No	FACU
6.			
7.			
	37	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	70	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
3. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
4. *Phalaris arundinacea* / Reed canary grass	15	No	FACW
5. *Carex stipata* / Awlfruit sedge	15	No	OBL
6. *Calystegia sepium* / Western hedge bindweed	10	No	FAC
7. *Phragmites australis* / Common reed	10	No	FACW
8. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	5	No	OBL
9. *Solidago canadensis* / Canada goldenrod	5	No	FACU
10. *Solidago rugosa* / Wrinkle-leaf goldenrod	2	No	FAC
11.			
12.			
	172	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	100	x 2 =	200
FAC species	24	x 3 =	72
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	226 (A)		410 (B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

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Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WL-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WM-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR or MLRA): LRR R Lat: 42.045335 Long: -72.637031 Datum: WGS84
Soil Map Unit Name: Windsor loamy sand, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	____	No	X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes	____	No	____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes	X	No	____	

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.
Because of landowner activities area does not exhibit characteristics of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	____	Depth (inches): 1
Water Table Present?	Yes	____	No	X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surace water present at time of spring visit. Convex slope of the wetland (possibly due to landowner disturbance) makes the retention of water necessary for the growth of hydrophytic vegetation unlikely.

VEGETATION - Use scientific names of plants.

Sampling Point: WM-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Trifolium sp.* / Clover	25	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column Totals:	25 (A)		125 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland and surrounding area recently and regularly mowed; vegetation identification impossible, because of the relative adjacency to landowner's lawn, Poa pratensis is assumed but could not be confirmed.

SOIL Sampling Point: WM-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WM-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR or MLRA): LRR R Lat: 42.045335 Long: -72.637031 Datum: WGS84
Soil Map Unit Name: Windsor loamy sand, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No ____	**within a Wetland?**	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: Area heavily disturbed by third-party influence. Wetland is actively mowed as part of residential turf and soil was being mechanically manipulated at time of fall visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____ No X	Depth (inches):	
Water Table Present?	Yes ____ No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____ No X	Depth (inches):	

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Convex slope of wetland (possibly due to landowner disturbance) makes the retention of water necessary for the growth of hydrophytic vegetation unlikely.

VEGETATION - Use scientific names of plants. Sampling Point: WM-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Trifolium sp.* / Clover	20	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	20 (A)		100 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

Grass and other vegetation are unidentifiable due to mowing. Poa pratensis assumed but could not be verified.

SOIL Sampling Point: WM-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WN-OP_Spring25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression | Local relief (concave, convex, none): concave | Slope (%): 2-8
Subregion (LRR or MLRA): LRR R | Lat: 42.038521 | Long: -72.63691 | Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes | NWI classification: PFO/PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WN-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
3. *Quercus rubra* / Northern red oak	5	No	FACU
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	40	Yes	FACU
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	10	No	FACW
4. *Fraxinus americana* / White ash	5	No	FACU
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Alnus viridis* / Green alder	5	No	FAC
7. *Elaeagnus umbellata* / Autumn olive	1	No	NI
	81	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	60	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Artemisia vulgaris* / Common wormwood	25	Yes	UPL
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	No	OBL
5. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	20	No	OBL
6. *Verbena hastata* / Swamp verbena	15	No	FACW
7. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
8. *Penstemon digitalis* / Foxglove beardtongue	10	No	FAC
9. *Lythrum salicaria* / Purple loosestrife	5	No	OBL
10. *Vicia cracca* / Bird vetch	5		NI
11.			
12.			
	205	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	135	x 1 =	135
FACW species	55	x 2 =	110
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	26	x 5 =	130
Column Totals:	316 (A)		745 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WN-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WN-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 2-8
Subregion (LRR or MLRA): LRR R Lat: 42.038521 Long: -72.63691 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes NWI classification: PFO/PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Survey conducted in autumn, the dry season.

VEGETATION - Use scientific names of plants. Sampling Point: WN-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
3. *Quercus rubra* / Northern red oak	5	No	FACU
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	30	Yes	FACU
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	10	No	FACW
4. *Fraxinus americana* / White ash	5	No	FACU
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Alnus viridis* / Green alder	5	No	FAC
7. *Elaeagnus umbellata* / Autumn olive	1	No	NI
	76	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	50	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	25	Yes	OBL
3. *Carex lurida* / Shallow sedge	25	Yes	OBL
4. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	20	No	OBL
5. *Artemisia vulgaris* / Common wormwood	15	No	UPL
6. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
7. *Verbena hastata* / Swamp verbena	10	No	FACW
8. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	170	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	50	x 2 =	100
FAC species	20	x 3 =	60
FACU species	60	x 4 =	240
UPL species	21	x 5 =	105
Column Totals:	281 (A)		635 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WN-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WS-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.03681 Long: -72.636968 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WS-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Quercus rubra* / Northern red oak	5	No	FACU
3. *Populus deltoides* / Eastern cottonwood	5	No	FAC
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Cornus amomum* / Silky dogwood	10	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	2	No	FACU
5.			
6.			
7.			
	42	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	60	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	25	Yes	OBL
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	25	Yes	OBL
5. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
6. *Artemisia vulgaris* / Common wormwood	15	No	UPL
7. *Verbena hastata* / Swamp verbena	10	No	FACW
8. *Penstemon digitalis* / Foxglove beardtongue	5		FAC
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	190	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	140	x 1 =	140
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	52	x 4 =	208
UPL species	20	x 5 =	100
Column Totals:	257 (A)		543 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WS-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WS-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1- 3
Subregion (LRR or MLRA): LRR R Lat: 42.03681 Long: -72.636968 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No
If yes, optional Wetland Site ID:

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil sample not required so no saturation test conducted. Field visit conducted in fall, the dry season.

VEGETATION - Use scientific names of plants. Sampling Point: WS-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Quercus rubra* / Northern red oak	5	No	FACU
3. *Populus deltoides* / Eastern cottonwood	5	No	FAC
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	2	No	FACU
5.			
6.			
7.			
	47	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	70	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	30	Yes	OBL
3. *Carex lurida* / Shallow sedge	25	Yes	OBL
4. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	25	Yes	OBL
5. *Persicaria sagittata* / Arrow-leaf tearthumb	15	No	OBL
6. *Verbena hastata* / Swamp verbena	10	No	FACW
7. *Artemisia vulgaris* / Common wormwood	10	No	UPL
8. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	200	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	165	x 1 =	165
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	57	x 4 =	228
UPL species	15	x 5 =	75
Column Totals:	282 (A)		563 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WS-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required

Appendix B

In-Situ Post-construction MA Resource Area Monitoring

B.1 Riverfront Species List
B.2 Pre- and Post-construction Photologs
B.3 Data Forms

Appendix B.1

Riverfront Area-Buffer Zone Plant Species List

261 Upgrade Projects
Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Acer rubrum	Red maple	N		C	C	U
Acer saccharum	Sugar maple	N			U	
Apocynum cannabinum	Prairie-dogbane	N			C	
Achillea millefolium	Common yarrow	N		C	U	T
Alnus incana	Speckled alder	N			T	
Ambrosia artemesiifolia	Ragweed	N		U	C	T
Amelanchier canadensis	Eastern shadbush	N			C	
Arctium minus	Common burdock	I				
Artemisia vulgaris	Mugwort	I		U	C	C
Asclepias incarnata	Swamp milkweed	N	T			T
Asclepias syriaca	Common milkweed	N		C	U	T
Betula populifolia	Gray birch	N	T		C	
Bidens cernua	Nodding bur-marigold	N			U	U
Calystegia sepium	Hedge bindweed	N	U		A	
Carex crinita	Awned sedge	N			T	
Carex lurida	Sallow sedge	N				C
Carex sp.	Sedge species	n/a	C			
Carex scoparia	Pointed broom sedge	N			A	U
Carex vulpinoidea	Fox sedge	N				C
Carex crinita	Fringed sedge	N		U		
Celastrus orbiculatus	Asiatic bittersweet	I				
Chamaecrista fasciculata	Partridge pea	N		A	C	C
Cichorium intybus	Chicory	I				U
Circium vulgare	Bull-thistle	I			T	T
Cornus (Swida) amomum	Silky dogwood	N			T	
Cornus (Swida) racemose	Gray dogwood	N			C	
Daucus carota	Queen Anne's lace	I		C	C	T
Dicanthelium clandestinum	Deer-tongue	N	U	C	C	U
Echinochloa crus-galli	Barnyard grass	I		T	C	T
Elaeagnus umbellata	Autumn olive	I	U			
Elymus canadensis	Great Plains wild-rye	N		C	A	C
Elymus virginicus	Common eastern wild rye	N			C	
Erechtites hieracifolia	American burnweed	N			U	T
Erigeron annuus	Daisy fleabane	N	C	C	A	C
Erigeron canadensis	Horseweed	N		C	C	
Eupatorium perfoliatum	Boneset	N		U	C	T
Euthamia graminifolia	Slender-leaved goldenrod	N	T	T	U	U
Eutrochium maculatum	Spotted joe-pye-wee	N		T	C	

261 Upgrade Projects
Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Fallopia scandens	Climbing false buckwheat	N			T	
Festuca rubra	Red fescue	I			C	C
Fragaria vesca ssp.	Strawberry species	n/a		C		C
Frangula alnus	Glossy buckthorn	I				
Gallium mollugo	Whorled bedstraw	I				T
Glyceria striata	Fowl mannagrass	N		C		
Houstonia caerulea	Bluets	N			C	
Hypericum perforatum	Common St. John's-wort	I			U	T
Leersia oryzoides	Rice cut grass	N	T			C
Leucantemum vulgare	Ox-eye daisy	I		T		
Lolium multiflorum	Annual rye	I			U	C
Lolium perenne	Perennial rye-grass	I	U		C	A
Lonicera sp.	Bush honeysuckle	n/a		U		U
Lotus corniculatus	Birdsfoot-trefoil	I				C
Lythrum salicaria	Purple loosestrife	I	U	C		
Malus fusca	Oregon crabapple	I				T
Oenothera parviflora	Small-flowered evening primrose	N		T	T	
Onoclea sensibilis	Sensitive fern	N	C		U	
Panicum capillare	Witch-grass	N	T			C
Parthenocissus quinquefolia	Virginia creeper	N		U		C
Perilla vulgaris	Heal-all	N		T	T	
Persicaria arifolia	Halberd-leaf tearthumb	N		T		
Persicaria maculosa	Lady's thumb	I				
Persicaria pensylvanicum	Pinkweed	N			T	
Persicaria sagittata	Arrow-leaf tearthumb	N	C	C	C	U
Phalaris arundinacea	Reed canary grass	"I?"	U		A	T
Phleum pratense	Timothy	I			U	C
Phytolacca americana	American pokeweed	N		U	U	
Pinus strobus	Eastern white pine	N			C	
Plantago lanceolata	Ribgrass plantain	I				A
Plantago major	Common plantain	I			C	
Populus deltoides	Eastern cottonwood	N			U	
Populus tremuloides	Quaking aspen	N	T			T
Potentilla simplex	Common cinquefoil	N			C	U
Pycnanthemum tenuifolium	Narrow-leaved mountain-mint	N				U
Prunus serotina	Black cherry	N				T
Pyrus calleryana	Callery pear	I				
Quercus alba	White oak	N			U	

261 Upgrade Projects
Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Quercus rubra	Red oak	N			U	U
Ranunculus repens	Creeping buttercup	I		T		T
Rhus hirta	Staghorn sumac	N	C	C	U	C
Robinia pseudoacacia	Black locust	I	C	C		
Rosa multiflora	Multiflora rose	I	C	T	C	C
Rubus sp.	Blackberry	n/a	T	T	U	
Rudbeckia hirta	black-eyed susan	N		U	C	T
Rumex crispus	Curly dock	I	U		U	U
Scirpus atrovirons	Dark green bulrush	N	T		T	C
Setaria faberi	Chinese foxtail	I				C
Setaria pumila	Yellow foxtail	I				T
Solidago altissima	Tall goldenrod	N		U	C	U
Solidago candensis	Canada goldenrod	N	C	C	U	C
Solidago gigantea	Giant/smooth goldenrod	N			C	
Solidago rugosa	Rough goldenrod	N				C
Solidago sp.	Goldenrod	n/a		C	C	C
Sorgastrum nutans	Indian grass	N	T		U	A
Spiraea alba	Meadowsweet	N	U		T	
Symphyotrichum dumosum	Bushy American aster	N				C
Symphyotrichum ericoides	Heath-aster	N				C
Symphyotrichum novae-angliae	New England aster	N	U	C	C	U
Symphyotrichum pilosum	Awl American aster	N				U
Toxicodendron radicans	Poison ivy	N	C		T	C
Trifolium hybridum	Alsike clover	I	U	C	C	C
Trifolium pratense	Red clover	I		T	U	U
Trifolium repens	White clover	I			C	
Ulmus americana	American elm	N	T			U
Verbascum thapsus	Common mullein	I		U	U	U
Verbena hastata	Blue vervain	N			U	U
Verbena urticifolia	White vervain	N			U	
Vernonia urticifolia	New York ironweed	N		U	A	T
Vicia cracca	Bird vetch	I				U
Vitis sp.		n/a			C	U

Notes:

[1]Nomenclature (inlcuding status) follows *The Vascular Plants of Massachusetts: A County Checklist* , First Revision (Cullina et. al 2011)

[2]Status: N=Native, I=Introduced, ?=implies uncertainty or doubt (Cullina et. al. 2011), W=waif, *=unknown, n/a=not identified to species/depends on species

[3]Relative abundance: T=trace (less than 1 percent); U=uncommon (1–10 percent); C=common (11–45 percent); A=abundant (46–100 percent)

Appendix B.2

Pre-Construction Photolog

Post-Construction Photolog (2025)

Pre-Construction Photolog

261B Pre-construction Photos
Stream MA-1
6-18-20



261_ StreamMA-1_ViewN_upstream_2020-6-18TR



261_ StreamMA-1_ViewS_downstream_2020-6-18TR



261_ StreamMA-1_ViewW_2020-6-18TR



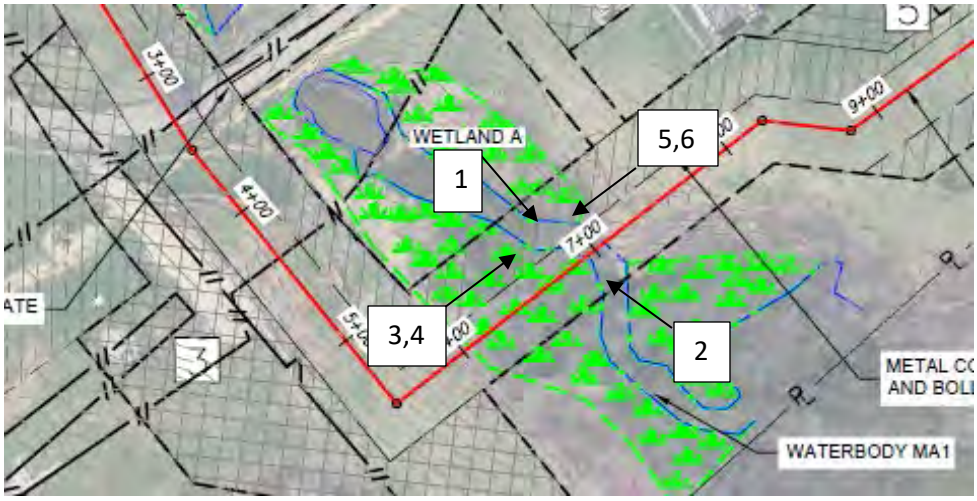
261_ StreamMA-1_ViewW_bank_2020-6-18TR



261_StreamMA-1_ViewE_2020-6-18TR



261_ StreamMA-1_ViewE_bank_2020-6-18TR



1-261_ StreamMA-1_ViewN_upstream_2020-6-18TR
2-261_ StreamMA-1_ViewS_downstream_2020-6-18TR
3-261_StreamMA-1_ViewW_2020-6-18TR
4-261_ StreamMA-1_ViewW_bank_2020-6-18TR
5-261_ StreamMA-1_ViewE_2020-6-18TR
6-261_ StreamMA-1_ViewE_bank_2020-6-18TR

261B Pre-construction Photos
Stream MA-3
6-20-20



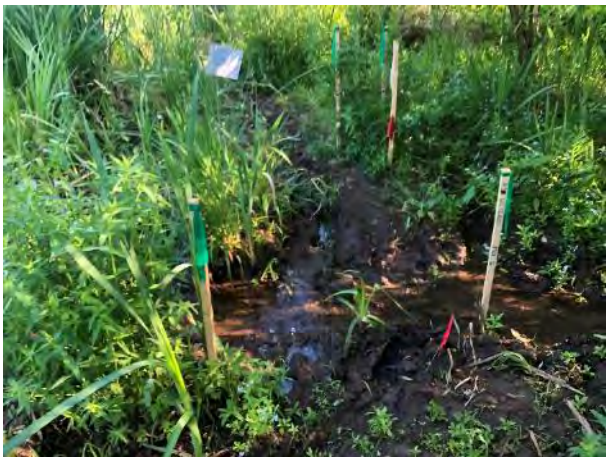
261_ StreamMA-3_ViewW_upstream_2020-6-20TR



261_ StreamMA-3_ViewE_downstream_2020-6-20TR



261_StreamMA-3_ViewN_2020-6-20TR



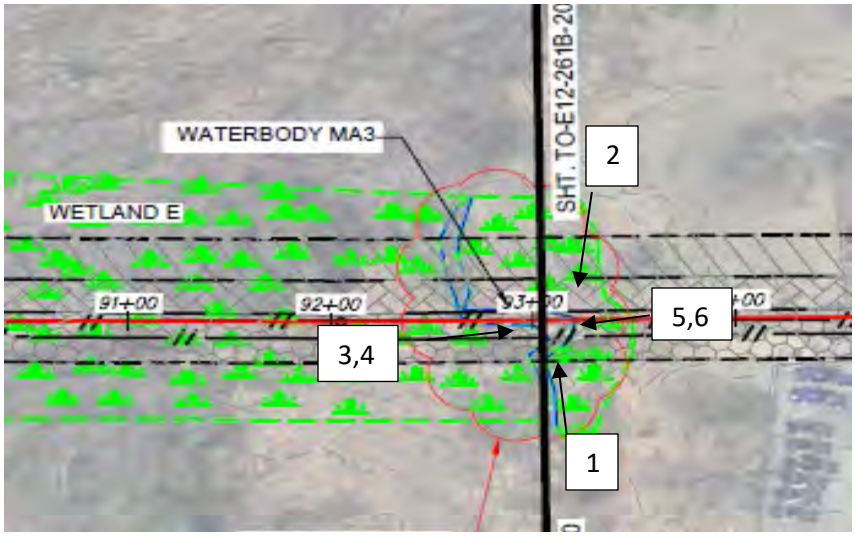
261_ StreamMA-3_ViewN_bank_2020-6-20TR



261_StreamMA-3_ViewS_2020-6-20TR



261_ StreamMA-3_ViewS_bank_2020-6-20TR



1-261_ StreamMA-3_ViewW_upstream_2020-6-20TR
2-261_ StreamMA-3_ViewE_downstream_2020-6-20TR
3-261_StreamMA-3_ViewN_2020-6-20TR
4-261_ StreamMA-3_ViewN_bank_2020-6-20TR
5-261_StreamMA-3_ViewS_2020-6-20TR
6-261_ StreamMA-3_ViewS_bank_2020-6-20TR

261B Pre-construction Photos
Stream MA-4
6-19-20



261_ StreamMA-4_ViewW_upstream_2020-6-19TR



261_ StreamMA-4_ViewE_downstream_2020-6-19TR



261_StreamMA-4_ViewN_2020-6-19TR



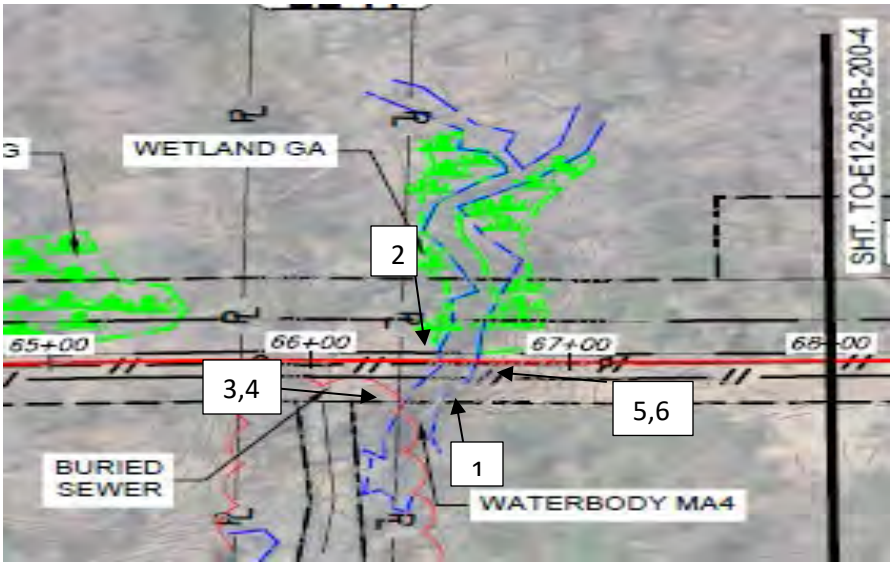
261_ StreamMA-4_ViewN_bank_2020-6-19TR



261_StreamMA-4_ViewS_2020-6-19TR



261_ StreamMA-4_ViewS_bank_2020-6-19TR



1-261_ StreamMA-4_ViewW_upstream_2020-6-19TR
2-261_ StreamMA-4_ViewE_downstream_2020-6-19TR
3-261_StreamMA-4_ViewN_2020-6-19TR
4-261_ StreamMA-4_ViewN_bank_2020-6-19TR
5-261_StreamMA-4_ViewS_2020-6-19TR
6-261_ StreamMA-4_ViewS_bank_2020-6-19TR

261B Pre-construction Photos
Stream MA-6
6-18-20 & 6-19-20



261_ StreamMA-6_ViewW_upstream_2020-6-18TR



261_ StreamMA-6_ViewE_downstream_2020-6-18TR



261_StreamMA-6_ViewN_2020-6-18TR



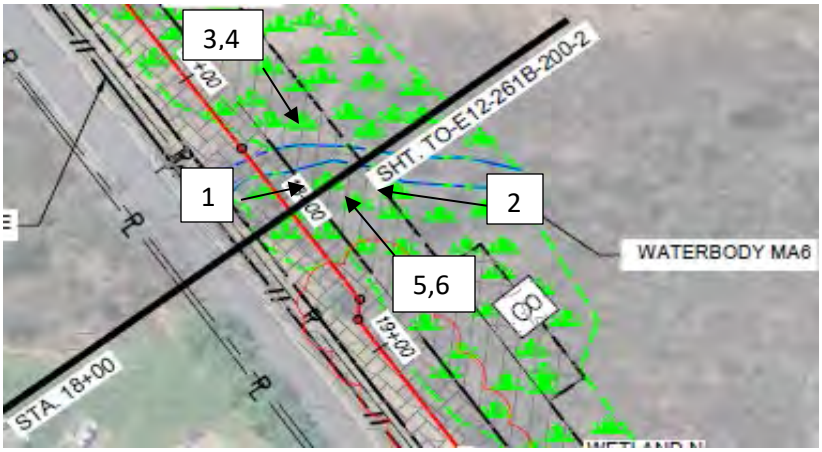
261_ StreamMA-6_ViewN_bank_2020-6-18TR



261_StreamMA-6_ViewS_2020-6-19TR



261_ StreamMA-6_ViewS_bank_2020-6-19TR



1-261_ StreamMA-6_ViewW_upstream_2020-6-18TR
2-261_ StreamMA-6_ViewE_downstream_2020-6-18TR
3-261_StreamMA-6_ViewN_2020-6-18TR
4-261_ StreamMA-6_ViewN_bank_2020-6-18TR
5-261_StreamMA-6_ViewS_2020-6-19TR
6-261_ StreamMA-6_ViewS_bank_2020-6-19TR

Post-Construction Photolog (2025)

261B Post-construction Photos
Stream MA-1
9-29-25



1- 2025-09-29_S-MA1_ (north, upstream)



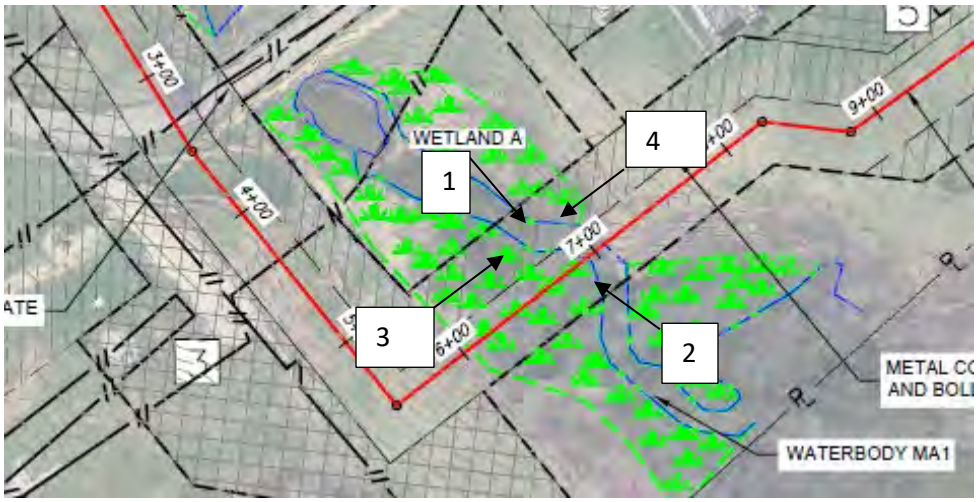
2- 2025-09-29_S-MA1_ (south, downstream)



3- 2025-09-29_S-MA1_ (west)



4- 2025-09-29_S-MA1_ (east)



261B Post-construction Photos
Stream MA-3
9-29-25



1- 2025-09-29_S-MA3_ (east)



2- 2025-09-29_S-MA3_ (east bank)



3- 2025-09-29_S-MA3_ (north, downstream)



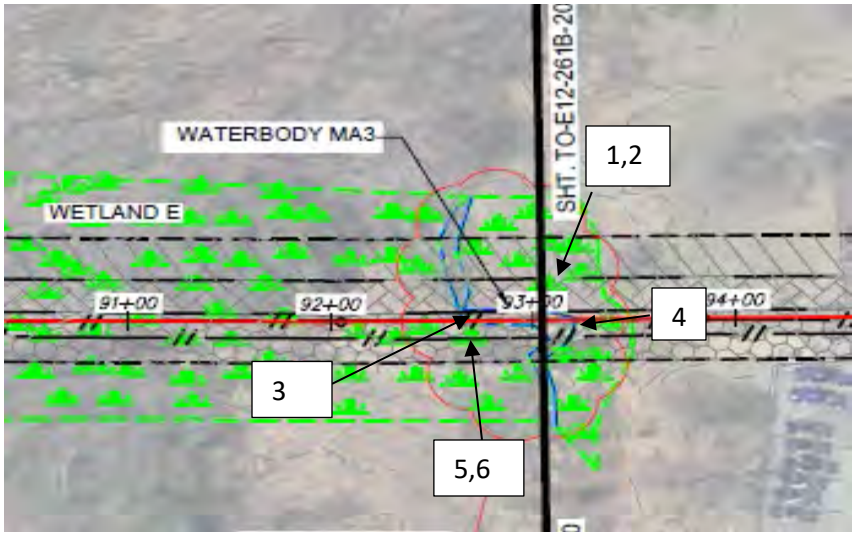
4- 2025-09-29_S-MA3_ (south, upstream)



5- 2025-09-29_S-MA3_ (west)



6- 2025-09-29_S-MA3_ (west bank)


WATERBODY MA3
WETLAND E
SHT. TO-E12-261B-20
1,2
4
3
5,6
91+00
92+00
94+00

261B Post-construction Photos
Stream MA-4
9-29-25



1- 2025-09-29_MA4 _ (upstream, west)



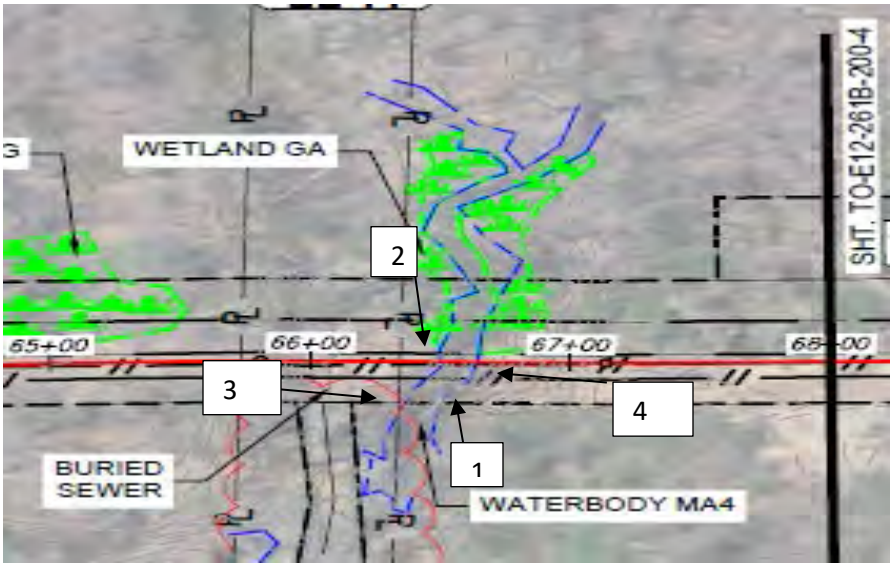
2- 2025-09-29_MA4 _ (downstream, east)



3- 2025-09-29_MA4 _ (north)



4- 2025-09-29_MA4 _(south)



261B Post-construction Photos
Stream MA-6
9-29-25



1- 2025-09-29_MA6_ (west, upstream)



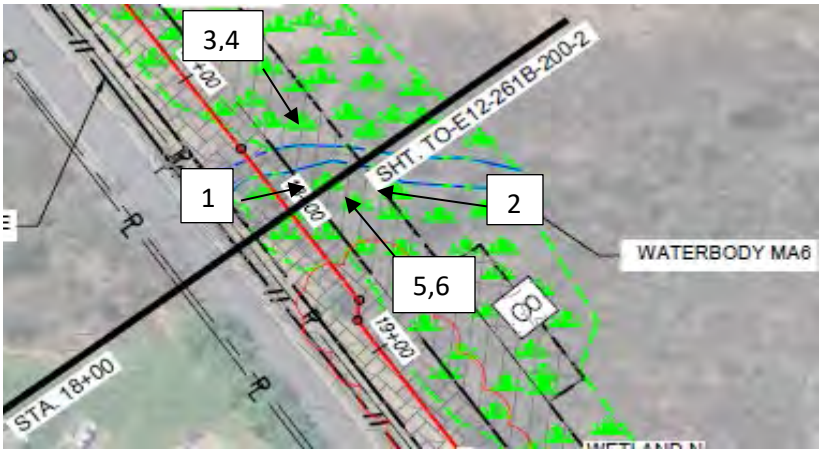
2- 2025-09-29_MA6_ (east, downstream)



3- 2025-09-29_MA6_ (north)



4- 2025-09-29_MA6_ (south)



Appendix B.3

Monitoring Data Forms

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-1	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	C	Same	C
Carex spp.*	A	Same	C
Phalaris arundiacea	A	Same	A
Impatiens capensis	C	Same	U
Lythrum salicaria	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. ECDs have been removed. Banks fully vegetated.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-3	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	C
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Juncus effusus	C	Same	C
Glyceria striata	C	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

No corrective measures recommended at this time.

Stream difficult to locate due to abundance of wetland vegetation; signs are up to indicate presence of stream. Two-track identified in previous inspections persist and are filled with water - they do not seem to have been recently used, nor are they impacting the stream. Banks are heavily vegetated. ECDs have been removed. Erosion not evident and probable erosion unlikely due to shallow, gradual bank topography.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-4	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	A	Same	C
Rosa multiflora	U	Same	U
Carex spp.*	C	Same	C
Eupatorium perfoliatum	C	Same	U
Vernonia noveboracensis	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-6	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	U
Carex spp.*	A	Same	A
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Populus tremuloides	U	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. Stream bed is populated with T. angustifolia. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-1	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	C	Same	C
Carex spp.*	A	Same	C
Phalaris arundiacea	A	Same	A
Impatiens capensis	C	Same	U
Lythrum salicaria	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. ECDs have been removed. Banks fully vegetated.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-3	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	C
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Juncus effusus	C	Same	C
Glyceria striata	C	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

No corrective measures recommended at this time.

Stream difficult to locate due to abundance of wetland vegetation; signs are up to indicate presence of stream. Two-track identified in previous inspections persist and are filled with water - they do not seem to have been recently used, nor are they impacting the stream. Banks are heavily vegetated. ECDs have been removed. Erosion not evident and probable erosion unlikely due to shallow, gradual bank topography.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-4	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	A	Same	C
Rosa multiflora	U	Same	U
Carex spp.*	C	Same	C
Eupatorium perfoliatum	C	Same	U
Vernonia noveboracensis	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-6	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	U
Carex spp.*	A	Same	A
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Populus tremuloides	U	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. Stream bed is populated with T. angustifolia. ECDs have been removed.

Sketch (optional):

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

November 17, 2025

Ms. Taryn Egerton TEgerton@agawam.ma.us
Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

Re: Year 5 Post-Construction Monitoring Reports
MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739
261B Upgrade Projects
Tennessee Gas Pipeline Company, L.L.C.
Town of Agawam, Hampden County, Massachusetts

Dear Ms. Egerton:

Tennessee Gas Pipeline Company, L.L.C. ("Tennessee") is pleased to submit the attached Year 5 Post-Construction Monitoring Report for the 261B Upgrade Projects. If you would like to receive a hard copy of this report, please let me know and I will arrange to have one sent to you.

Tennessee intends for this to serve as the final monitoring report for the project, as restoration has been successfully achieved in compliance with all project conditions. A Request for Certificate of Compliance was submitted to your office on November 12, 2025.

Please feel free to contact me using the information below if you have any questions.

Respectfully,

Tennessee Gas Pipeline Company, L.L.C.

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell: 413-695-7001
E-Mail: matthew_nowak@kindermorgan.com

In-situ Compensatory Mitigation Areas Monitoring Report-TGPC Agawam, Massachusetts

261 Upgrade Projects
Year 5 (2025)



Prepared by:

Tetra Tech, Inc.
301 Ellicott Street
Buffalo, New York 14203

Prepared for:

Tennessee Gas Pipeline Company, L.L.C.
1001 Louisiana Street, Suite 1000
Houston, Texas 77002

November 2025

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1.0 INTRODUCTION

Tennessee Gas Pipeline Company, L.L.C. (Tennessee) contracted Tetra Tech, Inc. (Tetra Tech) to conduct post-construction monitoring for the 261 Upgrade Projects' Looping Project (Project), located in Agawam, Massachusetts (the 261 Upgrade Projects also included the HP Replacement Project, which is not the subject of this report). These activities were conducted in accordance with federal, state, and local authorizations and approvals, including Massachusetts Department of Environmental Protection (DEP) Water Quality Certification Conditions (WQC), Agawam Conservation Commission Order of Conditions (OOC), and Federal Energy Regulatory Commission's (FERC) May 2013 Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures; FERC 2013).

Project construction and initial restoration was completed in fall of 2020. In May 2021, an inspection was completed of each *Waters of the United States within the Commonwealth* that met the jurisdictional definition of bordering vegetated wetland (BVW) or isolated vegetated wetland (IVW), as well as other Massachusetts (MA) Resource Areas that were specified within the OOC where temporary earthen fills, trenching, and construction mats have been removed and the topography reestablished. Results of this inspection indicated that there was no noticeable adverse impact at all but three of the BVWs. An e-mail communication dated May 20, 2021 was submitted to the Massachusetts DEP and Agawam Conservation Commission describing four areas of soil subsidence over the Project's pipeline centerline that were adversely affecting microtopography of three BVWs (Wetlands N, L, and K). These areas of subsidence were repaired in accordance with the approved Corrective Plan of Action outlined in the May 20, 2021 e-mail and the June 30, 2021 Letter of Certification. Additional inspections of Wetlands N, L, and K were completed in October 2021. As reported in a subsequent Letter of Certification dated October 13, 2021, in-situ restoration was complete in all BVWs, including Wetlands N, L, and K. In 2022, all wetlands were considered fully revegetated.

This report provides the results of Year 5 (2025) monitoring efforts and includes a summary of the relevant permit conditions and monitoring success criteria (Section 2.0), background information including a brief description of preconstruction conditions (Section 3.0), a summary of findings from in-situ postconstruction wetland monitoring (Section 4.0), and a summary of findings from Massachusetts Resource Area (MA Resource Area) monitoring (Section 5.0). Two appendices provide the specific field data collected under the following authorizations and approvals:

- Appendix A – Post-construction wetland monitoring required under WQC Condition Number (No.) 33, OOC No. SP27, and the FERC Procedures.
- Appendix B – MA Resource Area monitoring required under OOC No. SP27.

2.0 PERMIT CONDITIONS AND SUCCESS CRITERIA

2.1 PERMIT CONDITIONS

Monitoring was conducted to document current conditions to address the following requirements:

- Massachusetts DEP WQC Condition Number (No.) 33: "The wetland scientist(s) approved by the Department or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" and the BVW [Bordering Vegetated Wetland] Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation

Areas function in accordance with 314 CMR 9.06(2), as established by data collected during monitoring. Monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form-Northcentral and Northeast Region" (as found within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Department (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens. All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Department on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Department within thirty (30) calendar days of the receipt of draft comments by the Department, if any.

- Agawam Conservation Commission OOC No. SP27: "The wetland scientist(s) approved by the Commission or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" and the Resource Area Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 310 CMR 10.55(4), as established by data collected during monitoring.

  BVW monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form-Northcentral and Northeast Region" (as found within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvai·, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Department (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens.

Riverfront Area and Buffer Zone monitoring shall include at a minimum, detail the status of non-indigenous plant species control efforts, planting/seeding success, substrate stabilization, provision of characteristics conducive to the "interests" of the Act, and any recommended adjustments that will meet the intent of 310 CMR I 0.60(2)(d), and 310 CMR 10.60(3); and 310 CMR I0.58(4)(d)l.a. and c. and 310 CMR I0.60(2)(e). Minimally, each report shall contain a floral inventory for each of the entire "Restoration Areas", with indigenous status, and relative abundance for each documented species (abundant, common, uncommon, trace), and adequate photo-documentation from fixed and repeatable stations.

All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Commission on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Commission within thirty (30) calendar days of the receipt of draft comments by the Commission, if any.

- FERC Procedures VI.D4. and 5:

  4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.

  and

  5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:

  a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);

  b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;

  c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and

  d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.

2.2 SUCCESS CRITERIA

Based on the above-described permit conditions, the following criteria were used to evaluate wetland restoration success:

- Restored wetland must meet the definition of a jurisdictional wetland;
- Vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; and
- Plant species composition is consistent with early successional wetland plant communities in the affected ecoregion.

3.0 BACKGROUND

Pre-construction field verification and delineation surveys for all wetlands in the Project area were completed in November 2017, May 2018, and July 2018. A Determination of Applicability confirming the accuracy of the boundaries was issued by the Agawam Conservation Commission on October 26, 2018. A boundary audit was performed by the Massachusetts DEP in November 2018 which resulted in adjusted boundaries to several wetlands. Wetlands were generally categorized as either emergent marsh, scrub shrub, or forested wetlands. Preconstruction invasive species surveys indicated that species including, but not limited to, buckthorns (*Frangula* spp.), invasive honeysuckles (*Lonicera* spp.), Asiatic bittersweet (*Celastrus orbiculatus*), were ubiquitous throughout the Project area. Pre-construction photos of each wetland were taken in June 2020 (Appendix A).

Since invasive species and noxious weeds prior to construction were mapped within the wetlands in the Project area and are abundant in adjacent areas, the presence or absence of invasive species and noxious weeds is not included within the success criteria.

During restoration, all 11 wetlands that were located within the Project limit of disturbance (LOD) were reseeded with the approved New England Wetmix from New England Wetland Plants, Inc at a rate of 18 pounds of seed per acre. Further, the forested and scrub shrub portions of Wetlands S, N, H, G, GA, and E that were used as temporary workspace and are outside of the area of the Project right-of-way (ROW) that is subject to regular vegetative clearing were replanted with woody hydrophytes.

4.0 IN-SITU COMPENSATORY MITIGATION WETLAND MONITORING

This section summarizes the in-situ wetland restoration monitoring along the Project LOD per WQC Condition Number No. 33, and Agawam Conservation Commission OOC No. SP27.

4.1 METHODS

The WQC Condition No. 33, Agawam Conservation Commission OOC No. SP27, maps and reports for the Project, and publicly available information (e.g., aerial imagery, land use and land cover data) were reviewed prior to conducting field work. Monitoring consisted of documenting the status of each impacted BVW and IVW as shown on the plans of record and labeled "Proposed Activities by Type and In-Situ Restoration Plans of Record for Water Quality Certification X281739" prepared by BL Companies, and dated January 31, 2020.

In accordance with the FERC Procedures, the percentage of wetland vegetation, plant species composition, and physical character of the habitat was visually estimated and noted. The presence and relative abundance of invasive species and noxious weeds were estimated using the following cover classes: trace (less than 1 percent), uncommon (1–10 percent), common (11–45 percent), and abundant (46–100 percent). Fish and wildlife use, depth of open water, as well as overall status of wetland restoration success were also noted.

Fixed observation plots were established in each wetland; vegetated wetland monitoring included the collection of all data required in pages 1 and 2 of the U.S. Army Corps of Engineers' *Wetland Determination Data Form Northcentral and Northeast Region* (USACE 2012) including basic information about the Project, hydrologic indicators, classification according to the National Wetlands Inventory hierarchy (Cowardin 1979), and vegetation by strata. All planted woody hydrophytes were mapped and assessed and the number of dead or failing specimens was documented. General notes on suspected causes of planted

woody hydrophytes mortality (e.g., rodent damage, herbivory, and third-party impacts) were also noted, if evident. Data on the indigenous status and relative abundance of each documented species were also noted using the cover classes described above.

Digital color photographs were collected in all four cardinal directions (north, south, east, and west) from the center of each wetland observation point. In addition, photographs were collected from locations corresponding to the pre-construction photo stations.

Wetland data and photographs were collected electronically on a tablet using the ESRI Field Maps application. EOS Arrow Global Positioning System units tethered to the tablet provided approximately 1-meter accuracy for data collection. All monitoring was completed under the supervision and direction of a wetland scientist accepted in writing by the Massachusetts DEP and Agawam Conservation Commission.

4.2 WETLAND OBSERVATION PLOT RESULTS

Field surveys were completed in two multiday field visits. The first field visit occurred June 16–17, 2025 (summer monitoring event) and the second occurred September 29-30, 2025 (fall monitoring event). Fixed observation plots for each wetland were established along the Project ROW in 2021 for a total of 11 stations (Figure 1). These plots were revisited and assessed for vegetation and hydrology characteristics. All vegetation identified to the species level within the wetlands, including invasive species, are summarized in the wetland plant species list provided in Appendix A.1. Photo-documentation from preconstruction and postconstruction photo stations located along the Project ROW, as well as photos taken at each wetland observation plot are provided in Appendix A.2. Completed *Wetland Determination Data Form* documenting percentage of wetland vegetation, plant species composition, physical character of the habitat, and notes on fish and wildlife are provided in Appendix A.3.

Postconstruction wetland monitoring results are summarized in Table 1. Depth of open water was not measured since there were no open waterbodies (i.e., lakes or ponds) within the monitored wetlands. In 2025, the inventory of planted woody species was complicated by a multitude of factors including; unmarked or unprotected plantings, density of volunteer sapling growth, and additional plantings since the woody planting data layer was created. As a result of these complications in data collection a qualitative assessment was completed to contextualize the state of woody planting success. All wetlands that contained planted woody species greatly exceed the revegetation requirement when volunteer species are included. Throughout the designated planting areas, volunteer shrubs and saplings have become established in all wetlands along with tree and shrub plantings. The tree protection cages, sleeves, and tags had been removed since the last survey because they were inhibiting the growth of the planted woody species. A description of each wetland with comments on the status of woody hydrophytes and overall restoration success are provided below. Background information for each wetland was obtained from the Final Environmental Impact Report (SWCA 2019), Project Plans of Record, and the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (NRCS 2021). Wetlands are discussed in order of pipeline mile post (MP) beginning at MP 0.0.

Wetland B. This palustrine emergent (PEM) wetland is located upslope from Stream MA-1. and to the northwest of Wetland C. The Project ROW intersects Wetland B just north of MP 0.0. Most of the wetland is located outside of the Project's LOD. During Project construction, 0.09 acre of this wetland was impacted. During both the summer and fall 2025 monitoring events, Wetland B was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included narrow-leaf cattail (*Typha angustifolia*), reed canary grass (*Phalaris arundinacea*), New England aster (*Symphyotrichum novae-angliae*), swamp verbena (*Verbena hastata*), shallow sedge (*Carex lurida*), and common soft rush (*Juncus effusus*). Purple loosestrife (*Lythrum salicaria*) was present but not

dominant. Vegetation was similar during fall monitoring. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland B meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by Project construction. This wetland meets restoration requirements.

Wetland A. This PEM wetland is located upslope from Stream MA-1 and intersects with the Project ROW near MP 0.1. During Project construction, 0.15 acre of this wetland was impacted. During both the summer and fall 2025 monitoring events, Wetland A was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included white meadowsweet (*Spiraea alba*), common horsetail (*Equisetum arvense*), and shallow sedge; and during the fall monitoring event, dominant hydrophytic vegetation included common horsetail, shallow sedge, and woolgrass (*Scirpus cyperinus*). These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland A meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by Project construction. This wetland meets restoration requirements.

Wetland S. This palustrine forested (PFO) and PEM wetland is located on the west side of Suffield Street and to the south of Stream MA-6. The Project pipeline runs the length of the wetland from approximately MP 0.25 to 0.35. During Project construction, 0.90 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland S was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. During the summer 2025 monitoring event, dominant vegetation included quaking aspen (*Populus tremuloides*) and silky dogwood (*Cornus amomum*) along with fringed sedge (*Carex crinita*), shallow sedge, and common soft rush; during the fall monitoring event vegetation dominance was similar to summer. These and other plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM/PFO wetlands in this ecoregion. Wetland S meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland N. This PFO/PSS/PEM wetland is located on the west side of Suffield Street and to the north of Stream MA-6 and Wetland S. The Project pipeline runs the length of the wetland from approximately MP 0.35 to 0.65. During Project construction, 1.97 acres of this wetland were impacted. During both summer and fall 2025 monitoring events, Wetland N was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. During the summer 2025 monitoring event, dominant vegetation included quaking aspen, eastern cottonwood (*Populus deltoides*), silky dogwood, shallow sedge, and fringed sedge. During the fall 2025 monitoring event, vegetation was dominated by vegetation cover similar to the summer event. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO/PSS/PEM wetlands in this ecoregion. Wetland N meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland M. This PEM wetland is located on the west side of Suffield Street and immediately south of Wetland L. The Project pipeline runs the length of the wetland at approximately MP 0.9. During Project construction, 0.11 acres of this wetland was impacted. During the summer and fall 2025 monitoring events Wetland M had recently been mowed by others not affiliated with Tennessee. During the summer 2025 monitoring event, Wetland M exhibited wetland hydrology in the form of surface water but lacked any indicator of wetland hydrology during the fall 2025 monitoring event. Due to the aforementioned mowing,

vegetation was difficult or impossible to identify but assumptions based on surrounding vegetation indicate that the wetland is dominated by reed canary grass, fowl blue grass (*Poa palustris*), and Kentucky blue grass (*Poa pratensis*). Clover (*Trifolium spp.*) was identifiable during both monitoring events. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PEM wetlands in this ecoregion. Wetland M only partially meets the criteria of a wetland and contained 80 percent vegetative cover but, other than clover, species identification was speculative and it is difficult to say which plants in adjacent areas not disturbed by Project construction would appear if wetland was left undisturbed.

Wetland L. This PSS/PEM wetland is located between Wetland M and Wetland K. The Project pipeline runs the length of the wetland from approximately MP 0.95 to 1.50. During Project construction, 0.95 acres of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland L was dominated by hydrophytic vegetation and exhibited wetland hydrology. In both visits, dominant vegetation included American elm (*Ulmus americana*), green alder (*Alnus viridis)*, and black elderberry (*Sambucus nigra*) in the PSS canopy. The PEM herbaceous layer was dominated by common soft rush, and spotted jewelweed (*Impatiens capensis*). These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PSS/PEM wetlands in this ecoregion. The subsidence observed over the Project pipeline centerline at the north end of the wetland in 2023 was no longer apparent in 2025. Restoration for subsidence occurred previously in this wetland during the 2021 monitoring event and has fully revegetated. Wetland L meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland K. This PEM wetland is located between Wetland L and Wetland H and current land use is grazing land for livestock. The Project pipeline runs the length of the wetland from approximately MP 1.05 to 1.20. During Project construction, 0.76 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland K was dominated by hydrophytic vegetation and exhibited wetland hydrology. During the summer 2025 monitoring event, dominant vegetation included Long's sedge (*Carex longii*), common soft rush, shallow sedge, perennial rye grass (*Lolium perenne*), and wrinkle-leaf goldenrod (*Solidago rugosa*). During the fall 2025 monitoring event, dominant vegetation included New England aster and fowl blue grass. In addition to the dominating grasses, harlequin blueflag (*Iris versicolor*) and green bulrush (*Scirpus atrovirens*) were identified. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PEM wetlands in this ecoregion. The fence along the eastern edge of the LOD (between the landowner's field and a parking lot) was reinforced in 2022. During the June 2023 monitoring event, it appeared that new fencing had been installed. The pipeline right-of-way was observed to have been relatively recently mowed during the fall 2025 event. Wetland K meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland H. This PFO/PEM wetland is located in a forested area between Wetland K to the south and Wetland G to the north. The Project pipeline runs the length of the wetland at approximately MP 1.25. During Project construction, 0.05 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland H was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Dominant vegetation included shallow sedge, common soft rush, spotted jewelweed, and green bulrush during both 2025 monitoring events. These plants were observed in adjacent wetland areas that were not disturbed by construction and are characteristic of early-successional PFO/PEM wetlands in this ecoregion. Wetland H meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by project construction.

Wetland G. This PFO wetland is located in a forested area between Wetland H to the south and Wetland GA and Stream MA-4 to the north. The Project pipeline runs alongside the wetland at approximately MP 1.25. During Project construction, 0.05 acre of this wetland was impacted. During both 2025 monitoring events, Wetland G was dominated by hydrophytic vegetation and exhibited wetland hydrology. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Dominant vegetation included red maple (*Acer rubrum*), gray birch (*Betula populifolia*), eastern white pine (*Pinus strobus*), and black willow (*Salix nigra*) with common soft rush, woolgrass, fringed sedge, and spotted jewelweed. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Wetland G meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Wetland GA. This PFO wetland is located in a forested area and straddles Stream MA-4. The Project pipeline runs adjacent to the wetland at approximately MP 1.25. During Project construction, 0.02 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland GA was dominated by hydrophytic vegetation and exhibited wetland hydrology. During both 2025 monitoring events, vegetation was dominated by red osier dogwood (*Cornus sericea*), black willow, common soft rush, shallow sedge, and spotted jewelweed. These plants were observed in adjacent wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Wetland GA meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Wetland E. This PFO/PEM wetland is located in a forested area and straddles Stream MA-3. The Project pipeline runs the length of the wetland from approximately MP 1.65 to 1.8. During Project construction, 0.81 acre of this wetland was impacted. During both summer and fall 2025 monitoring events, Wetland E was dominated by hydrophytic vegetation and exhibited wetland hydrology. During both summer and fall 2025 monitoring events dominant vegetation included willow (*Salix spp.*), common soft rush, shallow sedge, broadleaf cattail (*Typha latifolia*), fowl blue grass, pointed broom sedge (*Carex scoparia*), spotted jewelweed, and common boneset (*Eupatorium perfoliatum*). These plants were observed in adjacent and nearby wetland areas that were not disturbed by Project construction and are characteristic of early-successional PFO wetlands in this ecoregion. Purple loosestrife is present in abundance throughout wetland. There is an active trail that enters the LOD from the west, south of Wetland E, and continues north through the wetland. Tree and shrub planting enclosures were removed as recommended and volunteer saplings were present, making identifying plantings from volunteers difficult to near impossible, indicating a successful establishment of woody vegetation throughout the wetland. Wetland E meets the criteria of a wetland and contains 80 percent vegetative cover of plants in adjacent areas not disturbed by construction.

Table 1. In-Situ Postconstruction Wetland Monitoring Results at the 261 Upgrade Projects (Looping Project), 2025

Wetland ID	State Wetland Type[1]	Pre-construction Cowardin Classification[2]	Meets Definition of Jurisdictional Wetland	Vegetation is 80% of the Cover in Adjacent Areas Not Disturbed by Construction	Plant Species Composition Consistent with Early Successional Wetland Plant Communities	Summary Notes and Restoration Status
B	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements
A	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements
S	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
N	BVW	PFO/PSS/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
M	IVW	PEM	No	No	No	Lacked wetland hydrology during fall (slight drought during dry season) monitoring event. Orientation to adjacent, undisturbed wetland suggests that restoration requirements would be met in absence of landowner-disturbance.
L	BVW	PSS/PEM	Yes	Yes	Yes	Meets restoration requirements.
K	BVW	PEM	Yes	Yes	Yes	Meets restoration requirements.
H	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
G	BVW	PFO	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
GA	BVW	PFO	Yes	Yes	Yes	Meets restoration requirements, woody hydrophytes well established at approximate success criterion threshold.
E	BVW	PFO/PEM	Yes	Yes	Yes	Meets restoration requirements. woody hydrophytes well established at approximate success criterion threshold.

1. BVW=bordering vegetated wetland, IVW=isolated vegetated wetland
2. PEM=palustrine emergent wetland, PSS=palustrine scrub shrub wetland, PFO=palustrine forested wetland

4.3 PLANTED TREE AND SHRUB ASSESSMENT RESULTS

During the 2025 field effort, methodology was updated to account for a number of factors complicating the collection of accurate quantitative data. First, fresh plantings were found throughout the study area for which no location data was provided so as to account for this change in planting distribution. Second, the success of colonization by quaking aspen and eastern cottonwood created large stands of dense vegetation impenetrable for observation of plantings geolocated within. Third, absence of any indication of planted species (*i.e*., enclosures, tags) made differentiating between plantings and volunteers impossible. It is likely that some planted species have been outcompeted by rhizomatous colonization of *Populus spp*. but attaining a quantitative demonstration was impossible. Nonetheless, since *Populus spp.* were included as an approved species in the planting plan, the aforementioned successful colonization demonstrates a woody-revegetation accomplishment though species diversity might be lower than expected.

Many other species (*Salix spp*., *Cornus spp*., speckled alder [*Alnus incana]*, and *Sambucus spp*.) were also observed as volunteers, most notably throughout Wetland E but with varying degrees of presence throughout the survey area.

Throughout the corridor containing the MA4N and MA4S riverfronts and wetlands GA, G, and H, *Populus spp*. were thriving but not to the extent observed in Wetlands S and N. Along the western edge of the survey area, red maple and yellow birch (*Betula alleghaniensis*) were healthier than those found further east from the forested boundary. Throughout, *Quercus spp*., black willow, *Cornus spp*., and shadbush (*Amelanchier canadensis*) were thriving.

Though a numerical analysis of collected data was impossible due to aforementioned confounding factors, success criteria for the permit requirements state:

- Vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction; and
- Plant species composition is consistent with early successional wetland plant communities in the affected ecoregion.

While planting success could not be rigorously quantified all the wetlands had vegetative cover of volunteer trees and shrubs exceeding that of the plantings. Shrub coverage in these wetlands exceeded what would be expected if only planted shrubs were present. Estimates of sapling/shrub cover are based on visual field estimates and confirmed with photo-documentation and review of wetland observation plot data. Ocular estimation of the area confirms that through the use of both “natural” and “active revegetation” all wetlands satisfy the criteria outlined in the permit requirements and are successfully revegetated to at least the 80% threshold.

4.4 CONCLUSION

Based on the results of the wetland monitoring events in June and September 2025, it was determined through professional qualitative assessment that all wetlands meet the criteria for successful revegetation. While accurate quantification of planting success disallowed the production of desired percentages, all of these wetlands include substantial volunteer shrub and sapling coverage. Planting enclosures were removed as recommended and volunteer saplings were present, which complicates differentiation between planted and volunteer individuals. Wetland H, noted in 2024 as having low planting success and few shrub/sapling volunteers, has since progressed to the successional status of a palustrine scrub-shrub wetland, dominated by those species outlined in the planting protocol. An area of potential subsidence, that

was observed over the pipeline at the north end of Wetland L in 2022 has filled in with grass and no erosion was observed. The area was monitored and no subsidence was observed. Wetland M was disturbed, potentially from mowing during saturated soil conditions. Persistent depressions along the edges of the wetlands and LOD caused by erosion control device (ECD) removal in 2022 are no longer evident.

5.0 IN-SITU COMPENSATORY MITIGATION MA RESOURCE AREA MONITORING

This section summarizes the in-situ post-construction monitoring of inland Banks, Land Under Waterbodies and Waterways (LUWW), and upland portions of Riverfront Area that was performed during the fifth growing season after the Project was constructed (2025).

In accordance with OOC No. SP27, Riverfront Area and Buffer Zone monitoring shall include at a minimum: status of non-indigenous plant species, planting/seeding success, and substrate stabilization.

5.1 METHODS

The Agawam Conservation OOC, maps and reports for the Project, and publicly available information (e.g., aerial imagery, land use and land cover data) were reviewed prior to conducting field work. Each MA Resource Area (Figure 1) was documented via photographs upstream, downstream, and a view of each stream bank. The presence and relative abundance of invasive species and noxious weeds were estimated using the following cover classes: trace (less than 1 percent), uncommon (1–10 percent), common (11–45 percent), and abundant 46–100 percent). All tagged planted woody hydrophytes were inspected and the number of dead or failing specimens was noted. Data on the indigenous status and relative abundance of each documented species were recorded using the cover classes described above for invasive species.

Substrate stabilization was evaluated based on the following criteria: (1) stream banks stabilized and contours blend into adjacent areas; (2) particle size of stream substrate similar to adjacent areas; (3) channel free of obstructions or debris from construction; and (4) no depressions observed over the trench line indicative of slumping. An *Aquatic Resource Inspection Data Form* was completed for each upland Riverfront Area and Buffer Zone.

5.2 RESULTS

Vegetation identified within each upland Riverfront Area and Buffer Zone, including the presence and relative abundance of invasive species and noxious weeds, is summarized in Appendix B.1. Photo-documentation is provided in Appendix B.2 and includes pre-construction and post-construction views for each area. The *Aquatic Resource Inspection Data Forms* for each area are provided in Appendix B.3. The status of restoration is summarized in Table 2. Planted woody hydrophyte quantification was similarly complicated to that mentioned above regarding the wetland plantings. Regardless, planted or volunteer tree and shrub cover were well established and exceed what would be expected with plantings alone. Staghorn sumac (*Rhus typhina)* and the *Acer spp*. are having the most difficulty in establishing in MA4N riverfront, though survivors are in excess of seven feet in height. This observation conforms to quantitative data collected in previous field efforts.

Throughout the corridor containing the MA4N and MA4S riverfronts and wetlands GA, G, and H, *Populus spp*. were thriving but not to the extent observed in Wetlands S and N. Along the western edge of the survey area red maple and yellow birch were healthier than those found further east from the forested boundary.

Throughout, *Quercus spp*., black willow, *Cornus spp*., and shadbush were thriving. Individual descriptions of each upland Riverfront Area and Buffer Zone are provided below and are discussed in order of pipeline mile post (MP) beginning at MP 0.0.

Table 2. Summary of Post-construction MA Resource Area Monitoring Results at the 261 Upgrade Projects (Looping Project), 2025

Criteria	Stream ID (USGS Stream Name)			
	MA 1 (Worthington Brook)	MA 6 (Worthington Brook)	MA 4 (Tarkill Brook)	MA 3 (Threemile Brook)
Status of Non-Indigenous Plant Species	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas
Planting/Seeding Success	Vegetation is established	Variable planting success in adjacent wetlands/ high herbaceous and shrub vegetation coverage	70 percent planting survival/ herbaceous and shrub vegetation established	Vegetation is established
Stream banks and contours	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas	Stabilized, blended into adjacent areas
Stream Particle Size	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas	Similar to adjacent undisturbed areas
Construction debris/obstructions	Removed	Removed	Removed	Removed
Trenchline	No depressions observed	No depressions observed	No depressions observed	No depressions observed
Restoration Status	Meets restoration requirements	Meets restoration requirements	Meets restoration requirements	Meets restoration requirements

Stream MA-1. This perennial stream is an unnamed tributary to Worthington Brook, flows through Wetland A, and crosses the LOD at approximately MP 0.1 (Figure 1). During Project construction, the crossing width was approximately 15 feet and the crossing method was dam and pump. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; black locust (*Robinia pseudoacacia*) and multiflora rose (*Rosa multiflora*) were common and six species were uncommon, but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). Reed canary grass was abundant and purple loosestrife was uncommon but both of these species were observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.3). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-1 has been determined to meet restoration requirements.

Stream MA-6. This perennial stream, also known as Worthington Brook, flows between Wetland N to the north and Wetland S to the south and crosses the LOD at approximately MP 0.35 (Figure 1). During Project construction, the crossing width was approximately 13 feet using the flume crossing method. Resources

protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; perennial rye grass, and Ribgrass plantain (*Plantago lanceolata*) were abundant; mugwort (*Artemisia vulgaris*), red fescue (*Festuca rubra*), annual rye (*Lolium multiflorum*) birdsfoot-trefoil (*Lotus corniculatus*), Timothy (*Phleum pratense*), multiflora rose, Chinese foxtail (*Setaria faberi*), and Alsike clover (*Trifolium hybridum*) were common; five species were uncommon; and nine species were trace; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). No non-indigenous species were present within the LOD at Stream MA-6 (Appendix B.3). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-6 has been determined to meet restoration requirements.

Stream MA-4. This perennial stream, also known as Tarkill Brook, flows through Wetland GA and crosses the LOD at approximately MP 1.25 (Figure 1). During Project construction, the crossing width was approximately 14 feet using the flume crossing method. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; reed canary grass was abundant; Queen Anne's lace (*Daucus carota*), barnyard grass (*Echinochloa crus-galli*), red fescue, perennial rye grass, common plantain (*Plantago major*), multiflora rose, Alsike clover, and white clover (*Trifolium repens*) were common; and six species were uncommon; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). One non-indigenous species was present within the LOD at Stream MA-4. Multiflora rose was uncommon but was observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.3).Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, planted trees and shrubs were alive and healthy, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-4 has been determined to meet restoration requirements.

Stream MA-3. This perennial stream is an unnamed tributary to Threemile Brook that flows through Wetland E and crosses the LOD at approximately MP 1.8 (Figure 1). During Project construction, the crossing width was less than 60 feet using the dam and pump method. Resources protected under the Massachusetts Wetlands Protection Act are bank, LUWW, and 200-foot Riverfront Area. In the upland portions of the Riverfront Area, multiple non-indigenous species were present; Queen Anne's lace, purple loosestrife, black locust, and Alsike clover were common; two species were uncommon; and five species were trace; but these plants were also observed at a similar relative abundance in adjacent undisturbed areas (Appendix B.1). Since the status of non-indigenous plant species is similar to adjacent undisturbed areas, seeded vegetation has become established, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to adjacent areas, stream channel is free of obstructions or debris from construction, and no depressions were observed over the trenchline, restoration of Stream MA-3 has been determined to meet restoration requirements.

5.3 CONCLUSIONS

In the upland Riverfront Areas and the Buffer Zones, the status of non-indigenous plant species is similar to adjacent undisturbed areas and restoration plantings were alive and healthy. Furthermore, stream banks have been stabilized and contours blend into adjacent areas, particle size of stream substrate is similar to

adjacent areas, obstructions or debris from construction were not present within the channels. Areas where ECDs were removed are now indistinguishable from unaffected adjacent areas. Further, important wildlife habitat functions, such as food, shelter, migratory and overwintering areas as well as breeding areas for birds, mammals and reptiles appear consistent with expectations for fifth year monitoring and are reverting to pre-construction use of the area and/or similar to adjacent areas. Based on the data collected during the 2025 monitoring event, restoration of all MA Resource Areas has been successful.

6.0 REFERENCES

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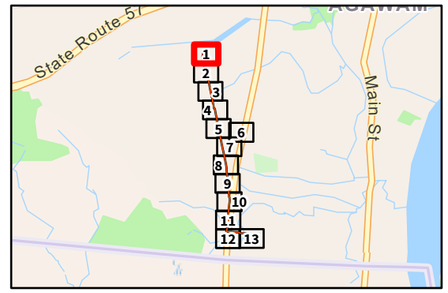
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Figure 1. **In-Situ Post-construction Wetland Monitoring Stations and MA Resource Areas at the 261 Upgrade Projects Monitoring Year 5 (2025); Agawam, Massachusetts**



Legend

- Limit of Disturbance
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 1 of 13

Prepared For: Tennessee Gas Pipeline Company, L.L.C. a Kinder Morgan company

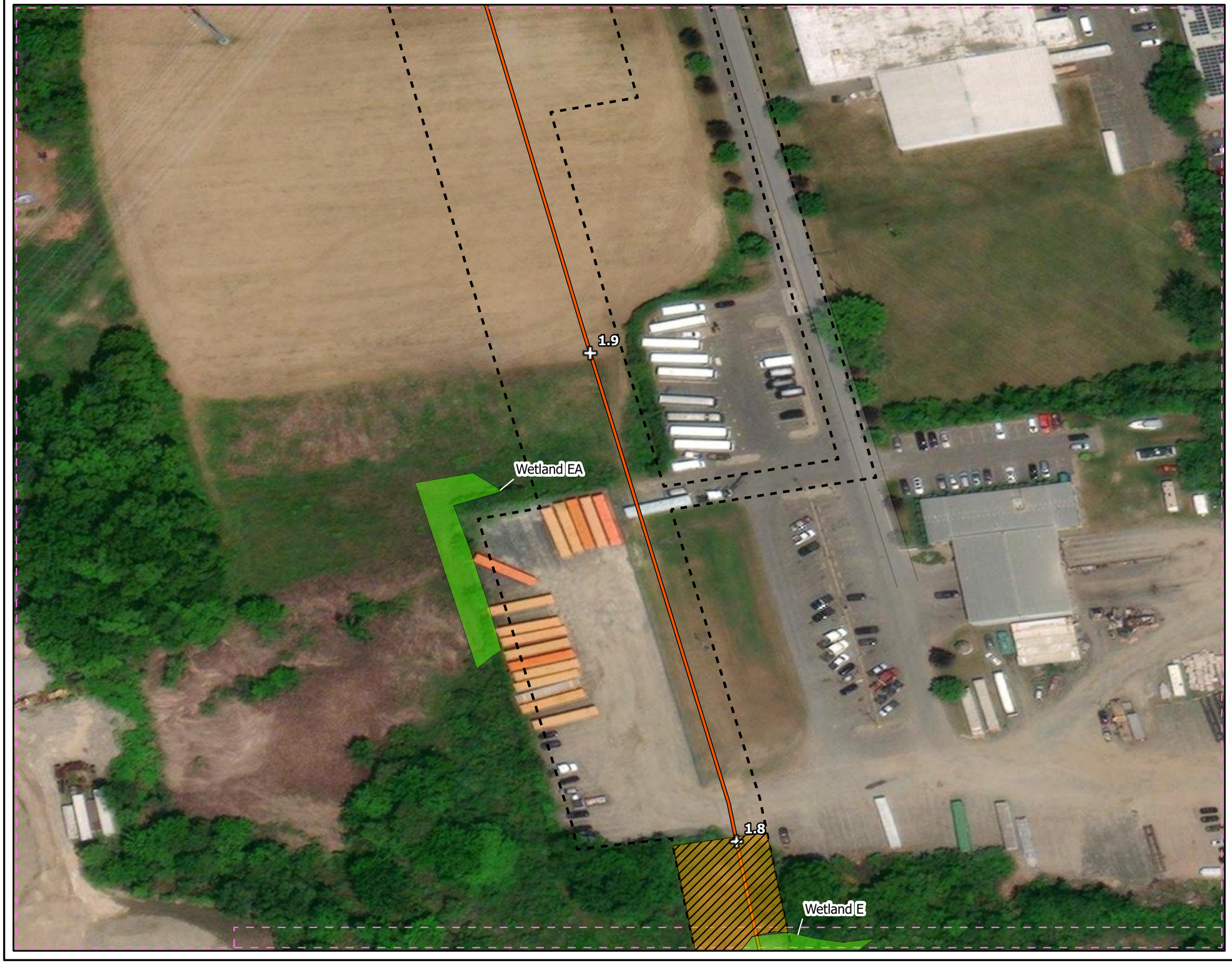
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Date: 11/2024

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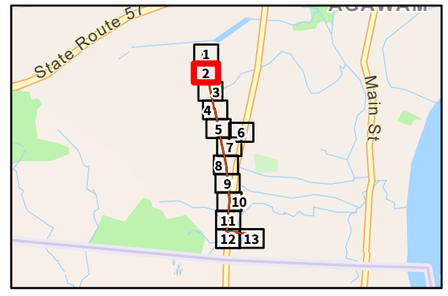
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 2 of 13

Prepared For: Tennessee Gas Pipeline Company, L.L.C. a Kinder Morgan company

Prepared By: TETRA TECH

Date: 11/2024

Source: ESRI World Imagery 05/16/2023, Tetra Tech, 2024, TNG, 2021

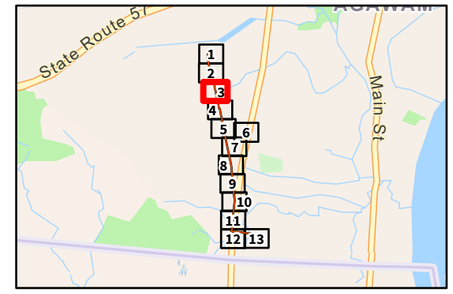
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 3 of 13

Prepared For: Tennessee Gas Pipeline Company, L.L.C. a Kinder Morgan company

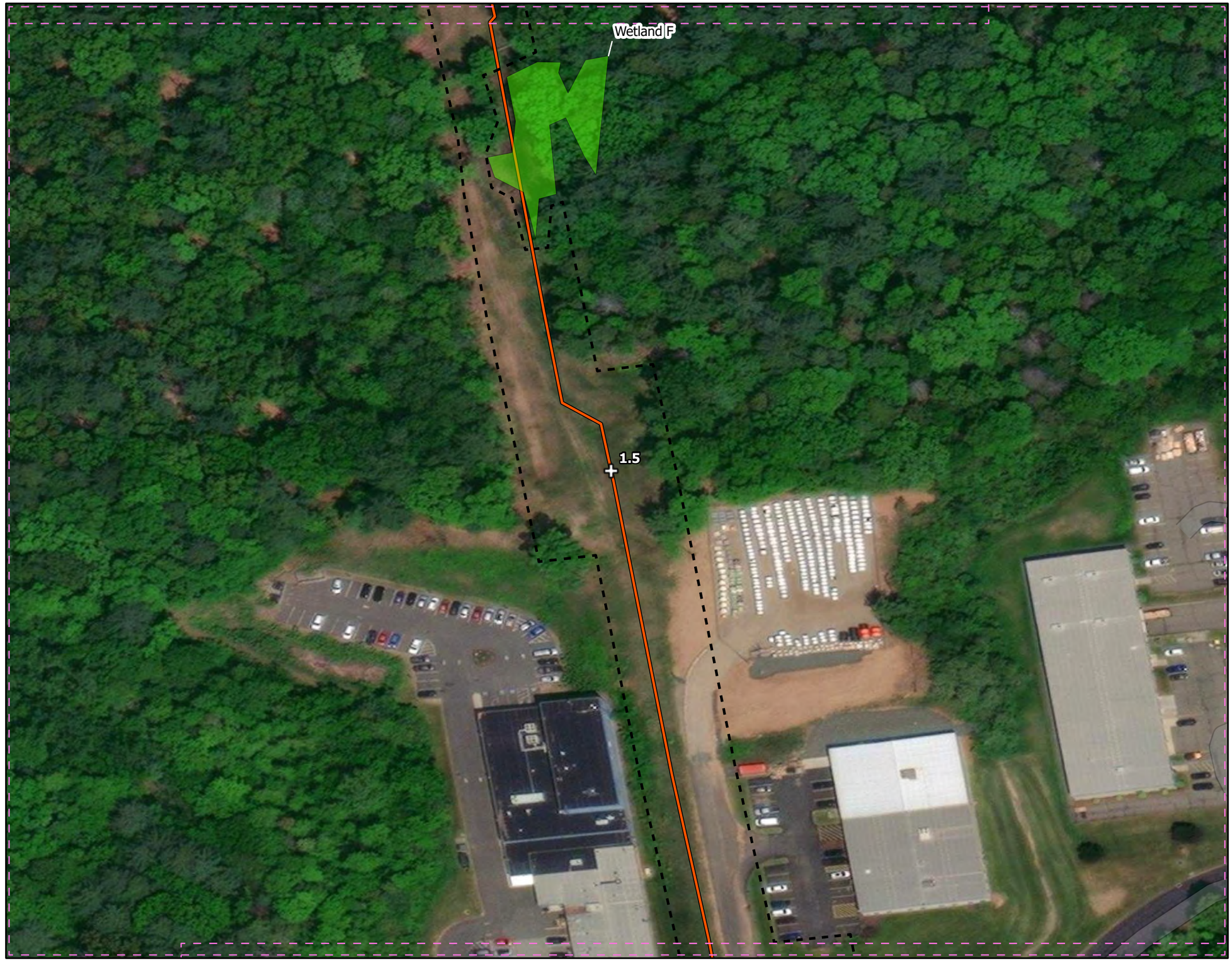
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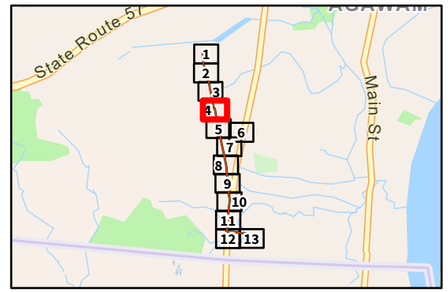
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 4 of 13

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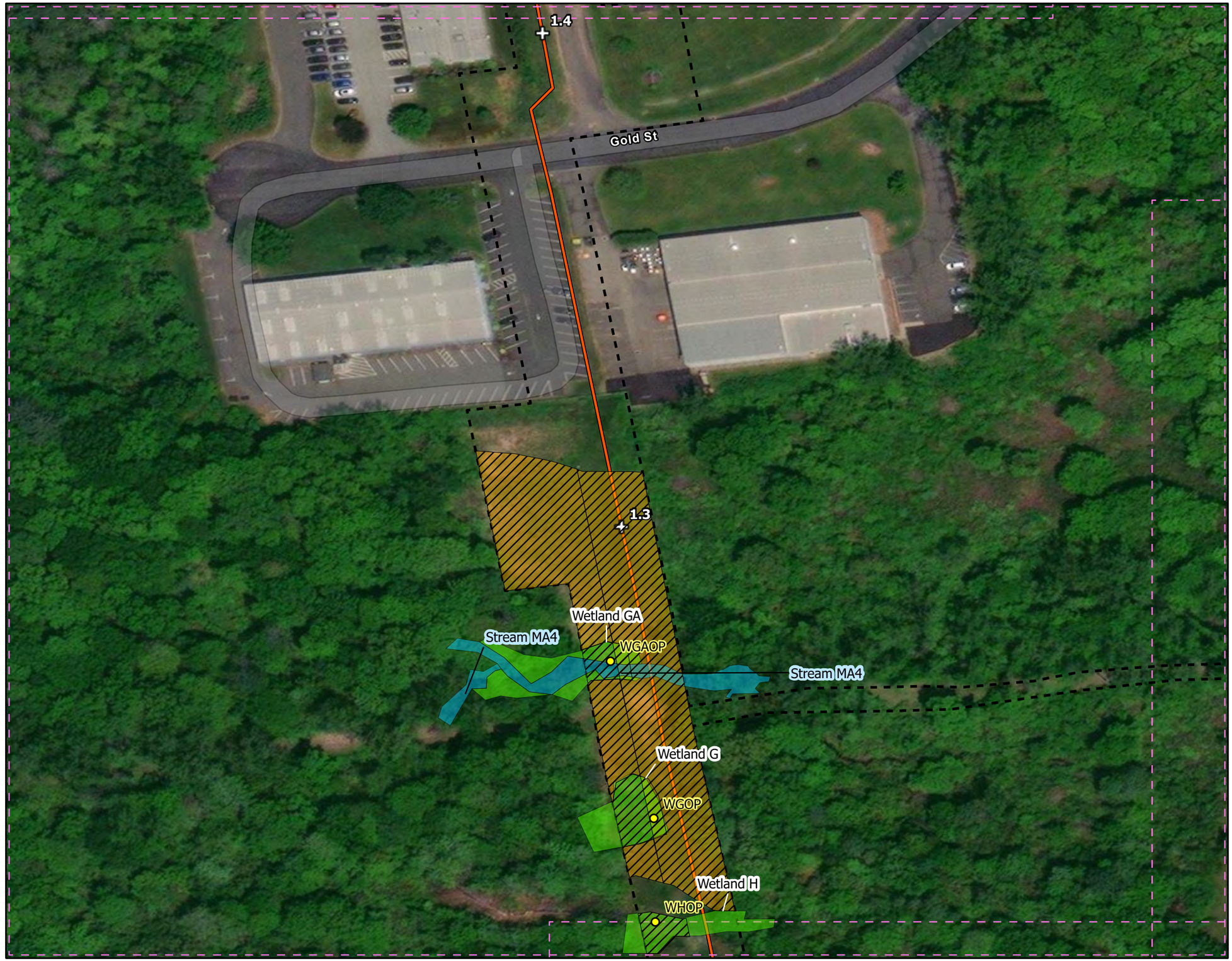
Prepared By: TETRA TECH

Date: 11/2024

Source: ESRI World Imagery 05/16/2023, Tetra Tech, 2024, TNG, 2021

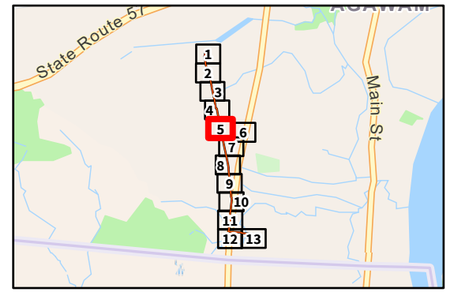
Coordinate System: North American Datum 1983 Universal Transverse Mercator, Zone 18 North

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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 5 of 13

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Prepared By: TETRA TECH

Date: 11/2024

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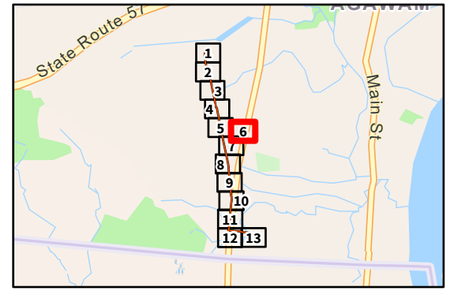
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 6 of 13

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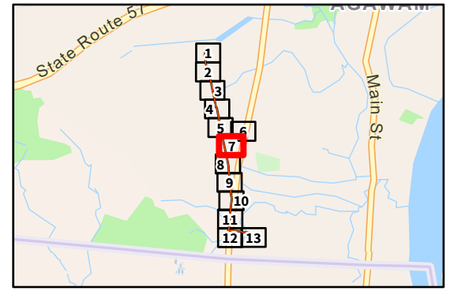
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 7 of 13

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Source: ESRI World Imagery 05/16/2023, Tetra Tech, 2024, TNG, 2021

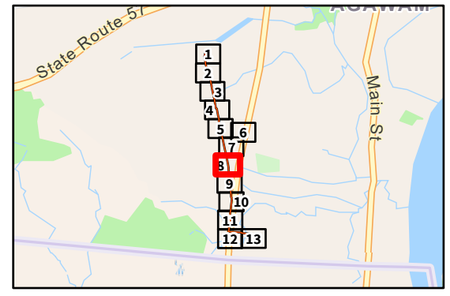
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Legend

- Limit of Disturbance
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

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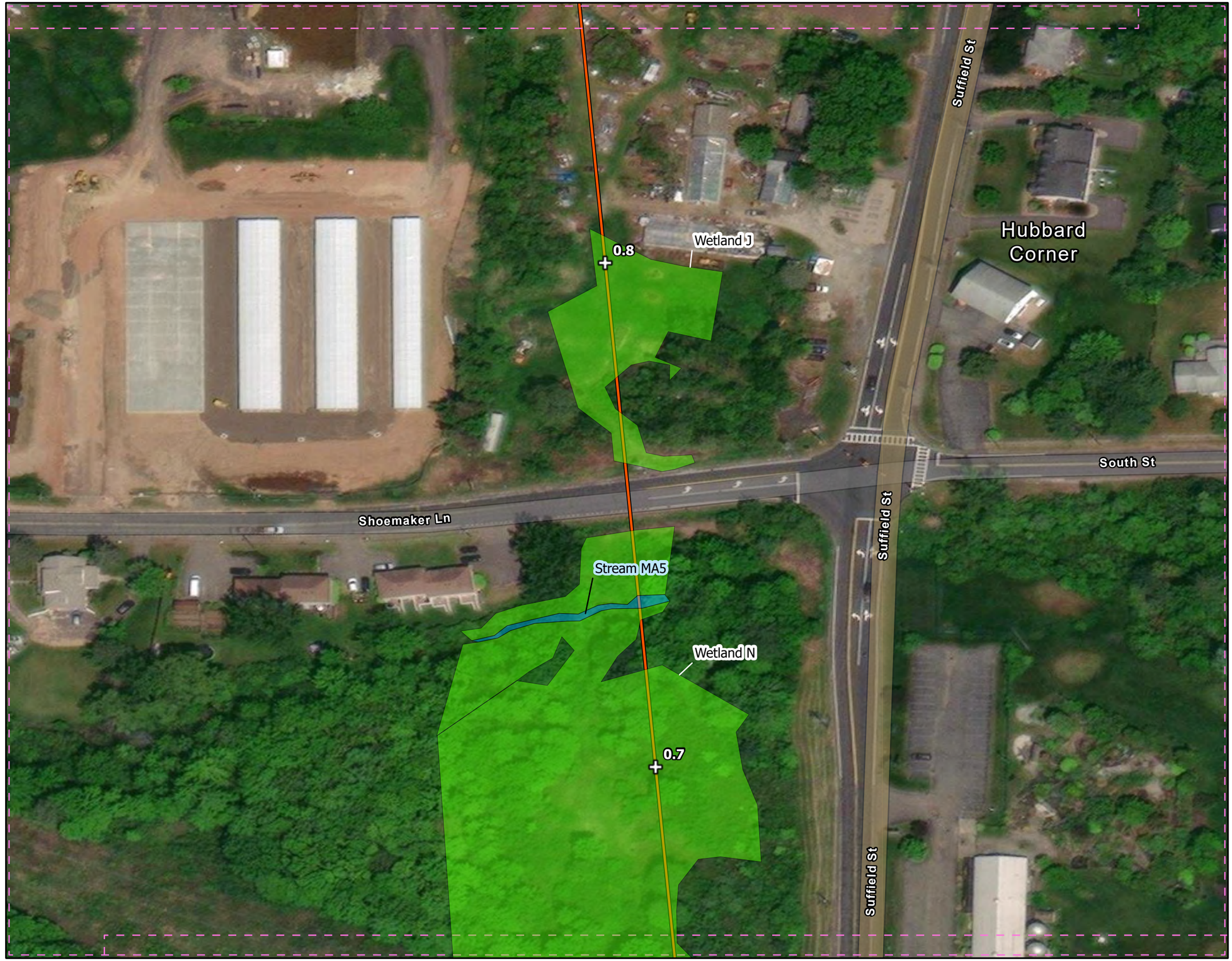
Prepared By: TETRA TECH

Date: 11/2024

Source: ESRI World Imagery 05/16/2023, Tetra Tech, 2024, TNG, 2021

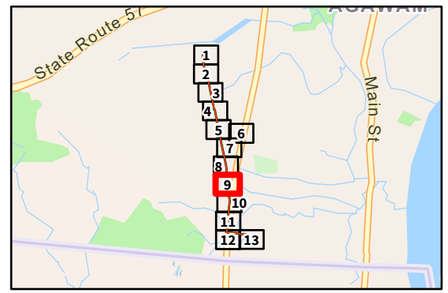
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Legend

- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 9 of 13

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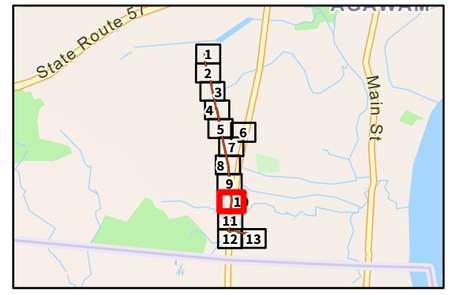
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- Delineated Wetland
- Sheet Boundary
- Pipeline Centerline
- Mile Post



N

0 50 100 200 Feet

261 Upgrade Projects
Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 10 of 13

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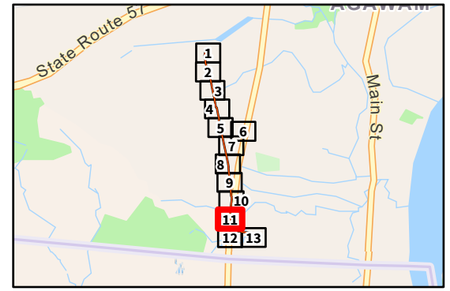
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Legend

- Limit of Disturbance
- Tree and Shrub Planting
- 200' Upland Riverfront Area
- Delineated Wetland
- Delineated Stream
- Sheet Boundary
- Pipeline Centerline
- Mile Post
- Wetland Observation Plot



N

0 50 100 200 Feet

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Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
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Sheet 11 of 13

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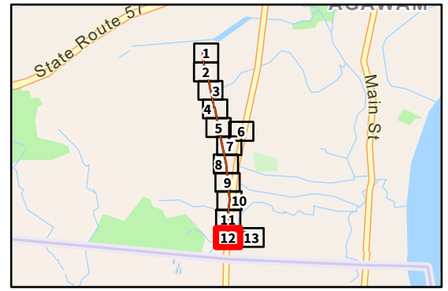
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Legend

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N

0 50 100 200 Feet

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Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

Sheet 12 of 13

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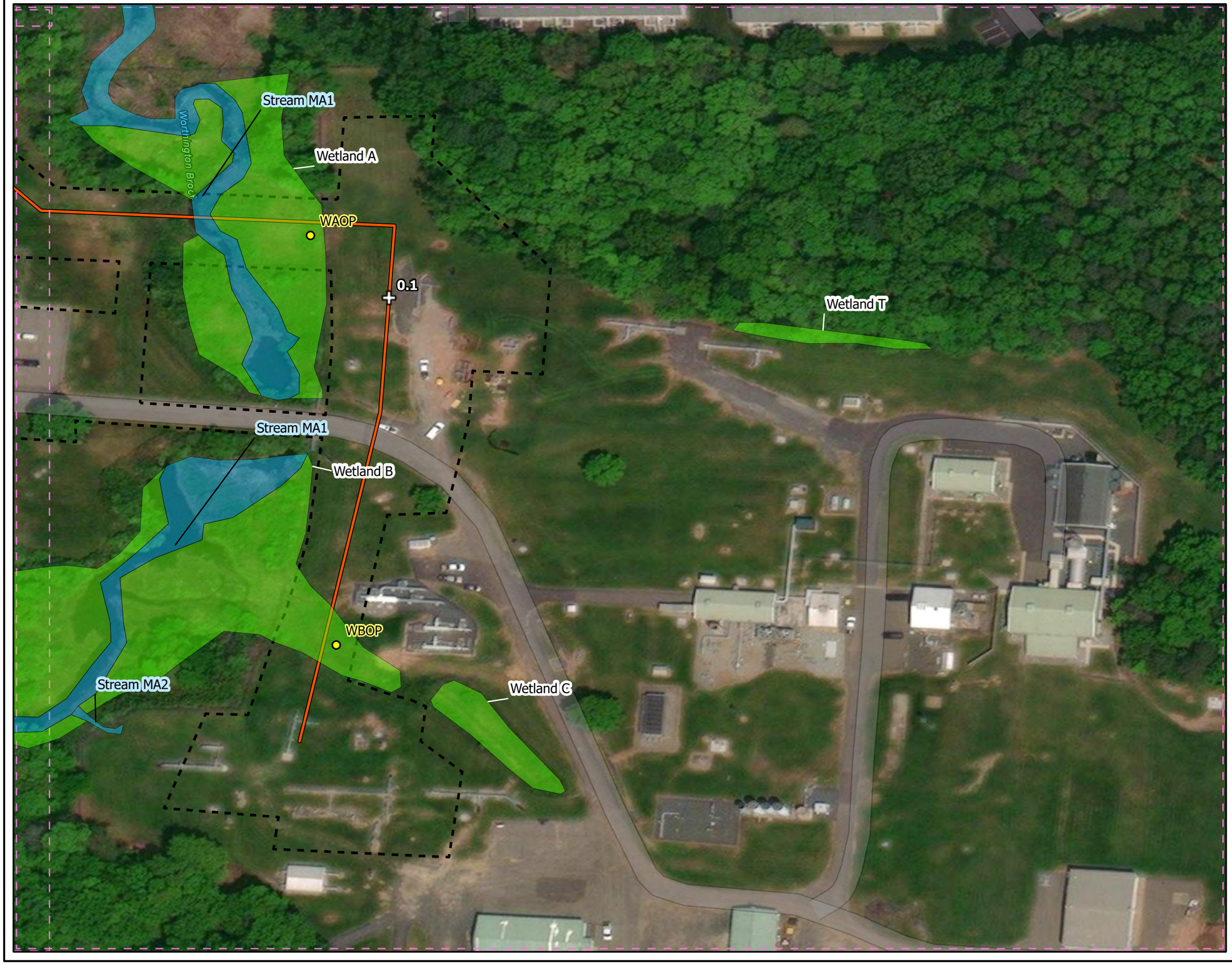
Prepared By: TETRA TECH

Date: 11/2024

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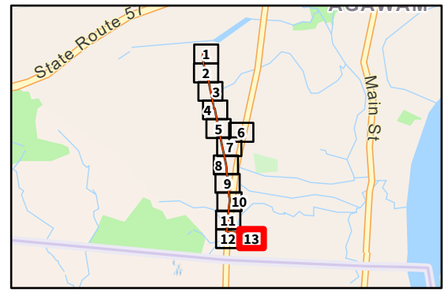
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Legend

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N

0 50 100 200 Feet

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Figure 1. Postconstruction Revegetation Monitoring Year 5 (2025)
Agawam, MA

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Appendix A

In-Situ Post-Construction Wetland Monitoring

A.1 Wetland Plant Species List
A.2 Pre- and Post-Construction Photologs
A.3 Observation Plot Data

Appendix A.1

Wetland Plant Species List

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Acer rubrum	Red maple	N	C		C	A	U	C		T		A	A
Achillea millefolium	Common yarrow	N		T			T	T				T	
Agalinis tenuifolia	Slender gerardia	N					U					U	T
Alisma subcordatum	Water plantain	N		U	C								
Allium vineale	Field garlic	I								U			
Alnus incana	Speckled alder	N				T	T			U		C	C
Alnus viridis	Green Alder	N								U		U	
Ambrosia artemesiifolia	Ragweed	N	U	U	C				U			U	C
Ambrosia trifida	Giant ragweed	N								T			
Amphicarpaea braceata	American hog-peanut	N				U							
Arctium minus	Common burdock	I					U		U				
Arisaema triphyllum	Jack in the pulpit	N			U		C						U
Artemisia vulgaris	Mugwort	I		C	C		U	U	U		C	C	C
Asclepias incarnata	Swamp milkweed	N	T	T								T	T
Asclepias syriaca	Common milkweed	N		C					C				
Betula alleghaniensis	Yellow birch	N			T	U		T				T	T
Betula populifolia	Gray birch	N			U	C		C				U	U
Bidens cernua	Nodding bur-marigold	N			U								
Bidens sp.	Bur-marigold	*			C		U			T		T	
Calamagrostis canadensis	Bluejoint grass	N		C				U	U				
Caltha palustris	Marsh marigold	N							T	C			
Calystegia sepium	Hedge bindweed	*	U	U	U	U	C	U		C		T	
Carex crinita	Awned sedge	N	U		C		C					C	
Carex lurida	Sallow sedge	N	A	C	C	A	A	C	C	A	C	C	C
Carex scoparia	Pointed broom sedge	N	A	U	C		A	C	C	A	T	A	C
Carex sp.	Sedge species	n/a	T				C	A	C	C		C	C
Carex tribuloides	Blunt broom sedge	N			U	U							
Carex vulpinoidea	Fox sedge	N	U		A			U	C	C	C	C	C
Carex crinita	Fringed sedge	N	C		C						A	U	A
Celastrus orbiculatus	Asiatic bittersweet	I	C				U		U			C	T
Chamaecrista nictitans	Wild sensitive plant	N					U						
Circium sp.	Thistle	n/a	T	U						T			T
Cornus (Swida) amomum	Silky dogwood	N	C	C	C	U	T	U			C	C	A
Cornus (Swida) sericea	Red-osier dogwood	N			C	U				C		U	U
Cyperus strigosus	Straw-colored flatsedge	N	U	U		A	A	A					
Daucus carota	Queen Anne's lace	I	U				U					T	
Dennstaedtia punctilobula	Hay-scented fern	N			U								

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Dicanthelium clandestinum	Deer-tongue	N	C		U		U	C		T		U	C
Echinochloa crus-galli	Barnyard grass	I						U	U				U
Elaeagnus angustifolia	Russian olive	I										-	
Elaeagnus umbellata	Autumn olive	I	U	U	T						T	U	U
Eleocharis obtusa	Spike-rush	N			A	A	C				T		
Elymus canadensis	Great Plains wild-rye	N	C							C			U
Elymus virginicus	Common eastern wild rye	N					C					U	C
Epilobium coloratum	Eastern willowherb	N		A	U	U		U					T
Equisetum arvense	Field horsetail	N	A							A			
Erechtites hieracifolia	American burnweed	N	U	T	U	C		U		U		U	U
Erigeron annuus	Daisy fleabane	N			U		C		C	C	T	C	C
Erigeron canadensis	Horseweed	N	U		U		T					T	
Eupatorium perfoliatum	Boneset	N	C	U	C		U			U		C	C
Euthamia graminifolia	Slender-leaved goldenrod	N	U	U	C	C		T	U	U		A	C
Eutrochium maculatum	Spotted joe-pye-wee	N	C		C			T		U		C	U
Fallopia japonica	Japanese knotweed	I								U			
Fallopia scandens	Climbing false buckwheat	N				C		U				U	
Festuca rubra	Red fescue	I					C	C	C				
Frangula alnus	Glossy buckthorn	I	U		C	A	C	C	T			A	C
Frangula sp.	Buckthorn	n/a										A	C
Fraxinus pennsyvlanica	Green ash	N	T					T		U	U	C	U
Gallium mollugo	Whorled bedstraw	I				U			U			U	
Glyceria striata	Fowl mannagrass	N			C		C		C			C	
Houstonia caerulea	Bluets	N			U	U		U				C	U
Houstonia purpurea	Calycose bluets	W										T	
Hypericum mutilum	Dwarf S.t John's-wort	N										C	
Hypericum perforatum	Common St. John's-wort	I						T				T	
Hypericum prolificum	Shrubby St. John's-wort	*					U						
Ilex verticillata	Common winterberry	N				U							
Impatiens capensis	Orange jewelweed	N	C	U	A	U	C	A		C		C	C
Iris versicolor	Blue flag	N							U			U	U
Juncus effusus	Soft rush	N		C	A	A	A	C	C	A	T	C	C
Juncus sp.	Rush species	n/a		C									U
Lactuca canadensis	Yellow wild lettuce	N					T					T	
Lathyrus sylvestris	Narrow-leaved vetchling	I		U								T	
Leersia oryzoides	Rice cut grass	N	C			C	C	U	C				
Leucantemum vulgare	Ox-eye daisy	I							t				

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Lindera benzoin	Spicebush	N			C	U	T	T					
Lolium multiflorum	Annual rye	I	C					C		T		U	T
Lolium perenne	Perennial rye-grass	I	A	A	C	T	C	C	C	U		A	C
Lonicera morrowii	Morrow's honeysuckle	I				T	T						
Lonicera sp.	Bush honeysuckle	n/a		T		T	C					C	U
Ludwigia alternifolia	Seedbox	N				U		U					
Ludwiga palustris	Common water-primrose	N	C		C		C						
Lythrum salicaria	Purple loosestrife	I	U	C	C			C	A	A	U	C	U
Malus fusca	Oregon crabapple												
Onoclea sensibilis	Sensitive fern	N	C	U	C		C	U		C	C	C	C
Osmunda regalis	Royal fern	N			T								
Panicum capillare	Witch-grass	N										U	U
Parthenocissus quinquefolia	Virginia creeper	N			U		U	C		U		U	T
Paulownia tomentosa	Princess tree	I					T						
Penstemon sp.	Beard-tongue	n/a								C			
Perilla vulgaris	Heal-all	N		T				T	T			T	
Persicaria arifolia	Halberd-leaf tearthumb	N			U		T						
Persicaria hydropiper	Water-pepper	I			U		U		U		U		
Persicaria maculosa	Lady's thumb	I		T	T	T							
Persicaria pensylvanicum	Pinkweed	N						U					
Persicaria sagittata	Arrow-leaf tearthumb	N	C	A	A	A	T	C		C		C	U
Phalaris arundinacea	Reed canary grass	"I?"	C	C	U					C	C	U	U
Phleum pratense	Timothy	I	U		U			C	C	U	C		
Phlox paniculata	Summer phlox	I										T	
Phragmites australis	Common reed	I		C	U					U		T	
Phytolacca americana	American pokeweed	N							U				
Pilea pumila	Clearweed	N					U						
Pinus strobus	Eastern white pine	N			U	C	U	U					
Plantago lanceolata	Ribgrass plantain	I					U		U				
Plantago major	Common plantain	I		U				U	A			U	U
Poa palustris	Fowl meadowgrass	N	C		C	U	C	C	A	A	A		C
Populus deltoides	Eastern cottonwood	N	T		C		C	C		U	C	C	C
Populus tremuloides	Quaking aspen	N		T	C	C	C	U			C	C	A
Potentilla reptans	Creeping cinquefoil	I						T				T	
Potentilla simplex	Common cinquefoil	N								U		U	U
Prunus serotina	Black cherry	N			T	T							
Prunus sp.	Cherry species	n/a											U

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Pycnanthemum muticum	Blunt Mountain-mint	N					U			U		U	U
Pycnanthemum tenuifolium	Narrow-leaved mountain-mint	N		U								C	C
Pycnanthemum virginianum	Virginia mountain-mint	N				U						U	
Pyrus calleryana	Callery pear	I										T	T
Quercus bicolor	Swamp white oak	N			T	U					U	U	U
Quercus palustris	Pin oak	N						U					U
Ranunculus repens	Creeping buttercup	I			T				U			U	T
Rhamnus alnifolia	Alder buckthorn	N										U	
Rhus hirta	Staghorn sumac	N	U				T			T			
Rosa multiflora	Multiflora rose	I	C		C	C	C	C	T	U		C	U
Rubus hispidus	Bristly dewberry	N								T			
Rubus sp.	Blackberry	n/a	U		U		U					C	
Rudbeckia hirta	black-eyed susan	N		U			T			T			
Rumex crispus	Curly dock	I			C		U		U		U	T	
Rumex sp.	Dock	n/a							U				
Salix eriocephala	Heart-leaved willow	N			C								
Salix nigra	Black willow	N			U	U	U					T	T
Salix sp.	Willow	n/a	U		C		U						
Sambucus canadensis	Common elderberry	N	C	U	T	T				U		T	T
Scirpus atrovirens	Dark green Bulrush	N	U		C			C	U	C	T	U	U
Scirpus cyperinus	Woolgrass	N		U	C			U				C	C
Scutellaria galericulata	Marsh skullcap	N									U	U	
Setaria faberi	Chinese foxtail	I											T
Setaria pumila	Yellow foxtail	I											U
Solidago altissima	Tall goldenrod	N	C		U	C	U			U		C	C
Solidago candensis	Canada goldenrod	N	C	C	C	C	T			U		C	
Solidago gigantea	Giant/smooth goldenrod	N					U						
Solidago rugosa	Rough goldenrod	N	C	C	C	C	U	U	C	U		A	C
Solidago sp.	Goldenrod	n/a	C					U		C		C	C
Sorgastrum nutans	Indian grass	N		C									U
Spiraea alba	Meadowsweet	N	C		U					U		U	C
Symphyotrichum dumosum	Bushy American aster	N	U							U		U	
Symphyotrichum ericoides	Heath-aster	N		U				U				C	C
Symphyotrichum novae-angliae	New England aster	N	U	C	U		U			C	U	C	C
Symphyotrichum pilosum	Awl American aster	N										C	T
Symplocarpus foetidus	Skunk cabbage	N			C		C						
Toxicodendron radicans	Poison ivy	N	C				U	T				C	T

261 Upgrade Projects
Postconstruction Monitoring
2025 Wetland Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Wetland[3]										
			A	B	E	G	GA	H	K	L	M	N	S
Trifolium hybridum	Alsike clover	I	U	U				U				U	U
Trifolium pratense	Red clover	I			T			U		U			C
Trifolium repens	White clover	I							U			U	
Typha angustifolia	Narrowleaf cattail	N		C						C		T	
Typha latifolia	Broadleaf cattail	N	C		C								
Typha sp.	Cattail	n/a							C				
Ulmus americana	American elm	N										C	
Ulmus sp.	Elm	n/a				U						C	U
Unknown graminoid		n/a			T				C	C	C		
Verbena hastata	Blue vervain	N		C	U	C	U	U			C	C	C
Verbena urticifolia	White vervain	N					U						U
Vernonia urticifolia	New York ironweed	N	U	U	C					U		C	C
Viburnum dentatum	Arrow-wood	N	T		U	T		U		C		A	C
Viburnum nudum	Wild raisin	N	C		C			C		U		C	C
Vicia cracca	Bird vetch	I			T						U		U
Vicia tetrasperma	Four-seeded vetch	I	T			T							
Vitis aestivalis	Summer grape	N				U	U	T		U		C	T
Vitis labrusca	Fox grape	N		T			U	U		U		T	
Vitis riparia	River-bank grape	N					C	C		U		U	
Vitis sp.		n/a	T						U	T			
Xanthium strumarium	Cocklebur	N			U								

Notes:

[1]Nomenclature (inlcuding status) follows *The Vascular Plants of Massachusetts: A County Checklist* , First Revision (Cullina et. al 2011)

[2]Status: N=Native, I=Introduced, ?=implies uncertainty or doubt (Cullina et. al. 2011), W=waif, *=unknown, n/a=not identified to species/depends on species

[3]Relative abundance: T=trace (less than 1 percent); U=uncommon (1–10 percent); C=common (11–45 percent); A=abundant (46–100 percent)

Appendix A.2

Pre-Construction Photolog
Post-Construction Photolog (2025)

Pre-Construction Photolog

261B Pre-construction Photos

Wetland A

6-18-20



261_WetlandA_ViewN_2020-6-18TR



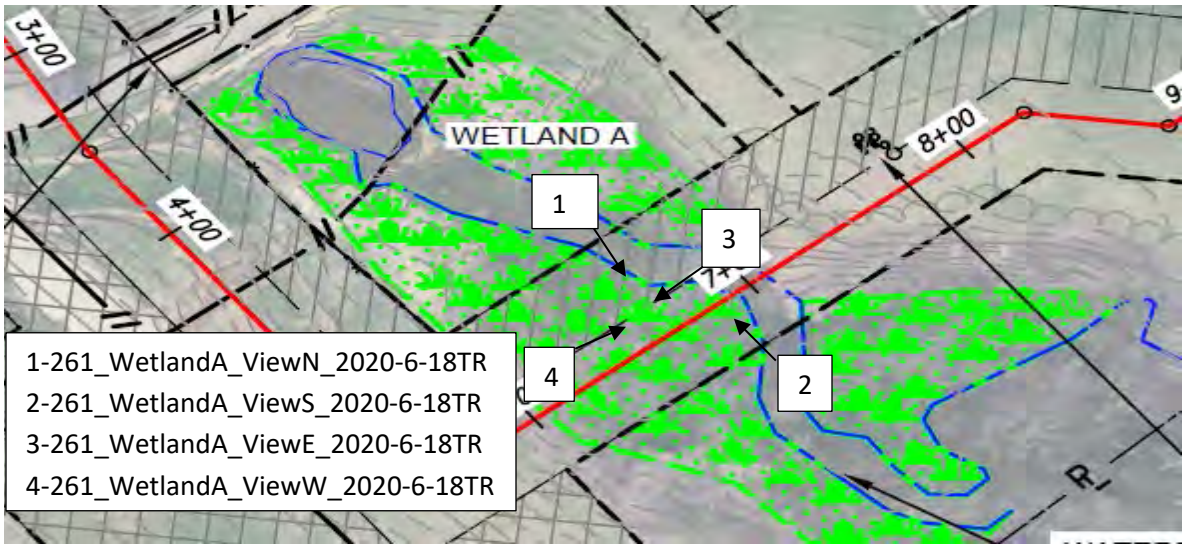
261_WetlandA_ViewS_2020-6-18TR



261_WetlandA_ViewE_2020-6-18TR



261_WetlandA_ViewW_2020-6-18TR



261B Pre-construction Photos
Wetland B
6-18-20 & 6-19-20



261_WetlandB_ViewN_2020-6-18TR



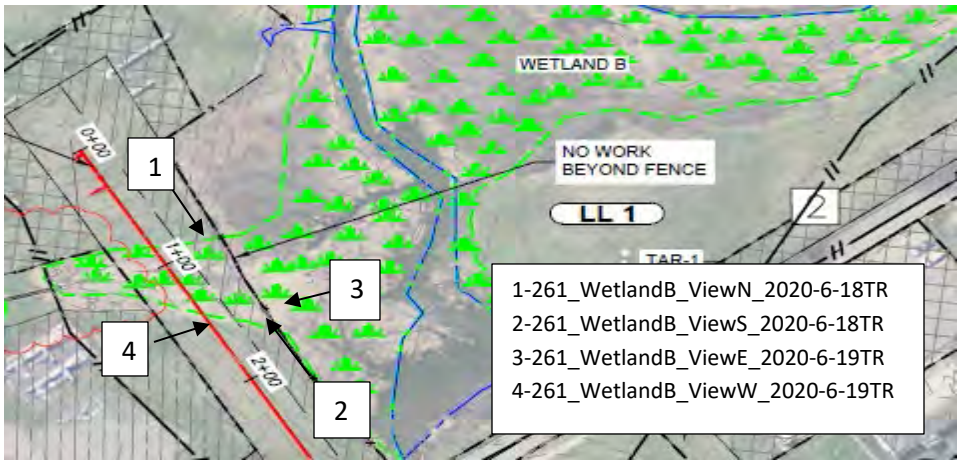
261_WetlandB_ViewS_2020-6-18TR



261_WetlandB_ViewE_2020-6-19TR



261_WetlandB_ViewW_2020-6-19TR



261B Pre-construction Photos
Wetland E
6-19-20



261_WetlandE_ViewN_2020-6-19TR



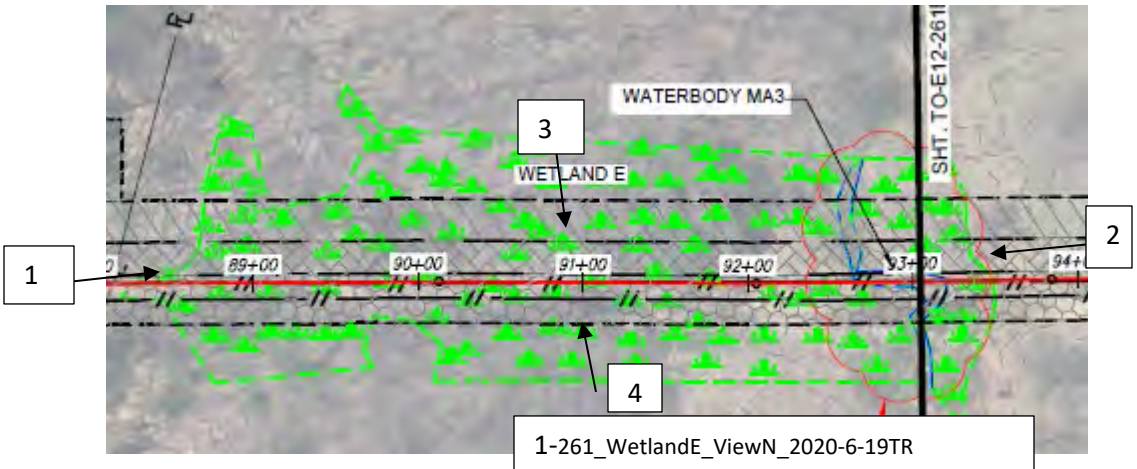
261_WetlandE_ViewS_2020-6-19TR



261_WetlandE_ViewE_2020-6-19TR



261_WetlandE_ViewW_2020-6-19TR



1-261_WetlandE_ViewN_2020-6-19TR
2-261_WetlandE_ViewS_2020-6-19TR
3-261_WetlandE_ViewE_2020-6-19TR
4-261_WetlandE_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland G
6-19-20



261_WetlandG_ViewN_2020-6-19TR



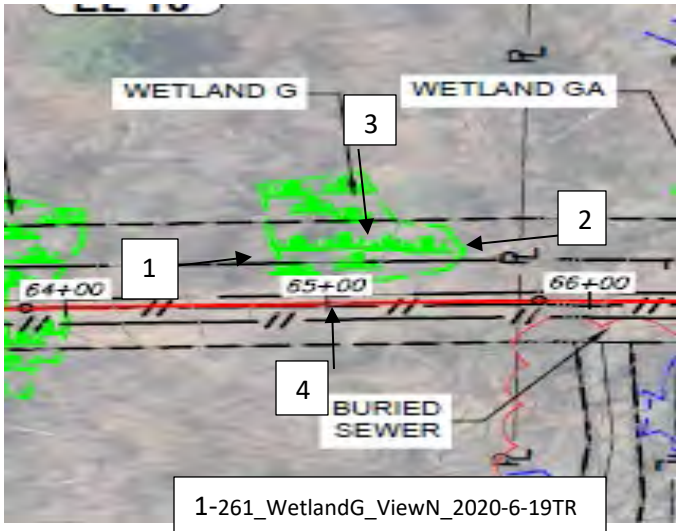
261_WetlandG_ViewS_2020-6-19TR



261_WetlandG_ViewE_2020-6-19TR



261_WetlandG_ViewW_2020-6-19TR



1-261_WetlandG_ViewN_2020-6-19TR
2-261_WetlandG_ViewS_2020-6-19TR
3-261_WetlandG_ViewE_2020-6-19TR
4-261_WetlandG_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland GA
6-19-20



261_WetlandGA_ViewN_2020-6-19TR



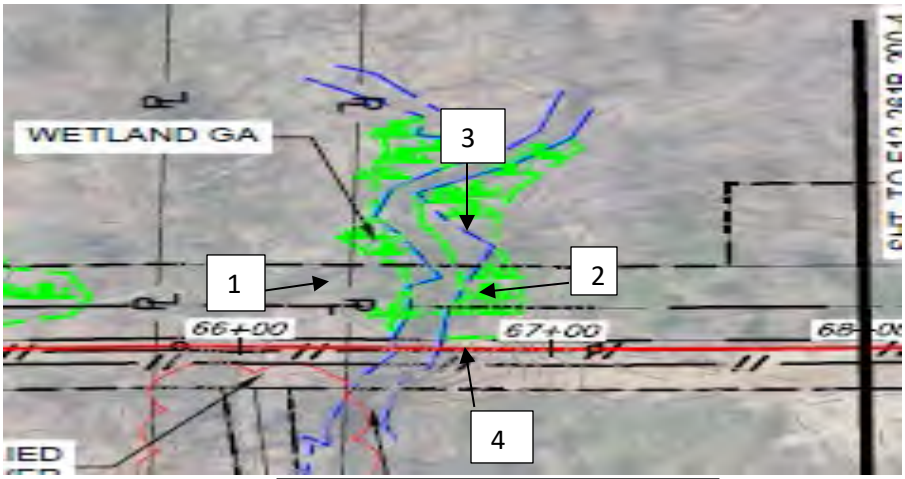
261_WetlandGA_ViewS_2020-6-19TR



261_WetlandGA_ViewE_2020-6-19TR



261_WetlandGA_ViewW_2020-6-19TR



1-261_WetlandGA_ViewN_2020-6-19TR
2-261_WetlandGA_ViewS_2020-6-19TR
3-261_WetlandGA_ViewE_2020-6-19TR
4-261_WetlandGA_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland H
6-19-20



261_WetlandH_ViewN_2020-6-19TR



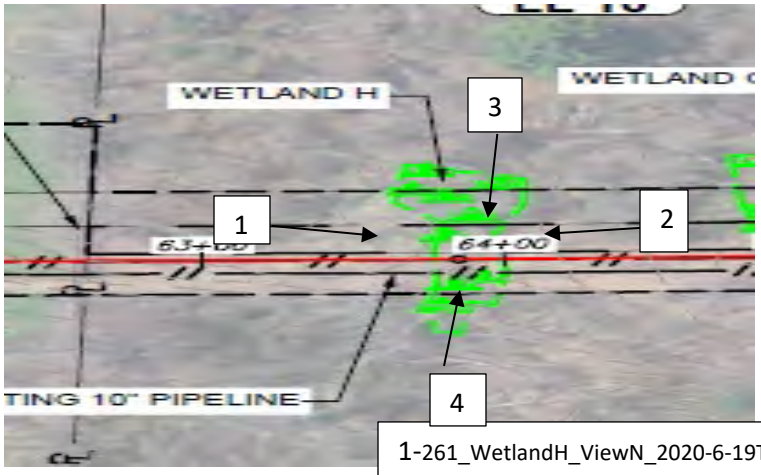
261_WetlandH_ViewS_2020-6-19TR



261_WetlandH_ViewE_2020-6-19TR



261_WetlandH_ViewW_2020-6-19TR



1-261_WetlandH_ViewN_2020-6-19TR
2-261_WetlandH_ViewS_2020-6-19TR
3-261_WetlandH_ViewE_2020-6-19TR
4-261_WetlandH_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland K
6-19-20



261_WetlandK_ViewN_2020-6-19TR



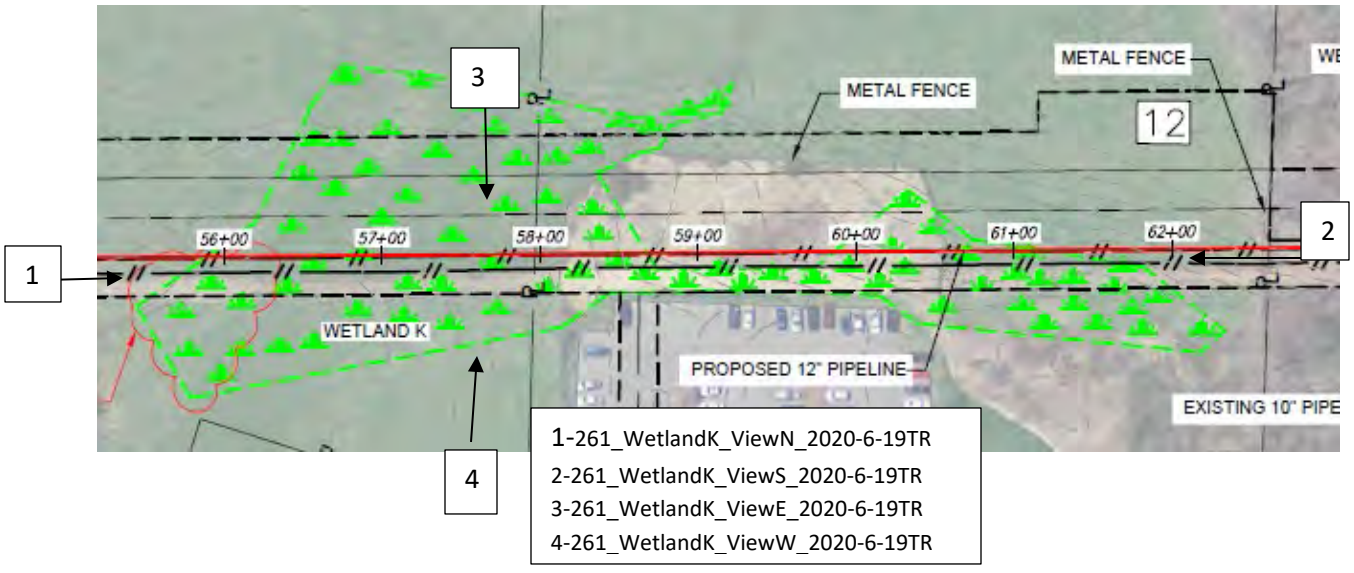
261_WetlandK_ViewS_2020-6-19TR



261_WetlandK_ViewE_2020-6-19TR



261_WetlandK_ViewW_2020-6-19TR



261B Pre-construction Photos
Wetland L
6-19-20



261_WetlandL_ViewN_2020-6-19TR



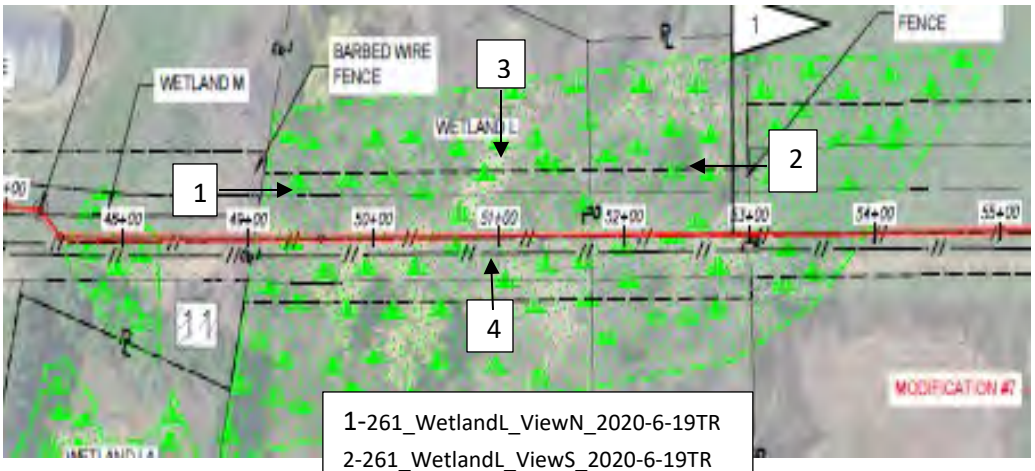
261_WetlandL_ViewS_2020-6-19TR



261_WetlandL_ViewE_2020-6-19TR



261_WetlandL_ViewW_2020-6-19TR



1-261_WetlandL_ViewN_2020-6-19TR
2-261_WetlandL_ViewS_2020-6-19TR
3-261_WetlandL_ViewE_2020-6-19TR
4-261_WetlandL_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland M
6-19-20



261_WetlandM_ViewN_2020-6-19TR



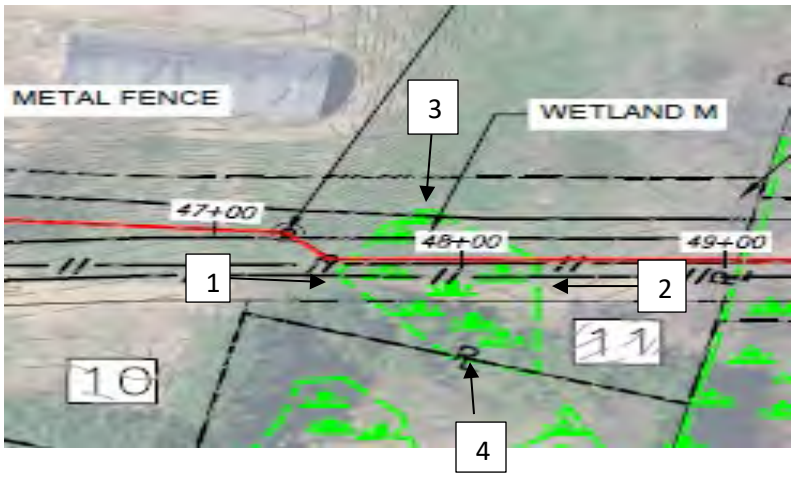
261_WetlandM_ViewS_2020-6-19TR



261_WetlandM_ViewE_2020-6-19TR



261_WetlandM_ViewW_2020-6-19TR



1-261_WetlandM_ViewN_2020-6-19TR
2-261_WetlandM_ViewS_2020-6-19TR
3-261_WetlandM_ViewE_2020-6-19TR
4-261_WetlandM_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland N
6-18-20 & 6-19-20



261_WetlandN_ViewN_2020-6-18TR



261_WetlandN_ViewS_2020-6-18TR



261_WetlandN_ViewE_2020-6-18TR



261_WetlandN_ViewW_2020-6-19TR



1-261_WetlandN_ViewN_2020-6-18TR
2-261_WetlandN_ViewS_2020-6-18TR
3-261_WetlandN_ViewE_2020-6-18TR
4-261_WetlandN_ViewW_2020-6-19TR

261B Pre-construction Photos
Wetland S
6-18-20



261_WetlandS_ViewN_2020-6-18TR



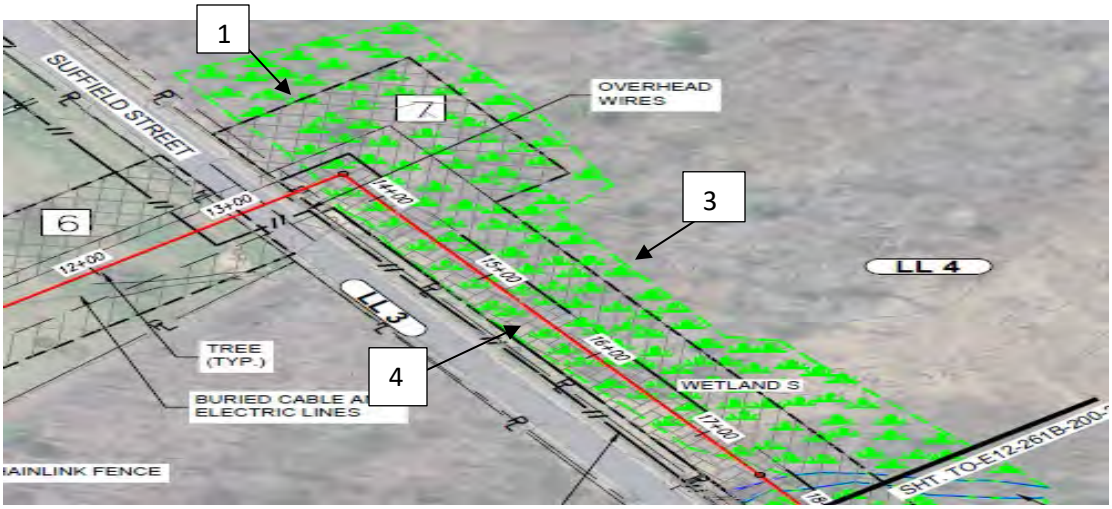
261_WetlandS_ViewS_2020-6-18TR



261_WetlandS_ViewE_2020-6-18TR



261_WetlandS_ViewW_2020-6-18TR



1-261_WetlandS_ViewN_2020-6-18TR
2-261_WetlandS_ViewS_2020-6-18TR
3-261_WetlandS_ViewE_2020-6-18TR
4-261_WetlandS_ViewW_2020-6-18TR

Post-Construction Photolog (2025)

261B Post-construction Photos
Wetland A
9-29-25



1- 2025-29-09_261_WetlandA-N



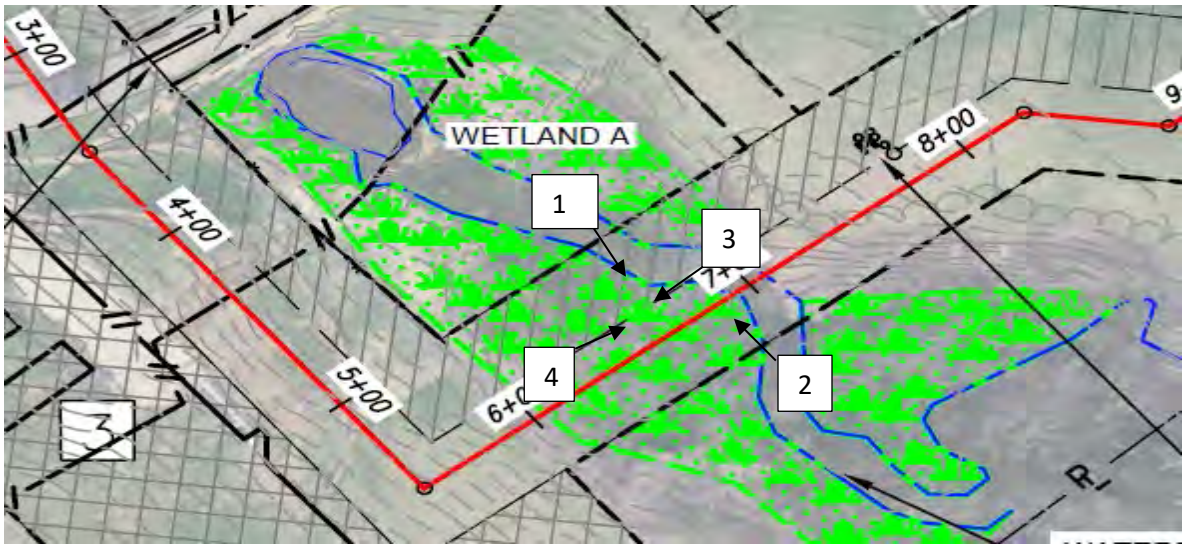
2- 2025-29-09_261_WetlandA-S



3- 2025-29-09_261_WetlandA-E



4- 2025-29-09_261_WetlandA-W



261B Post-construction Photos
Wetland B
6-16-2025 and 9-29-25



1- 2025-16-06_261_WetlandB_N



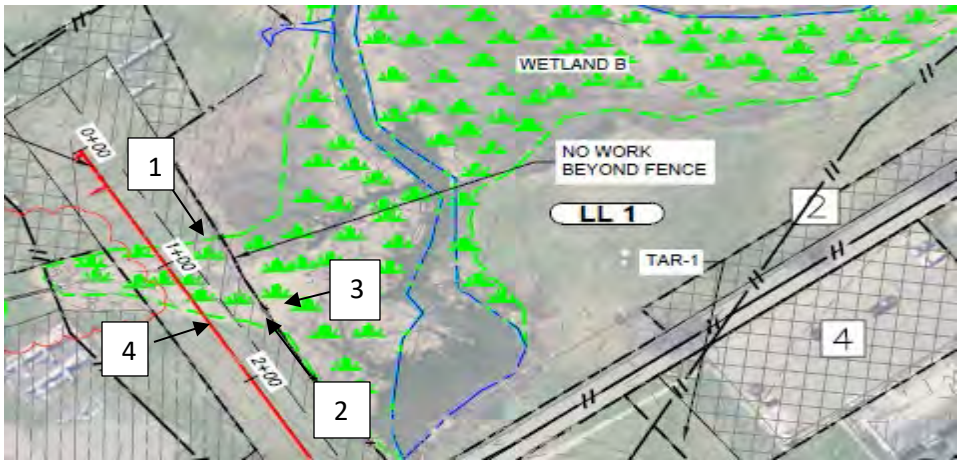
2- 2025-29-09_261_WetlandB_S



3- 2025-29-09_261_WetlandB_E



4- 2025-29-09_261_WetlandB_W



261B Post-construction Photos
Wetland E
9-29-25



1- 2025-09-29_261_WetlandE-N



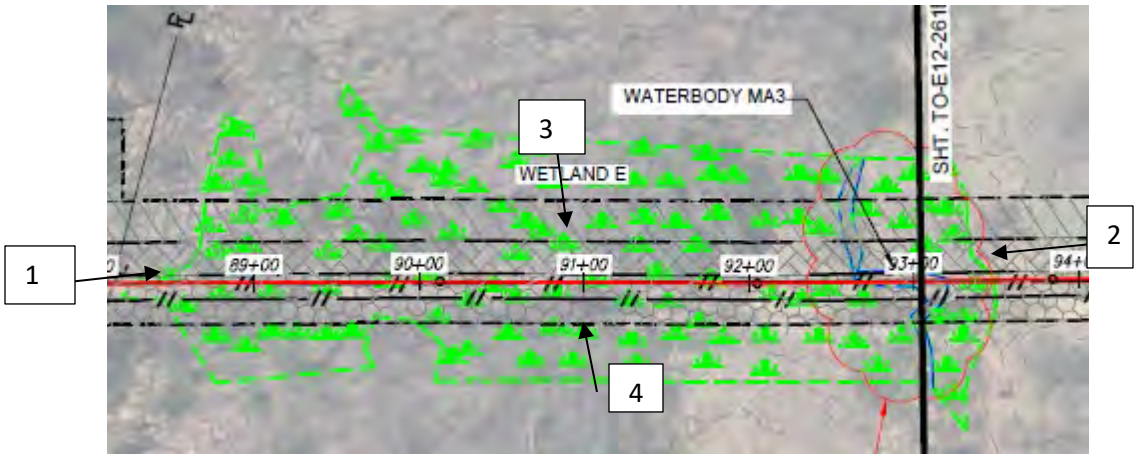
2- 2025-09-29_261_WetlandE-S



3- 2025-09-29_261_WetlandE-E



4- 2025-09-29_261_WetlandE-W



261B Post-construction Photos
Wetland G
9-30-25



1- 2025-09-30_261_WetlandG_N



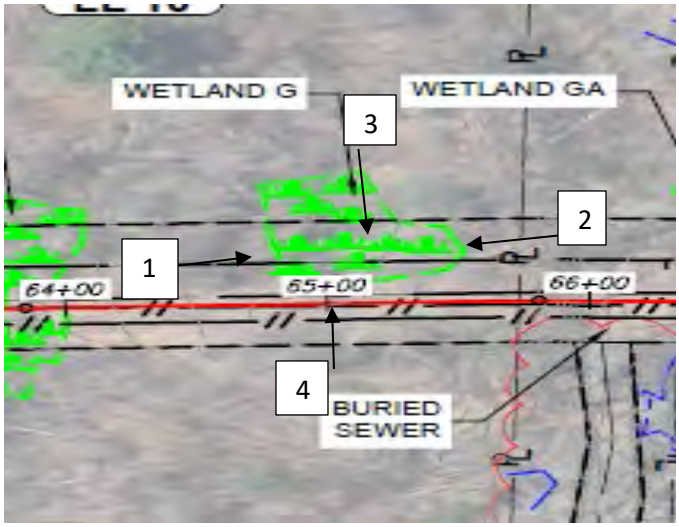
2- 2025-09-30_261_WetlandG_S



3- 2025-09-30_261_WetlandG_E



4- 2025-09-30_261_WetlandG_W



261B Post-construction Photos

Wetland GA

9-30-25



1- 2025-09-30_ 261_WetlandGA_N



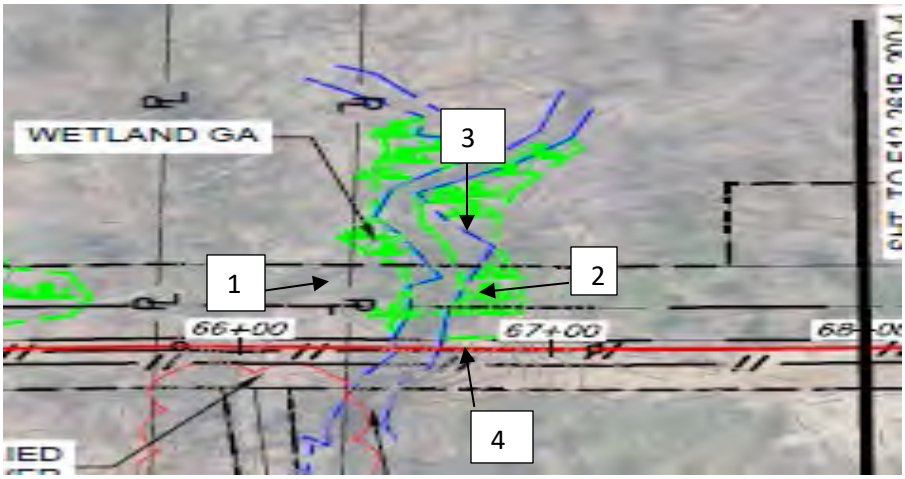
2- 2025-09-30_ 261_WetlandGA_S



3- 2025-09-30_261_WetlandGA_E



4- 2025-09-30_ 261_WetlandGA_W



261B Post-construction Photos
Wetland H
9-30-25



1- 2025-09-30_261_WetlandH_N



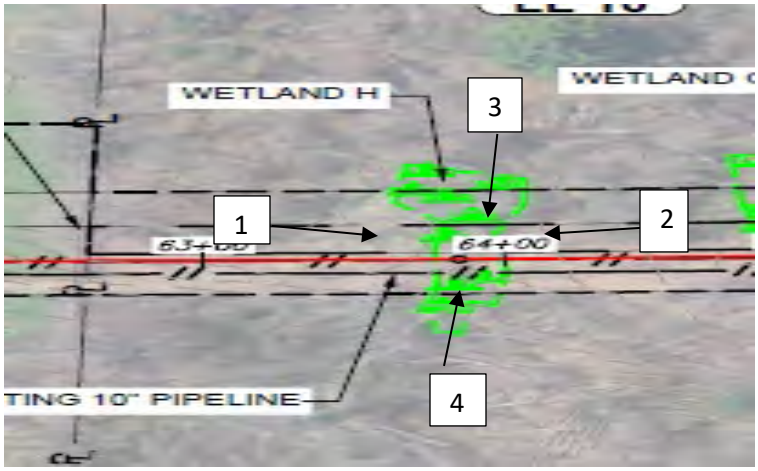
2- 2025-09-30_261_WetlandH_S



3- 2025-09-30_261_WetlandH_E



4- 2025-09-30_261_WetlandH_W



261B Post-construction Photos
Wetland K
9-30-25



1- 2025-09-30_261_WetlandK_N



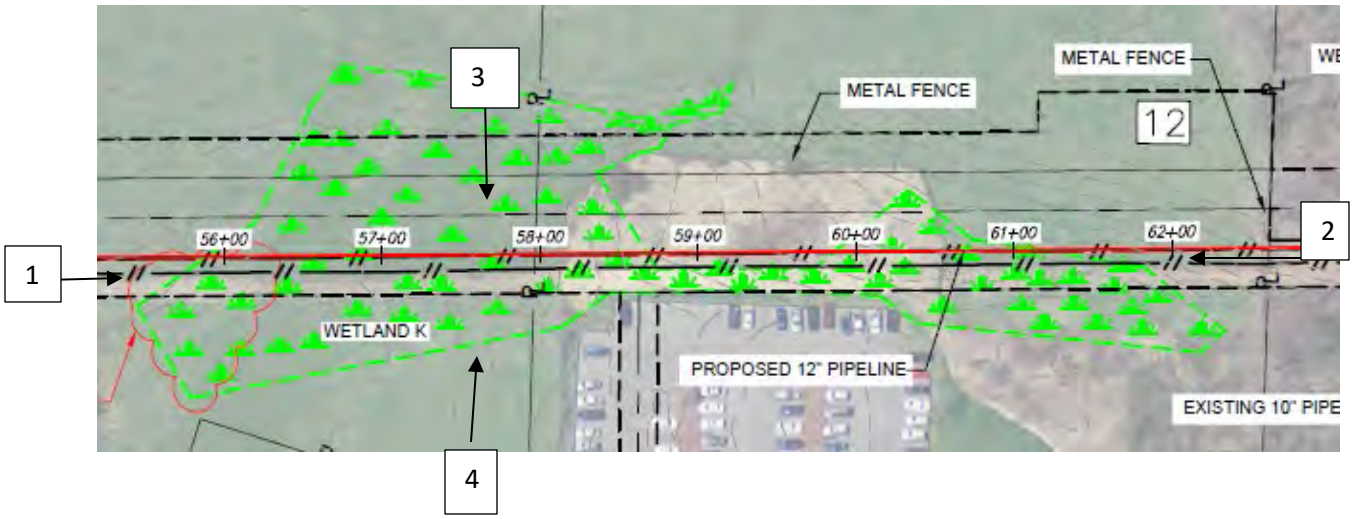
2- 2025-09-30_261_WetlandK_S



3- 2025-09-30_261_WetlandK_E



4- 2025-09-30_261_WetlandK_W



261B Post-construction Photos

Wetland L

9-30-25



1- 2025-09-30_261_WetlandL_N



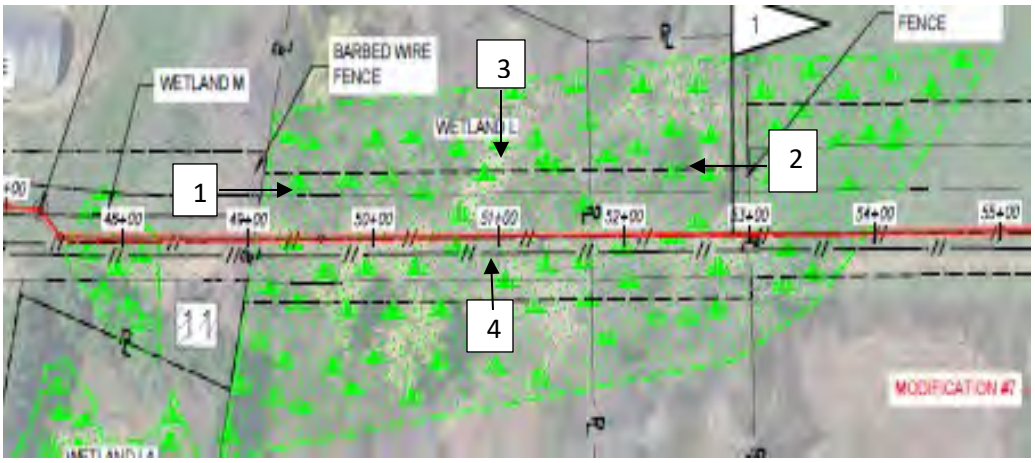
2- 2025-09-30_261_WetlandL_S



3- 2025-09-30_261_WetlandL_E



4- 2025-09-30_261_WetlandL_W



261B Post-construction Photos

Wetland M

9-30-25



1- 2025-09-30_261_WetlandM_N



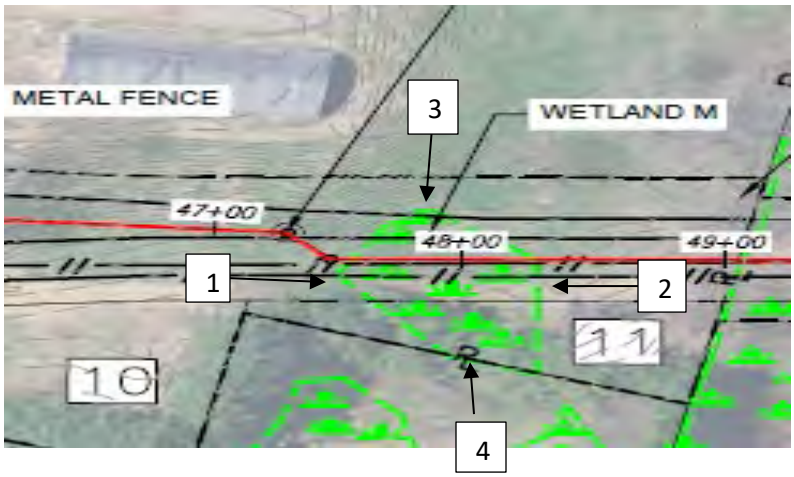
2- 2025-09-30_261_WetlandM_S



3- 2025-09-30_261_WetlandM_E



4- 2025-09-30_261_WetlandM_W



261B Post-construction Photos
Wetland N
9-29-25



1- 2025-09-29_261_WetlandN_N



2- 2025-09-29_261_WetlandN_S



3- 2025-09-29_261_WetlandN_E



4- 2025-09-29_261_WetlandN_W



261B Post-construction Photos
Wetland S
9-29-25



1- 2025-09-29_261_WetlandS_N



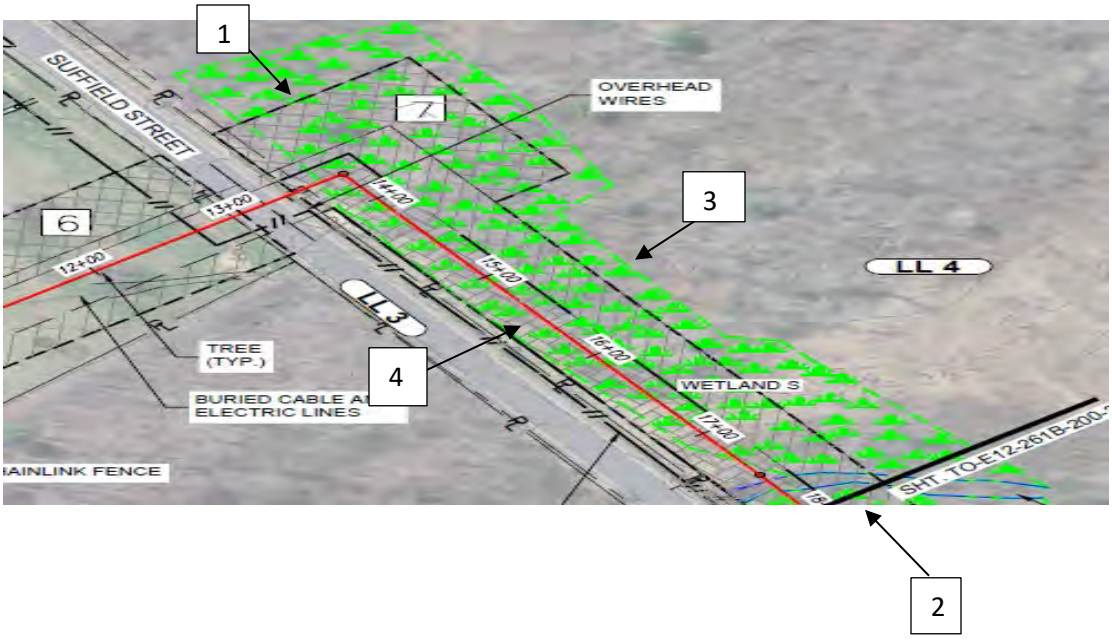
2- 2025-09-29_261_WetlandS_S



3- 2025-09-29_261_WetlandS_E



4- 2025-09-29_261_WetlandS_W



Appendix A.3

Observation Plot Photologs

Observation Plot Data Forms

Observation Plot Photologs

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland A Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandA_ (North)



2025-06-16_261_WetlandA_ (East)



2025-06-16_261_WetlandA_ (South)



2025-06-16_261_WetlandA_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland B Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandB_ (North)



2025-06-16_261_WetlandB_ (East)



2025-06-16_261_WetlandB_ (South)



2025-06-16_261_WetlandB_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland E Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandE_ (North)



2025-06-16_261_WetlandE_ (East)



2025-06-16_261_WetlandE_ (South)



2025-06-16_261_WetlandE_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland G Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandG_ (North)



2025-06-16_261_WetlandG_ (East)



2025-06-16_261_WetlandG_ (South)



2025-06-16_261_WetlandG_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland GA Observation Plot Photographs 2025-06-16



2025-06-16_261_WetlandGA_ (North)



2025-06-16_261_WetlandGA_ (East)



2025-06-16_261_WetlandGA_ (South)



2025-06-16_261_WetlandGA_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland H Observation Plot Photographs 2025-06-16



2025-06-16_261_WHOP_ (West)



2025-06-16_261_WHOP_ (North)



2025-06-16_261_WHOP_ (East)



2025-06-16_261_WHOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland K Observation Plot Photographs 2025-06-16



2025-06-16_261_WKOP_ (North)



2025-06-16_261_WKOP_ (East)



2025-06-16_261_WKOP_ (South)



2025-06-16_261_WKOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland L Observation Plot Photographs 2025-06-16



2025-06-16_261_WLOP_ (East)



2025-06-16_261_WLOP_ (South)



2025-06-16_261_WLOP_ (West)



2025-06-16_261_WLOP_ (North)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland M Observation Plot Photographs 2025-06-16



2025-06-16_261_WMOP_ (North)



2025-06-16_261_WMOP_ (East)



2025-06-16_261_WMOP_ (South)



2025-06-16_261_WMOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland N Observation Plot Photographs 2025-06-16



2025-06-16_261_WNOP_ (North)



2025-06-16_261_WNOP_ (East)



2025-06-16_261_WNOP_ (South)



2025-06-16_261_WNOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland S Observation Plot Photographs 2025-06-16



2025-06-16_261_ WSOP_ (North)



2025-06-16_261_ WSOP_ (East)



2025-06-16_261_ WSOP_ (South)



2025-06-16_261_ WSOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland A Observation Plot Photographs 2025-09-29



2025-09-29_261_WAOP_ (North)



2025-09-29_261_WAOP_ (South)



2025-09-29_261_WAOP_ (East)



2025-09-29_261_WAOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland B Observation Plot Photographs 2025-09-29



2025-09-29_261_WBOP_ (North)



2025-09-29_261_WBOP_ (East)



2025-09-29_261_WBOP_ (West)



2025-09-29_261_WBOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland E Observation Plot Photographs 2025-09-29



2025-09-29_261_WEOP_ (North)



2025-09-29_261_WEOP_ (East)



2025-09-29_261_WEOP_ (South)



2025-09-29_261_WEOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland G Observation Plot Photographs 2025-09-29



2025-09-29_261_WGOP_ (North)



2025-09-29_261_WGOP_ (East)



2025-09-29_261_WGOP_ (South)



2025-09-29_261_WGOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland GA Observation Plot Photographs 2025-09-29



2025-09-29_261_WGAOP_ (North)



2025-09-29_261_WGAOP_ (East)



2025-09-29_261_WGAOP_ (South)



2025-09-29_261_WGAOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland H Observation Plot Photographs 2025-09-30



2025-09-30_261_WHOP_ (West)



2025-09-30_261_WHOP_ (North)



2025-09-30_261_WHOP_ (East)



2025-09-30_261_WHOP_ (South)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland K Observation Plot Photographs 2025-09-30



2025-09-30_261_WKOP_ (North)



2025-09-30_261_WKOP_ (East)



2025-09-30_261_WKOP_ (South)



2025-09-30_261_WKOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland L Observation Plot Photographs 2025-09-30



2025-09-30_261_WLOP_ (East)



2025-09-30_261_WLOP_ (South)



2025-09-30_261_WLOP_ (West)



2025-09-30_261_WLOP_ (North)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland M Observation Plot Photographs 2025-09-30



2025-09-30_261_WMOP_ (North)



2025-09-30_261_WMOP_ (East)



2025-09-30_261_WMOP_ (South)



2025-09-30_261_WMOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland N Observation Plot Photographs 2025-09-30



2025-09-30_261_WNOP_ (North)



2025-09-30_261_WNOP_ (East)



2025-09-30_261_WNOP_ (South)



2025-09-30_261_WNOP_ (West)

Tennessee Gas Pipeline Company, L.L.C.
261 Upgrade Projects

Wetland S Observation Plot Photographs 2025-09-30



2025-09-30_261_WSOP_ (North)



2025-09-30_261_WSOP_ (East)



2025-09-30_261_WSOP_ (South)



2025-09-30_261_WSOP_ (West)

Observation Plot Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WA-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodway depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.035755 Long: -72.634303 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes X No ___ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 20% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WA-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Spiraea alba* / White meadowsweet	30	Yes	FACW
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Sambucus nigra* / Black elderberry	10	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
5. *Acer rubrum* / Red maple	5	No	FAC
6.			
7.			
	75	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Equisetum arvense* / Common horsetail	75	Yes	FAC
2. *Carex lurida* / Shallow sedge	70	Yes	OBL
3. *Onoclea sensibilis* / Sensitive fern	30	No	FACW
4. *Carex scoparia* / Pointed broom sedge	20	No	FACW
5. *Carex crinita* / Fringed sedge	20	No	OBL
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
7. *Convolvulus arvensis* / Field bindweed, Bindweed, Orchard r	5		NI
8. *Clematis virginiana* / Devil's-darning-needles	5	No	FAC
9. *Toxicodendron radicans* / Eastern poison ivy	5	No	FAC
10. *Solidago canadensis* / Canada goldenrod	5	No	FACU
11.			
12.			
	250	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	110	x 2 =	220
FAC species	110	x 3 =	330
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	325 (A)		700 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WA-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WA-OP_Fall25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodway depression | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR R | Lat: 42.035755 | Long: -72.634303 | Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	**Is the Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No	If yes, optional Wetland Site ID:	

Remarks: Wetland area is within limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 15% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WA-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Spiraea alba* / White meadowsweet	20	Yes	FACW
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Sambucus nigra* / Black elderberry	15	Yes	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
5. *Acer rubrum* / Red maple	5	No	FAC
6.			
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Equisetum arvense* / Common horsetail	50	Yes	FAC
2. *Carex lurida* / Shallow sedge	45	Yes	OBL
3. *Scirpus cyperinus* / Woolgrass	35	Yes	OBL
4. *Onoclea sensibilis* / Sensitive fern	25	No	FACW
5. *Symphyotrichum novae-angliae* / New england american-ast	15	No	FACW
6. *Carex scoparia* / Pointed broom sedge	15	No	FACW
7. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
8. *Carex crinita* / Fringed sedge	15	No	OBL
9. *Symphyotrichum puniceum* / Purple-stem american-aster	10	No	OBL
10. *Solidago canadensis* / Canada goldenrod	5	No	FACU
11.			
12.			
	230	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	110	x 2 =	220
FAC species	75	x 3 =	225
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	305 (A)		610 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WA-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WB-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 3-8%
Subregion (LRR or MLRA): LRR R Lat: 42.034572 Long: -72.634228 Datum: WGS84
Soil Map Unit Name: Pollux fine sandy loam, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in approximately 15% of wetland

VEGETATION - Use scientific names of plants. Sampling Point: WB-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	10	Yes	FACW
2. *Carya ovata* / Shag-bark hickory	1	No	FACU
3.			
4.			
5.			
6.			
7.			
	11	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	5	Yes	FACW
2. *Cornus amomum* / Silky dogwood	5	Yes	FACW
3. *Lonicera maackii* / Amur honeysuckle	2	No	NI
4. *Elaeagnus umbellata* / Autumn olive	2	No	NI
5.			
6.			
7.			
	14	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Symphyotrichum novae-angliae* / New england american-ast	25	Yes	FACW
2. *Phalaris arundinacea* / Reed canary grass	20	Yes	FACW
3. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	Yes	OBL
4. *Galium album* / White bedstraw	15	Yes	NI
5. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	15	Yes	OBL
6. *Verbena hastata* / Swamp verbena	15	Yes	FACW
7. *Carex lurida* / Shallow sedge	15	Yes	OBL
8. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
9. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
10. *Carex scoparia* / Pointed broom sedge	10	No	FACW
11. *Phragmites australis* / Common reed	5	No	FACW
12. *Asclepias incarnata* / Swamp milkweed	2		OBL
	162	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	19	x 5 =	95
Column Totals:	185 (A)		369 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WB-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WB-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR R Lat: 42.034572 Long: -72.634228 Datum: WGS84
Soil Map Unit Name: Pollux fine sandy loam, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WB-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	10	Yes	FACW
2. *Elaeagnus umbellata* / Autumn olive	5	Yes	NI
3. *Frangula alnus* / Glossy false buckthorn	5	Yes	FAC
4. *Carya ovata* / Shag-bark hickory	2	No	FACU
5.			
6.			
7.			
	22	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	10	Yes	FACW
2. *Cornus amomum* / Silky dogwood	10	Yes	FACW
3. *Lonicera maackii* / Amur honeysuckle	5	No	NI
4. *Elaeagnus umbellata* / Autumn olive	2	No	NI
5.			
6.			
7.			
	27	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	Yes	OBL
2. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	20	Yes	OBL
3. *Galium album* / White bedstraw	15	Yes	NI
4. *Verbena hastata* / Swamp verbena	15	Yes	FACW
5. *Symphyotrichum novae-angliae* / New england american-ast	15	Yes	FACW
6. *Carex lurida* / Shallow sedge	15	Yes	OBL
7. *Carex scoparia* / Pointed broom sedge	10	No	FACW
8. *Symphyotrichum puniceum* / Purple-stem american-aster	10	No	OBL
9. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
10. *Phalaris arundinacea* / Reed canary grass	10	No	FACW
11. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
12. *Phragmites australis* / Common reed	8	No	FACW
	158	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 81.8 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	77	x 1 =	77
FACW species	98	x 2 =	196
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	27	x 5 =	135
Column Totals:	209 (A)		431 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WB-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WE-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3%
Subregion (LRR or MLRA): LRR R Lat: 42.05731 Long: -72.639537 Datum: WGS84
Soil Map Unit Name: Enosburg loamy sand, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No
Wetland Hydrology Present? Yes X No

Is the Sampled Area within a Wetland? Yes X No
If yes, optional Wetland Site ID:

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- High Water Table (A2)
- X Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No Depth (inches): 4
Water Table Present? Yes X No Depth (inches): 0
Saturation Present? Yes X No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WE-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
2. *Pinus strobus* / Eastern white pine	5	Yes	FACU
3. *Acer rubrum* / Red maple	2	No	FAC
4.			
5.			
6.			
7.			
	12	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix sp.* / Willow	20	Yes	NI
2. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	25	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Carex lurida* / Shallow sedge	40	Yes	OBL
3. *Typha latifolia* / Broadleaf cattail, Broad-leaved cattail	30	Yes	OBL
4. *Poa palustris* / Fowl bluegrass, Fowl blue grass	25	Yes	FACW
5. *Lythrum salicaria* / Purple loosestrife	25	Yes	OBL
6. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
7. *Carex scoparia* / Pointed broom sedge	25	Yes	FACW
8. *Onoclea sensibilis* / Sensitive fern	20	No	FACW
9. *Scirpus atrovirens* / Green bulrush	15	No	OBL
10. *Eupatorium perfoliatum* / Common boneset	15	No	FACW
11. *Verbena hastata* / Swamp verbena	10		FACW
12.			
	280	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	160	x 1 =	160
FACW species	110	x 2 =	220
FAC species	2	x 3 =	6
FACU species	15	x 4 =	60
UPL species	20	x 5 =	100
Column Totals:	307 (A)		546 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WE-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 09/30/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WE-OP_Fall25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR or MLRA): LRR R | Lat: 42.05731 | Long: -72.639537 | Datum: WGS84
Soil Map Unit Name: Enosburg loamy sand, 0-3% slopes | NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes ____	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WE-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor* / Swamp white oak	10	Yes	FACW
2. *Robinia pseudoacacia* / Black locust	5	Yes	FACU
3. *Acer rubrum* / Red maple	2	No	FAC
4. *Pinus strobus* / Eastern white pine	2	No	FACU
5.			
6.			
7.			
	19	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix sp.* / Willow	30	Yes	FACW
2. *Sambucus nigra* / Black elderberry	15	Yes	FACW
3. *Cornus sericea* / American dogwood	10	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
5. *Betula alleghaniensis* / Yellow birch	5	No	FAC
6. *Robinia pseudoacacia* / Black locust	5	No	FACU
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	35	Yes	OBL
2. *Typha latifolia* / Broadleaf cattail, Broad-leaved cattail	30	Yes	OBL
3. *Eupatorium perfoliatum* / Common boneset	30	Yes	FACW
4. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
5. *Carex lurida* / Shallow sedge	25	Yes	OBL
6. *Lythrum salicaria* / Purple loosestrife	25	Yes	OBL
7. *Scirpus atrovirens* / Green bulrush	15	No	OBL
8. *Verbena hastata* / Swamp verbena	10	No	FACW
9. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
10. *Carex scoparia* / Pointed broom sedge	10	No	FACW
11. *Poa palustris* / Fowl bluegrass, Fowl blue grass	10	No	FACW
12. *Phragmites australis* / Common reed	5	No	FACW
	230	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	165	x 2 =	330
FAC species	7	x 3 =	21
FACU species	17	x 4 =	68
UPL species	0	x 5 =	0
Column Totals:	319 (A)		549 (B)

Prevalence Index = B/A = 1.72

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WE-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WG-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR or MLRA): LRR R Lat: 42.049977 Long: -72.638076 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes/Mecksville loam, 3-8% NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):	
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	1

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WG-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	20	Yes	FAC
2. *Pinus strobus* / Eastern white pine	20	Yes	FACU
3. *Betula populifolia* / Gray birch	10	No	FAC
4. *Quercus rubra* / Northern red oak	5	No	FACU
5.			
6.			
7.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
2. *Betula populifolia* / Gray birch	10	Yes	FAC
3. *Salix nigra* / Black willow	5	No	OBL
4. *Quercus bicolor* / Swamp white oak	2	No	FACW
5. *Frangula alnus* / Glossy false buckthorn	2	No	FAC
6.			
7.			
	29	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	75	Yes	OBL
2. *Solidago rugosa* / Wrinkle-leaf goldenrod	25	No	FAC
3. *Carex crinita* / Fringed sedge	20	No	OBL
4. *Solidago canadensis* / Canada goldenrod	15	No	FACU
5. *Impatiens capensis* / Spotted jewelweed	10	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	145	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	12	x 2 =	24
FAC species	67	x 3 =	201
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	229 (A)		525 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

Tree/shrub plantings not included in vegetation inventory

SOIL Sampling Point: WG-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WG-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR or MLRA): LRR R Lat: 42.049977 Long: -72.638076 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes / Mecksville loam, 3-8% NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WG-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus strobus* / Eastern white pine	15	Yes	FACU
2. *Acer rubrum* / Red maple	15	Yes	FAC
3. *Quercus bicolor* / Swamp white oak	10	Yes	FACW
4.			
5.			
6.			
7.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Cornus amomum* / Silky dogwood	15	Yes	FACW
2. *Alnus incana* / Gray alder	10	Yes	FACW
3. *Betula populifolia* / Gray birch	10	Yes	FAC
4. *Betula alleghaniensis* / Yellow birch	5	No	FAC
5. *Frangula alnus* / Glossy false buckthorn	5	No	FAC
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	20	Yes	FACW
3. *Carex crinita* / Fringed sedge	20	Yes	OBL
4. *Scirpus cyperinus* / Woolgrass	20	Yes	OBL
5. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
6. *Solidago canadensis* / Canada goldenrod	10	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	135	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	55	x 2 =	110
FAC species	50	x 3 =	150
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	220 (A)		450 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WG-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WGA-OP_Spring2
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.050428 Long: -72.638201 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WGA-OP_Spring2

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Acer rubrum* / Red maple	10	Yes	FAC
3. *Pinus strobus* / Eastern white pine	10	Yes	FACU
4.			
5.			
6.			
7.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix nigra* / Black willow	15	Yes	OBL
2. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
3. *Populus tremuloides* / Quaking aspen	10	Yes	FACU
4. *Rhus typhina* / Staghorn sumac	5	No	NI
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex lurida* / Shallow sedge	50	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
3. *Lolium perenne* / Perennial rye grass	30	No	FACU
4. *Impatiens capensis* / Spotted jewelweed	15	No	FACW
5. *Carex scoparia* / Pointed broom sedge	10	No	FACW
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
7. *Solidago canadensis* / Canada goldenrod	10	No	FACU
8. *Verbena hastata* / Swamp verbena	5	No	FACW
9. *Eutrochium maculatum* / Spotted trumpetweed	5	No	OBL
10.			
11.			
12.			
	185	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	10	Yes	FACU
2.			
3.			
4.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	30	x 2 =	60
FAC species	25	x 3 =	75
FACU species	100	x 4 =	400
UPL species	5	x 5 =	25
Column Totals:	280 (A)		680 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

X 3 - Prevalence Index ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

Tree/shrub plantings not included in vegetation inventory

SOIL Sampling Point: WGA-OP_Spring2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WGA-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): floodplain Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.050428 Long: -72.638201 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WGA-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	10	Yes	FAC
2. *Populus tremuloides* / Quaking aspen	10	Yes	FACU
3. *Pinus strobus* / Eastern white pine	5	Yes	FACU
4.			
5.			
6.			
7.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Salix nigra* / Black willow	25	Yes	OBL
2. *Cornus sericea* / American dogwood	15	Yes	FACW
3. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	No	FACU
4. *Rhus typhina* / Staghorn sumac	5	No	NI
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Cornus racemosa* / Gray dogwood	5	No	FAC
7.			
	65	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	40	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
4. *Artemisia vulgaris* / Common wormwood	15	No	UPL
5. *Eutrochium maculatum* / Spotted trumpetweed	10	No	OBL
6. *Verbena hastata* / Swamp verbena	10	No	FACW
7. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
8. *Solidago canadensis* / Canada goldenrod	10	No	FACU
9. *Carex scoparia* / Pointed broom sedge	10	No	FACW
10.			
11.			
12.			
	160	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	5	Yes	FACU
2.			
3.			
4.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	105	x 1 =	105
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	20	x 5 =	100
Column Totals:	255 (A)		575 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WGA-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WH-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.04968 Long: -72.638072 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	____	No	X	Depth (inches):	____
Water Table Present?	Yes	____	No	X	Depth (inches):	____
Saturation Present? (includes capillary fringe)	Yes	X	No	____	Depth (inches):	1

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WH-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	20	Yes	FAC
2. *Pinus strobus* / Eastern white pine	10	Yes	FACU
3. *Betula populifolia* / Gray birch	5	No	FAC
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	15	Yes	FACU
2. *Rosa multiflora* / Multiflora rose, Multiflora rosa	10	Yes	FACU
3. *Cornus amomum* / Silky dogwood	10	Yes	FACW
4. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
5.			
6.			
7.			
	45	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	50	Yes	OBL
2. *Carex lurida* / Shallow sedge	40	Yes	OBL
3. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
4. *Scirpus atrovirens* / Green bulrush	25	Yes	OBL
5. *Poa palustris* / Fowl bluegrass, Fowl blue grass	20	No	FACW
6. *Lolium perenne* / Perennial rye grass	20	No	FACU
7. *Carex scoparia* / Pointed broom sedge	20	No	FACW
8. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	No	FAC
9. *Euthamia graminifolia* / Flat-top goldentop	5	No	FAC
10. *Arisaema triphyllum* / Jack-in-the-pulpit	2	No	FAC
11.			
12.			
	222	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	5	Yes	FACU
2.			
3.			
4.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63.6 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	75	x 2 =	150
FAC species	57	x 3 =	171
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	302 (A)		656 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WH-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WH-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 0-3
Subregion (LRR or MLRA): LRR R Lat: 42.04968 Long: -72.638072 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WH-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum* / Red maple	15	Yes	FAC
2. *Pinus strobus* / Eastern white pine	10	Yes	FACU
3. *Betula populifolia* / Gray birch	5	No	FAC
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rubus sp.* / Blackberry	25	Yes	NI
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Populus deltoides* / Eastern cottonwood	10	No	FAC
4. *Populus tremuloides* / Quaking aspen	10	No	FACU
5. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
6. *Frangula alnus* / Glossy false buckthorn	5	No	FAC
7.			
	70	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex lurida* / Shallow sedge	40	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	40	Yes	OBL
3. *Scirpus atrovirens* / Green bulrush	30	Yes	OBL
4. *Carex scoparia* / Pointed broom sedge	25	No	FACW
5. *Impatiens capensis* / Spotted jewelweed	25	No	FACW
6. *Poa palustris* / Fowl bluegrass, Fowl blue grass	20	No	FACW
7. *Scirpus cyperinus* / Woolgrass	10	No	OBL
8. *Solidago rugosa* / Wrinkle-leaf goldenrod	10	No	FAC
9. *Euthamia graminifolia* / Flat-top goldentop	5	No	FAC
10. *Verbena hastata* / Swamp verbena	5	No	FACW
11. *Lactuca serriola* / Prickly lettuce	5	No	FACU
12.			
	215	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1. *Vitis labrusca* / Fox grape	3	No	FACU
2.			
3.			
4.			
	3	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	120	x 1 =	120
FACW species	90	x 2 =	180
FAC species	50	x 3 =	150
FACU species	33	x 4 =	132
UPL species	25	x 5 =	125
Column Totals:	318 (A)		707 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WH-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WK-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.047987 Long: -72.637545 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WK-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	1	No	FACU
2. *Frangula alnus* / Glossy false buckthorn	1	No	FAC
3.			
4.			
5.			
6.			
7.			
	2	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Poa pratensis* / Kentucky blue grass	50	Yes	FACU
2. *Carex longii* / Green-and-white sedge, Green-and-white sedg	25	Yes	OBL
3. *Juncus effusus* / Common bog rush, Soft or lamp rush	15	Yes	OBL
4. *Carex lurida* / Shallow sedge	15	Yes	OBL
5. *Lolium perenne* / Perennial rye grass	15	Yes	FACU
6. *Solidago rugosa* / Wrinkle-leaf goldenrod	15	Yes	FAC
7. *Holcus lanatus* / Common velvetgrass, Common velvet grass	10	No	FACU
8. *Scirpus atrovirens* / Green bulrush	5	No	OBL
9. *Iris versicolor* / Harlequin blueflag	5	No	OBL
10. *Ranunculus arvensis* / Field buttercup	2		FAC
11.			
12.			
	157	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	16	x 3 =	48
FACU species	76	x 4 =	304
UPL species	0	x 5 =	0
Column Totals:	157 (A)		417 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WK-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WK-OP_Fall25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression | Local relief (concave, convex, none): concave | Slope (%): 1-3
Subregion (LRR or MLRA): LRR R | Lat: 42.047987 | Long: -72.637545 | Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	**Is the Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No	If yes, optional Wetland Site ID:	

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No	Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes		No	X	Depth (inches):

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WK-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Rosa multiflora* / Multiflora rose, Multiflora rosa	1	No	FACU
2. *Frangula alnus* / Glossy false buckthorn	1	No	FAC
3.			
4.			
5.			
6.			
7.			
	2	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Symphyotrichum novae-angliae* / New england american-ast	60	Yes	FACW
2. *Poa palustris* / Fowl bluegrass, Fowl blue grass	40	Yes	FACW
3. *Poa pratensis* / Kentucky blue grass	40	Yes	FACU
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	No	OBL
5. *Carex lurida* / Shallow sedge	15	No	OBL
6. *Carex longii* / Green-and-white sedge, Green-and-white sedg	15	No	OBL
7. *Iris versicolor* / Harlequin blueflag	10	No	OBL
8. *Scirpus atrovirens* / Green bulrush	5	No	OBL
9. *Lolium perenne* / Perennial rye grass	5	No	FACU
10.			
11.			
12.			
	210	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	100	x 2 =	200
FAC species	1	x 3 =	3
FACU species	46	x 4 =	184
UPL species	0	x 5 =	0
Column Totals:	212 (A)		452 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WK-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WL-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.046308 Long: -72.637226 Datum: WGS84
Soil Map Unit Name: Scantic variant silt loam, 0-3% slopes / Buxton variant silt loam, 0-8% slopes NWI classification: PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	5	Yes	FACW
2. *Acer rubrum* / Red maple	2	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	7	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Alnus viridis* / Green alder	10	Yes	FAC
2. *Sambucus nigra* / Black elderberry	10	Yes	FACW
3. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
4. *Cornus alba* / Red osier	2	No	FACW
5. *Fraxinus americana* / White ash	2	No	FACU
6.			
7.			
	29	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	75	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
3. *Phalaris arundinacea* / Reed canary grass	20	No	FACW
4. *Onoclea sensibilis* / Sensitive fern	20	No	FACW
5. *Carex stipata* / Awlfruit sedge	15	No	OBL
6. *Phragmites australis* / Common reed	10	No	FACW
7. *Calystegia sepium* / Western hedge bindweed	10	No	FAC
8. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	5	No	OBL
9. *Solidago canadensis* / Canada goldenrod	2	No	FACU
10. *Lotus corniculatus* / Bird's foot trefoil, Bird's-foot trefoil	2	No	FACU
11. *Solidago rugosa* / Wrinkle-leaf goldenrod	2		FAC
12.			
	186	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	92	x 2 =	184
FAC species	22	x 3 =	66
FACU species	11	x 4 =	44
UPL species	0	x 5 =	0
Column Totals:	220 (A)		389 (B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WL-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WL-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.046308 Long: -72.637226 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes ____ No X Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WL-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana* / American elm	15	Yes	FACW
2. *Acer rubrum* / Red maple	2	No	FAC
3.			
4.			
5.			
6.			
7.			
	17	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Sambucus nigra* / Black elderberry	15	Yes	FACW
2. *Alnus viridis* / Green alder	10	Yes	FAC
3. *Cornus alba* / Red osier	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	5	No	FACU
5. *Fraxinus americana* / White ash	2	No	FACU
6.			
7.			
	37	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Juncus effusus* / Common bog rush, Soft or lamp rush	70	Yes	OBL
2. *Impatiens capensis* / Spotted jewelweed	25	Yes	FACW
3. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
4. *Phalaris arundinacea* / Reed canary grass	15	No	FACW
5. *Carex stipata* / Awlfruit sedge	15	No	OBL
6. *Calystegia sepium* / Western hedge bindweed	10	No	FAC
7. *Phragmites australis* / Common reed	10	No	FACW
8. *Typha angustifolia* / Narrow leaf cattail, Narrow-leaved cattai	5	No	OBL
9. *Solidago canadensis* / Canada goldenrod	5	No	FACU
10. *Solidago rugosa* / Wrinkle-leaf goldenrod	2	No	FAC
11.			
12.			
	172	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	100	x 2 =	200
FAC species	24	x 3 =	72
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	226 (A)		410 (B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WL-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WM-OP_Spring25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): hillslope | Local relief (concave, convex, none): convex | Slope (%): 5
Subregion (LRR or MLRA): LRR R | Lat: 42.045335 | Long: -72.637031 | Datum: WGS84
Soil Map Unit Name: Windsor loamy sand, 3-8% slopes | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ___	No ___	**within a Wetland?**	Yes ___	No X
Wetland Hydrology Present?	Yes X	No ___	If yes, optional Wetland Site ID:		

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.
Because of landowner activities area does not exhibit characteristics of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	1	
Water Table Present?	Yes ___	No X	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):		**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surace water present at time of spring visit. Convex slope of the wetland (possibly due to landowner disturbance) makes the retention of water necessary for the growth of hydrophytic vegetation unlikely.

VEGETATION - Use scientific names of plants. Sampling Point: WM-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Trifolium sp.* / Clover	25	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	25	x 5 =	125
Column Totals:	25 (A)		125 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland and surrounding area recently and regularly mowed; vegetation identification impossible, because of the relative adjacency to landowner's lawn, Poa pratensis is assumed but could not be confirmed.

SOIL

Sampling Point: WM-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WM-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR or MLRA): LRR R Lat: 42.045335 Long: -72.637031 Datum: WGS84
Soil Map Unit Name: Windsor loamy sand, 3-8% slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ___	No ___	**within a Wetland?**	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X	If yes, optional Wetland Site ID:		

Remarks: Area heavily disturbed by third-party influence. Wetland is actively mowed as part of residential turf and soil was being mechanically manipulated at time of fall visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches):	
Water Table Present?	Yes ___ No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Convex slope of wetland (possibly due to landowner disturbance) makes the retention of water necessary for the growth of hydrophytic vegetation unlikely.

VEGETATION - Use scientific names of plants. Sampling Point: WM-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0	= Total Cover	

Herb Stratum (Plot size: 5-ft)			
1. *Trifolium sp.* / Clover	20	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20	= Total Cover	

Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	20 (A)		100 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Explain alternative procedures here or in a separate report.)

Grass and other vegetation are unidentifiable due to mowing. Poa pratensis assumed but could not be verified.

SOIL Sampling Point: WM-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WN-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 2-8
Subregion (LRR or MLRA): LRR R Lat: 42.038521 Long: -72.63691 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes NWI classification: PFO/PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WN-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
3. *Quercus rubra* / Northern red oak	5	No	FACU
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	40	Yes	FACU
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	10	No	FACW
4. *Fraxinus americana* / White ash	5	No	FACU
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Alnus viridis* / Green alder	5	No	FAC
7. *Elaeagnus umbellata* / Autumn olive	1	No	NI
	81	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	60	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Artemisia vulgaris* / Common wormwood	25	Yes	UPL
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	20	No	OBL
5. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	20	No	OBL
6. *Verbena hastata* / Swamp verbena	15	No	FACW
7. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
8. *Penstemon digitalis* / Foxglove beardtongue	10	No	FAC
9. *Lythrum salicaria* / Purple loosestrife	5	No	OBL
10. *Vicia cracca* / Bird vetch	5		NI
11.			
12.			
	205	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	135	x 1 =	135
FACW species	55	x 2 =	110
FAC species	30	x 3 =	90
FACU species	70	x 4 =	280
UPL species	26	x 5 =	130
Column Totals:	316 (A)		745 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WN-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project | City/County: Agawam, Hampden | Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. | State: MA | Sampling Point: WN-OP_Fall25
Investigator(s): J. Samuels | Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression | Local relief (concave, convex, none): concave | Slope (%): 2-8
Subregion (LRR or MLRA): LRR R | Lat: 42.038521 | Long: -72.63691 | Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes | NWI classification: PFO/PSS/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No		
Wetland Hydrology Present?	Yes	X	No		

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Survey conducted in autumn, the dry season.

VEGETATION - Use scientific names of plants. Sampling Point: WN-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Populus deltoides* / Eastern cottonwood	10	Yes	FAC
3. *Quercus rubra* / Northern red oak	5	No	FACU
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	30	Yes	FACU
2. *Cornus amomum* / Silky dogwood	20	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	10	No	FACW
4. *Fraxinus americana* / White ash	5	No	FACU
5. *Populus deltoides* / Eastern cottonwood	5	No	FAC
6. *Alnus viridis* / Green alder	5	No	FAC
7. *Elaeagnus umbellata* / Autumn olive	1	No	NI
	76	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	50	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	25	Yes	OBL
3. *Carex lurida* / Shallow sedge	25	Yes	OBL
4. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	20	No	OBL
5. *Artemisia vulgaris* / Common wormwood	15	No	UPL
6. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
7. *Verbena hastata* / Swamp verbena	10	No	FACW
8. *Lythrum salicaria* / Purple loosestrife	10	No	OBL
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	170	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	50	x 2 =	100
FAC species	20	x 3 =	60
FACU species	60	x 4 =	240
UPL species	21	x 5 =	105
Column Totals:	281 (A)		635 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WN-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 06/16/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WS-OP_Spring25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR or MLRA): LRR R Lat: 42.03681 Long: -72.636968 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____
If yes, optional Wetland Site ID: ____

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? Yes X No ____ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants. Sampling Point: WS-OP_Spring25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	20	Yes	FACU
2. *Quercus rubra* / Northern red oak	5	No	FACU
3. *Populus deltoides* / Eastern cottonwood	5	No	FAC
4.			
5.			
6.			
7.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Cornus amomum* / Silky dogwood	10	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	2	No	FACU
5.			
6.			
7.			
	42	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	60	Yes	OBL
2. *Carex lurida* / Shallow sedge	30	Yes	OBL
3. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	25	Yes	OBL
4. *Juncus effusus* / Common bog rush, Soft or lamp rush	25	Yes	OBL
5. *Onoclea sensibilis* / Sensitive fern	15	No	FACW
6. *Artemisia vulgaris* / Common wormwood	15	No	UPL
7. *Verbena hastata* / Swamp verbena	10	No	FACW
8. *Penstemon digitalis* / Foxglove beardtongue	5		FAC
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	190	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	140	x 1 =	140
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	52	x 4 =	208
UPL species	20	x 5 =	100
Column Totals:	257 (A)		543 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL

Sampling Point: WS-OP_Spring25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: 261 Upgrade Project City/County: Agawam, Hampden Sampling Date: 09/29/2025
Applicant/Owner: Tennessee Gas Pipeline Company, L.L.C. State: MA Sampling Point: WS-OP_Fall25
Investigator(s): J. Samuels Section, Township, Range: NA
Landform (hillslope, terrace, etc): depression Local relief (concave, convex, none): concave Slope (%): 1- 3
Subregion (LRR or MLRA): LRR R Lat: 42.03681 Long: -72.636968 Datum: WGS84
Soil Map Unit Name: Buxton variant silt loam, 0-8% slopes / Scantic variant silt loam, 0-3% slopes NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes X No ___

Is the Sampled Area within a Wetland? Yes X No ___
If yes, optional Wetland Site ID: ___

Remarks: Wetland area is within the limit of disturbance for pipeline replacement project.
Note: soil samples were not collected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 1
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? Yes ___ No X Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil sample not required so no saturation test conducted. Field visit conducted in fall, the dry season.

VEGETATION - Use scientific names of plants. Sampling Point: WS-OP_Fall25

Tree Stratum (Plot size: 30-ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Quercus rubra* / Northern red oak	5	No	FACU
3. *Populus deltoides* / Eastern cottonwood	5	No	FAC
4.			
5.			
6.			
7.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft)			
1. *Populus tremuloides* / Quaking aspen	25	Yes	FACU
2. *Cornus amomum* / Silky dogwood	15	Yes	FACW
3. *Fraxinus pennsylvanica* / Green ash	5	No	FACW
4. *Rosa multiflora* / Multiflora rose, Multiflora rosa	2	No	FACU
5.			
6.			
7.			
	47	= Total Cover	
Herb Stratum (Plot size: 5-ft)			
1. *Carex crinita* / Fringed sedge	70	Yes	OBL
2. *Juncus effusus* / Common bog rush, Soft or lamp rush	30	Yes	OBL
3. *Carex lurida* / Shallow sedge	25	Yes	OBL
4. *Carex vulpinoidea* / Fox sedge, Brown fox sedge	25	Yes	OBL
5. *Persicaria sagittata* / Arrow-leaf tearthumb	15	No	OBL
6. *Verbena hastata* / Swamp verbena	10	No	FACW
7. *Artemisia vulgaris* / Common wormwood	10	No	UPL
8. *Onoclea sensibilis* / Sensitive fern	10	No	FACW
9. *Vicia cracca* / Bird vetch	5	No	NI
10.			
11.			
12.			
	200	= Total Cover	
Woody Vine Stratum (Plot size: 30-ft)			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	165	x 1 =	165
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	57	x 4 =	228
UPL species	15	x 5 =	75
Column Totals:	282 (A)		563 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Explain alternative procedures here or in a separate report.)

SOIL Sampling Point: WS-OP_Fall25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks: Not required

Appendix B

In-Situ Post-construction MA Resource Area Monitoring

B.1 Riverfront Species List
B.2 Pre- and Post-construction Photologs
B.3 Data Forms

Appendix B.1

Riverfront Area-Buffer Zone Plant Species List

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Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Acer rubrum	Red maple	N		C	C	U
Acer saccharum	Sugar maple	N			U	
Apocynum cannabinum	Prairie-dogbane	N			C	
Achillea millefolium	Common yarrow	N		C	U	T
Alnus incana	Speckled alder	N			T	
Ambrosia artemesiifolia	Ragweed	N		U	C	T
Amelanchier canadensis	Eastern shadbush	N			C	
Arctium minus	Common burdock	I				
Artemisia vulgaris	Mugwort	I		U	C	C
Asclepias incarnata	Swamp milkweed	N	T			T
Asclepias syriaca	Common milkweed	N		C	U	T
Betula populifolia	Gray birch	N	T		C	
Bidens cernua	Nodding bur-marigold	N			U	U
Calystegia sepium	Hedge bindweed	N	U		A	
Carex crinita	Awned sedge	N			T	
Carex lurida	Sallow sedge	N				C
Carex sp.	Sedge species	n/a	C			
Carex scoparia	Pointed broom sedge	N			A	U
Carex vulpinoidea	Fox sedge	N				C
Carex crinita	Fringed sedge	N		U		
Celastrus orbiculatus	Asiatic bittersweet	I				
Chamaecrista fasciculata	Partridge pea	N		A	C	C
Cichorium intybus	Chicory	I				U
Circium vulgare	Bull-thistle	I			T	T
Cornus (Swida) amomum	Silky dogwood	N			T	
Cornus (Swida) racemose	Gray dogwood	N			C	
Daucus carota	Queen Anne's lace	I		C	C	T
Dicanthelium clandestinum	Deer-tongue	N	U	C	C	U
Echinochloa crus-galli	Barnyard grass	I		T	C	T
Elaeagnus umbellata	Autumn olive	I	U			
Elymus canadensis	Great Plains wild-rye	N		C	A	C
Elymus virginicus	Common eastern wild rye	N			C	
Erechtites hieracifolia	American burnweed	N			U	T
Erigeron annuus	Daisy fleabane	N	C	C	A	C
Erigeron canadensis	Horseweed	N		C	C	
Eupatorium perfoliatum	Boneset	N		U	C	T
Euthamia graminifolia	Slender-leaved goldenrod	N	T	T	U	U
Eutrochium maculatum	Spotted joe-pye-wee	N		T	C	

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Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Fallopia scandens	Climbing false buckwheat	N			T	
Festuca rubra	Red fescue	I			C	C
Fragaria vesca ssp.	Strawberry species	n/a		C		C
Frangula alnus	Glossy buckthorn	I				
Gallium mollugo	Whorled bedstraw	I				T
Glyceria striata	Fowl mannagrass	N		C		
Houstonia caerulea	Bluets	N			C	
Hypericum perforatum	Common St. John's-wort	I			U	T
Leersia oryzoides	Rice cut grass	N	T			C
Leucantemum vulgare	Ox-eye daisy	I		T		
Lolium multiflorum	Annual rye	I			U	C
Lolium perenne	Perennial rye-grass	I	U		C	A
Lonicera sp.	Bush honeysuckle	n/a		U		U
Lotus corniculatus	Birdsfoot-trefoil	I				C
Lythrum salicaria	Purple loosestrife	I	U	C		
Malus fusca	Oregon crabapple	I				T
Oenothera parviflora	Small-flowered evening primrose	N		T	T	
Onoclea sensibilis	Sensitive fern	N	C		U	
Panicum capillare	Witch-grass	N	T			C
Parthenocissus quinquefolia	Virginia creeper	N		U		C
Perilla vulgaris	Heal-all	N		T	T	
Persicaria arifolia	Halberd-leaf tearthumb	N		T		
Persicaria maculosa	Lady's thumb	I				
Persicaria pensylvanicum	Pinkweed	N			T	
Persicaria sagittata	Arrow-leaf tearthumb	N	C	C	C	U
Phalaris arundinacea	Reed canary grass	"I?"	U		A	T
Phleum pratense	Timothy	I			U	C
Phytolacca americana	American pokeweed	N		U	U	
Pinus strobus	Eastern white pine	N			C	
Plantago lanceolata	Ribgrass plantain	I				A
Plantago major	Common plantain	I			C	
Populus deltoides	Eastern cottonwood	N			U	
Populus tremuloides	Quaking aspen	N	T			T
Potentilla simplex	Common cinquefoil	N			C	U
Pycnanthemum tenuifolium	Narrow-leaved mountain-mint	N				U
Prunus serotina	Black cherry	N				T
Pyrus calleryana	Callery pear	I				
Quercus alba	White oak	N			U	

261 Upgrade Projects
Postconstruction Monitoring
2025 Riverfront Area-Buffer Zone Plant Species List

Scientific Name[1]	Common Name[1]	Status in Hampden County, MA[1,2]	Relative Abundance in Riverfront Area/Buffer Zone[3]			
			MA-1	MA-3	MA-4	MA-6
Quercus rubra	Red oak	N			U	U
Ranunculus repens	Creeping buttercup	I		T		T
Rhus hirta	Staghorn sumac	N	C	C	U	C
Robinia pseudoacacia	Black locust	I	C	C		
Rosa multiflora	Multiflora rose	I	C	T	C	C
Rubus sp.	Blackberry	n/a	T	T	U	
Rudbeckia hirta	black-eyed susan	N		U	C	T
Rumex crispus	Curly dock	I	U		U	U
Scirpus atrovirons	Dark green bulrush	N	T		T	C
Setaria faberi	Chinese foxtail	I				C
Setaria pumila	Yellow foxtail	I				T
Solidago altissima	Tall goldenrod	N		U	C	U
Solidago candensis	Canada goldenrod	N	C	C	U	C
Solidago gigantea	Giant/smooth goldenrod	N			C	
Solidago rugosa	Rough goldenrod	N				C
Solidago sp.	Goldenrod	n/a		C	C	C
Sorgastrum nutans	Indian grass	N	T		U	A
Spiraea alba	Meadowsweet	N	U		T	
Symphyotrichum dumosum	Bushy American aster	N				C
Symphyotrichum ericoides	Heath-aster	N				C
Symphyotrichum novae-angliae	New England aster	N	U	C	C	U
Symphyotrichum pilosum	Awl American aster	N				U
Toxicodendron radicans	Poison ivy	N	C		T	C
Trifolium hybridum	Alsike clover	I	U	C	C	C
Trifolium pratense	Red clover	I		T	U	U
Trifolium repens	White clover	I			C	
Ulmus americana	American elm	N	T			U
Verbascum thapsus	Common mullein	I		U	U	U
Verbena hastata	Blue vervain	N			U	U
Verbena urticifolia	White vervain	N			U	
Vernonia urticifolia	New York ironweed	N		U	A	T
Vicia cracca	Bird vetch	I				U
Vitis sp.		n/a			C	U

Notes:

[1]Nomenclature (inlcuding status) follows *The Vascular Plants of Massachusetts: A County Checklist* , First Revision (Cullina et. al 2011)

[2]Status: N=Native, I=Introduced, ?=implies uncertainty or doubt (Cullina et. al. 2011), W=waif, *=unknown, n/a=not identified to species/depends on species

[3]Relative abundance: T=trace (less than 1 percent); U=uncommon (1–10 percent); C=common (11–45 percent); A=abundant (46–100 percent)

Appendix B.2

Pre-Construction Photolog

Post-Construction Photolog (2025)

Pre-Construction Photolog

261B Pre-construction Photos
Stream MA-1
6-18-20



261_ StreamMA-1_ViewN_upstream_2020-6-18TR



261_ StreamMA-1_ViewS_downstream_2020-6-18TR



261_ StreamMA-1_ViewW_2020-6-18TR



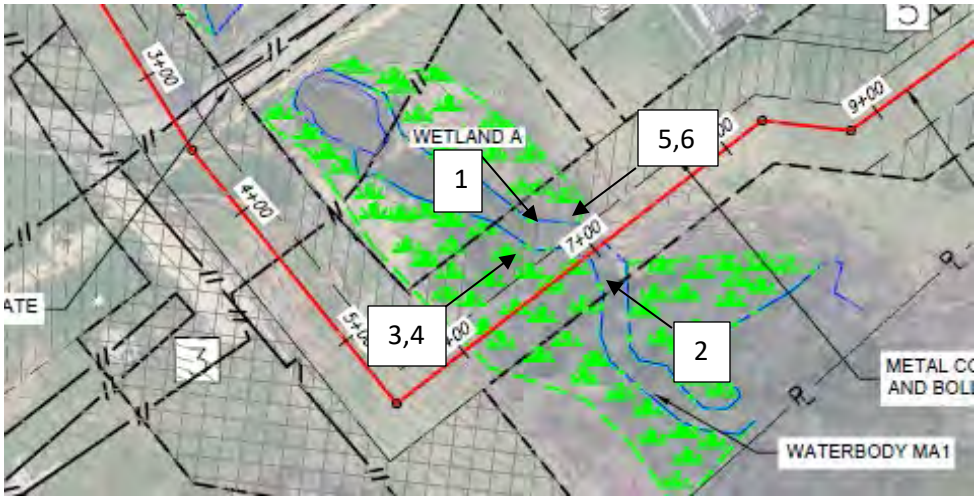
261_ StreamMA-1_ViewW_bank_2020-6-18TR



261_StreamMA-1_ViewE_2020-6-18TR



261_ StreamMA-1_ViewE_bank_2020-6-18TR



1-261_ StreamMA-1_ViewN_upstream_2020-6-18TR
2-261_ StreamMA-1_ViewS_downstream_2020-6-18TR
3-261_StreamMA-1_ViewW_2020-6-18TR
4-261_ StreamMA-1_ViewW_bank_2020-6-18TR
5-261_ StreamMA-1_ViewE_2020-6-18TR
6-261_ StreamMA-1_ViewE_bank_2020-6-18TR

261B Pre-construction Photos
Stream MA-3
6-20-20



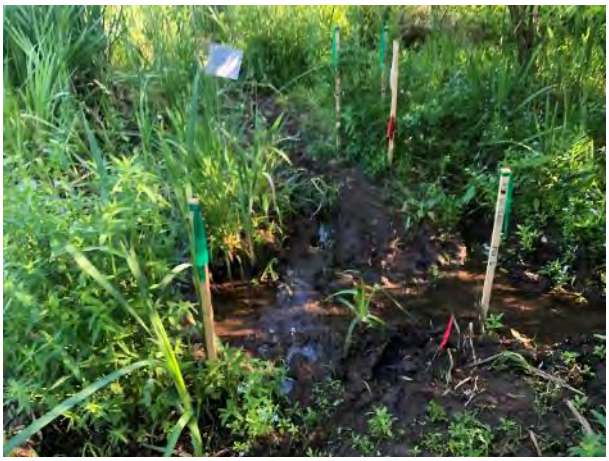
261_ StreamMA-3_ViewW_upstream_2020-6-20TR



261_ StreamMA-3_ViewE_downstream_2020-6-20TR



261_StreamMA-3_ViewN_2020-6-20TR



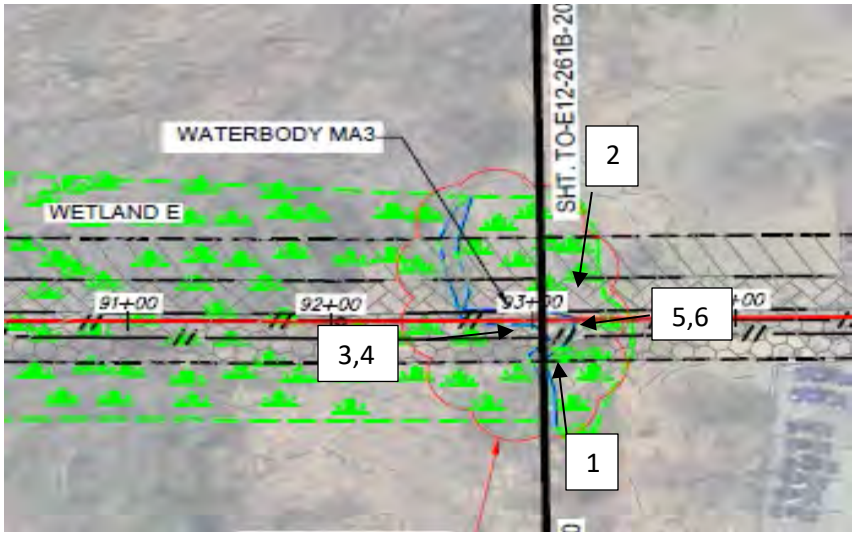
261_ StreamMA-3_ViewN_bank_2020-6-20TR



261_StreamMA-3_ViewS_2020-6-20TR



261_ StreamMA-3_ViewS_bank_2020-6-20TR



1-261_ StreamMA-3_ViewW_upstream_2020-6-20TR
2-261_ StreamMA-3_ViewE_downstream_2020-6-20TR
3-261_StreamMA-3_ViewN_2020-6-20TR
4-261_ StreamMA-3_ViewN_bank_2020-6-20TR
5-261_StreamMA-3_ViewS_2020-6-20TR
6-261_ StreamMA-3_ViewS_bank_2020-6-20TR

261B Pre-construction Photos
Stream MA-4
6-19-20



261_ StreamMA-4_ViewW_upstream_2020-6-19TR



261_ StreamMA-4_ViewE_downstream_2020-6-19TR



261_StreamMA-4_ViewN_2020-6-19TR



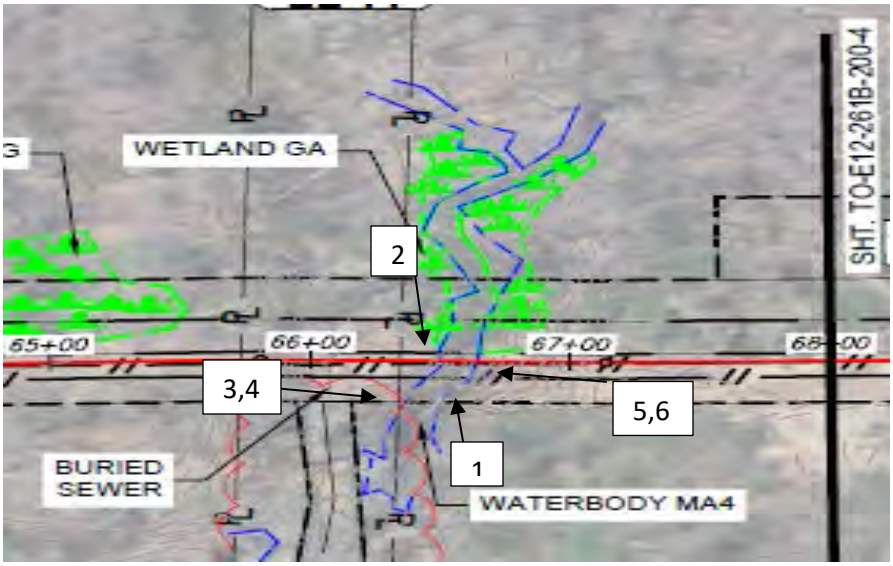
261_ StreamMA-4_ViewN_bank_2020-6-19TR



261_StreamMA-4_ViewS_2020-6-19TR



261_ StreamMA-4_ViewS_bank_2020-6-19TR



1-261_ StreamMA-4_ViewW_upstream_2020-6-19TR
2-261_ StreamMA-4_ViewE_downstream_2020-6-19TR
3-261_StreamMA-4_ViewN_2020-6-19TR
4-261_ StreamMA-4_ViewN_bank_2020-6-19TR
5-261_StreamMA-4_ViewS_2020-6-19TR
6-261_ StreamMA-4_ViewS_bank_2020-6-19TR

261B Pre-construction Photos
Stream MA-6
6-18-20 & 6-19-20



261_ StreamMA-6_ViewW_upstream_2020-6-18TR



261_ StreamMA-6_ViewE_downstream_2020-6-18TR



261_StreamMA-6_ViewN_2020-6-18TR



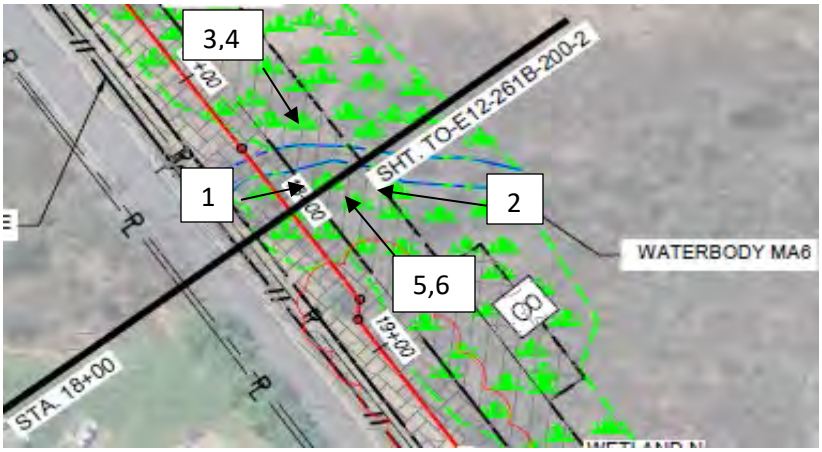
261_ StreamMA-6_ViewN_bank_2020-6-18TR



261_StreamMA-6_ViewS_2020-6-19TR



261_ StreamMA-6_ViewS_bank_2020-6-19TR



1-261_ StreamMA-6_ViewW_upstream_2020-6-18TR
2-261_ StreamMA-6_ViewE_downstream_2020-6-18TR
3-261_StreamMA-6_ViewN_2020-6-18TR
4-261_ StreamMA-6_ViewN_bank_2020-6-18TR
5-261_StreamMA-6_ViewS_2020-6-19TR
6-261_ StreamMA-6_ViewS_bank_2020-6-19TR

Post-Construction Photolog (2025)

261B Post-construction Photos
Stream MA-1
9-29-25



1- 2025-09-29_S-MA1_ (north, upstream)



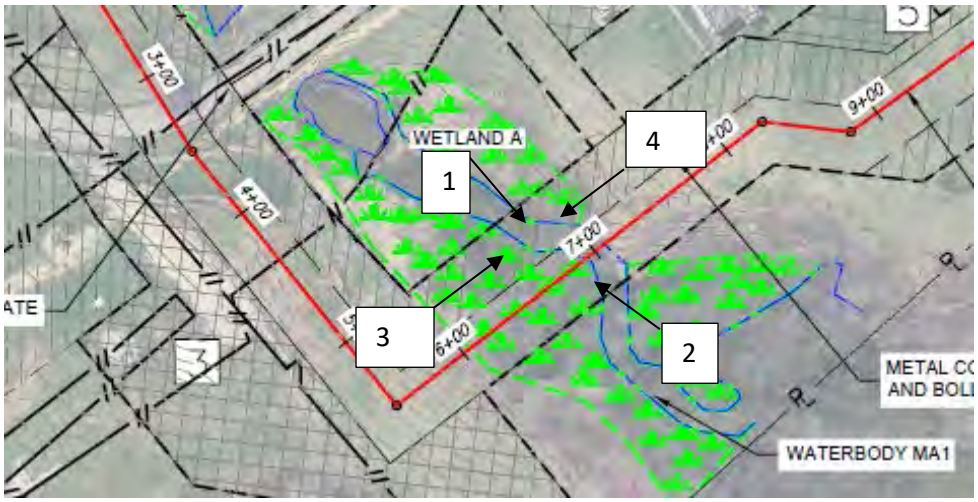
2- 2025-09-29_S-MA1_ (south, downstream)



3- 2025-09-29_S-MA1_ (west)



4- 2025-09-29_S-MA1_ (east)



261B Post-construction Photos
Stream MA-3
9-29-25



1- 2025-09-29_S-MA3_ (east)



2- 2025-09-29_S-MA3_ (east bank)



3- 2025-09-29_S-MA3_ (north, downstream)



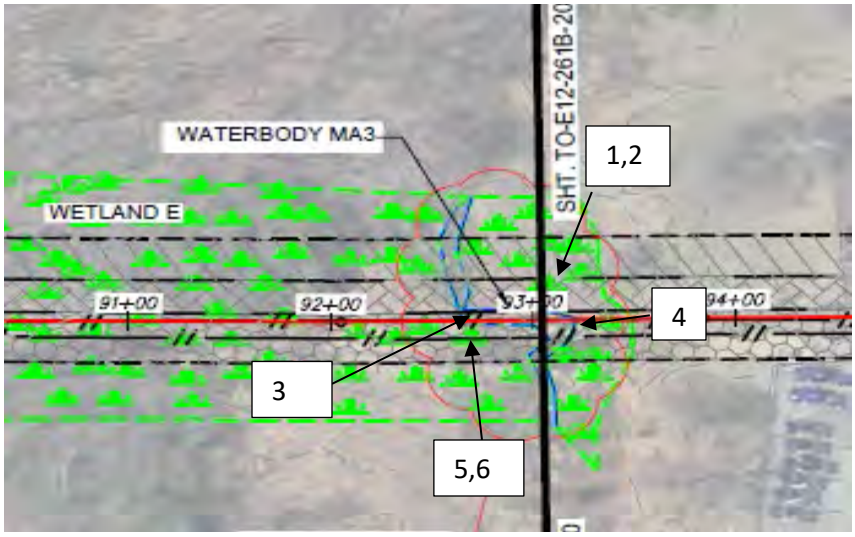
4- 2025-09-29_S-MA3_ (south, upstream)



5- 2025-09-29_S-MA3_ (west)



6- 2025-09-29_S-MA3_ (west bank)


WATERBODY MA3
WETLAND E
SHT. TO-E12-261B-20
1,2
4
3
5,6
91+00
92+00
94+00

261B Post-construction Photos
Stream MA-4
9-29-25



1- 2025-09-29_MA4 _ (upstream, west)



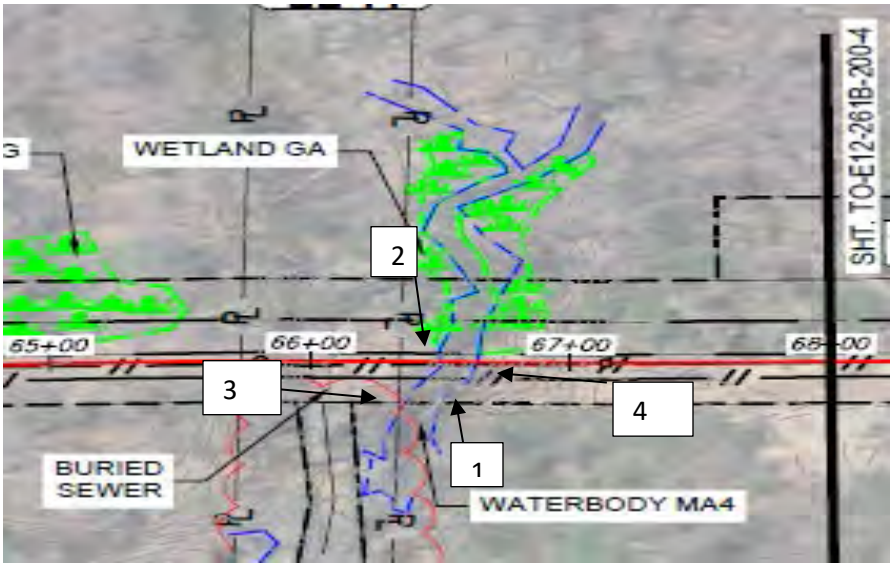
2- 2025-09-29_MA4 _ (downstream, east)



3- 2025-09-29_MA4 _ (north)



4- 2025-09-29_MA4 _(south)



261B Post-construction Photos
Stream MA-6
9-29-25



1- 2025-09-29_MA6_ (west, upstream)



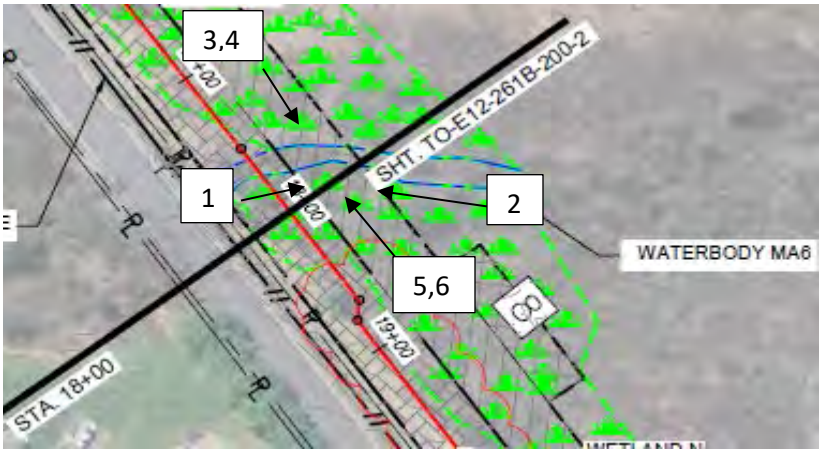
2- 2025-09-29_MA6_ (east, downstream)



3- 2025-09-29_MA6_ (north)



4- 2025-09-29_MA6_ (south)



Appendix B.3

Monitoring Data Forms

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-1	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	C	Same	C
Carex spp.*	A	Same	C
Phalaris arundiacea	A	Same	A
Impatiens capensis	C	Same	U
Lythrum salicaria	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. ECDs have been removed. Banks fully vegetated.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-3	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	C
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Juncus effusus	C	Same	C
Glyceria striata	C	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

No corrective measures recommended at this time.

Stream difficult to locate due to abundance of wetland vegetation; signs are up to indicate presence of stream. Two-track identified in previous inspections persist and are filled with water - they do not seem to have been recently used, nor are they impacting the stream. Banks are heavily vegetated. ECDs have been removed. Erosion not evident and probable erosion unlikely due to shallow, gradual bank topography.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-4	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	A	Same	C
Rosa multiflora	U	Same	U
Carex spp.*	C	Same	C
Eupatorium perfoliatum	C	Same	U
Vernonia noveboracensis	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 06 -16	**Wetland/Stream ID**: MA-6	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	U
Carex spp.*	A	Same	A
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Populus tremuloides	U	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. Stream bed is populated with T. angustifolia. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-1	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	C	Same	C
Carex spp.*	A	Same	C
Phalaris arundiacea	A	Same	A
Impatiens capensis	C	Same	U
Lythrum salicaria	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. ECDs have been removed. Banks fully vegetated.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-3	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	C
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Juncus effusus	C	Same	C
Glyceria striata	C	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

No corrective measures recommended at this time.

Stream difficult to locate due to abundance of wetland vegetation; signs are up to indicate presence of stream. Two-track identified in previous inspections persist and are filled with water - they do not seem to have been recently used, nor are they impacting the stream. Banks are heavily vegetated. ECDs have been removed. Erosion not evident and probable erosion unlikely due to shallow, gradual bank topography.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-4	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Juncus effusus	A	Same	C
Rosa multiflora	U	Same	U
Carex spp.*	C	Same	C
Eupatorium perfoliatum	C	Same	U
Vernonia noveboracensis	U	Same	U

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. ECDs have been removed.

Sketch (optional):

TETRA TECH

Aquatic Resource Inspection Data Form
Tennessee Gas Pipeline
261 Upgrade Post-Construction Monitoring

Date: 2025 - 09 -29	**Wetland/Stream ID**: MA-6	**Corrective Measures Needed?**
Surveyor(s): J. Samuels	**Photopoint ID**:	Yes [ ] No [X]

Wetland Information

1. Is relative abundance of hydrophytic vegetation similar compared to adjacent undisturbed areas?	Yes [X] No [ ]
2. There is indication of subsoil at the surface or on top of topsoil?	Yes [ ] No [X]
3. Presence of rises in topography indicative of excess fill material?	Yes [ ] No [X]
4. Depressions over the trench line indicative of slumping?	Yes [ ] No [X]
5. Construction mats or other debris remaining in resource area?	Yes [ ] No [X]

Relative abundance of hydrophytic vegetation in project limits of disturbance		**Relative abundance of hydrophytic vegetation in adjacent undisturbed areas**	
Plant Species	**Relative Abundance***	**Plant Species**	**Relative Abundance***
Typha angustifolia	C	Same	U
Carex spp.*	A	Same	A
Impatiens capensis	C	Same	C
Onoclea sensibilis	C	Same	C
Populus tremuloides	U	Same	C

*Relative abundance categories: A=abundant; C=common; U=uncommon; T=trace

Stream Information

1. Are stream banks stabilized and erosion and contours blend into adjacent areas?	Yes [X] No [ ]
2. Is particle size of stream substrate similar to adjacent areas?	Yes [X] No [ ]
3. Obstructions or debris remaining in channel from construction?	Yes [ ] No [X]
4. Depressions observed over the trench line indicative of slumping?	Yes [ ] No [X]

Comments/Recommended Corrective Actions

*: Variety of Carex spp. inventoried in wetland data forms

No corrective measures recommended at this time. Banks are amply vegetated and show no evidence of current or probable erosion. Stream bed is populated with T. angustifolia. ECDs have been removed.

Sketch (optional):





Tennessee Gas Pipeline Company, L.L.C.

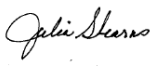
261 Upgrade Projects, Compensatory Mitigation Areas Monitoring Report - TGPC, Agawam, MA
Off-Site Mitigation Tuckahoe Turf-Farm Site Year 5, South West Street, Agawam, MA, MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Project number: 60630193

October 2025

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
			
Julie Stearns	Timothy O'Sullivan		

Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

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Rocky Hill, CT 06067
aecom.com

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Attachments

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1. Introduction and Background

On behalf of Tennessee Gas Pipeline Company, LLC (Tennessee), AECOM Environment (AECOM) is submitting this report for the fifth and final year of the restoration monitoring program, as stipulated in the Massachusetts Department of Environmental Protection (MassDEP) Water Quality Certification (WQC) and the Town of Agawam Conservation Commission (ACC) Order of Conditions (OOC), issued for the 261 Upgrade Project (Project). The following narrative provides a description of the Project and details vegetation growth that complies with the conditions of both the Project's WQC and OOC.

As required by the WQC and OOC, AECOM provided initial wetland scientist oversight of the wetland restoration activities at the Tuckahoe Turf Farm site in Spring 2020. Specifically, AECOM was on-site to oversee restoration area plantings from April 27 through April 30, 2020. Tennessee's "Compensatory Wetland Mitigation Plan, Offsite Mitigation Details" (Plan) describes the details of the restoration area plantings (**Attachment A**). Over the five-year monitoring program AECOM conducted annual vegetation monitoring of plantings and provided oversight and recommendations for additional plantings and activities deemed necessary to meet the Plan goals and performance standards and success criteria of the OOC and WQC.

Based upon AECOM's observations and monitoring data, it is AECOM's professional opinion that the Compensatory Mitigation Areas substantially meet the conditions of 314 CMR 9.06 (2), Special Condition 33 of the WQC, and 310 CMR 10.55 (4), Special Condition 27 of the OOC, as well as commitments made in the Notice of Intent and WQC applications.

Vegetated Wetland Enhancements (WQC and OOC)

As depicted on the drawings in Attachment A, supplemental planting efforts were undertaken to enhance approximately 6.7 acres of partially cleared palustrine emergent (PEM) wetland bordering the irrigation pond and the Still Brook stream system. This includes the following areas on the Tuckahoe Turf Farm Site:

- **Restoration Area 1:** Reforestation of 2.0 acres of partially cleared PEM wetland on the north end of the irrigation pond with supplemental tree and shrub plantings. The Plan required the planting of trees at an average density of 240 trees per acre, the planting of shrubs at an average density of 240 shrubs per acre, and seeding the area as needed with a New England WetMix.
- **Restoration Area 2:** Restoration of 2.0 acres of PEM wetland to palustrine scrub/shrub (PSS) wetland along the north edge of the irrigation pond with supplemental shrub plantings. The Plan required the planting of shrubs at an average density of 240 shrubs per acre, and seeding the area as needed with a New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites.
- **Restoration Area 5:** Restoration of 2.7 acres of cleared wet meadow associated with the Still Brook wetland system with supplemental tree plantings. The Plan required the planting of trees at an average density of 240 trees per acre, and seeding the area as needed with a New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites.

An AECOM Wetland Scientist conducted the initial 2020 oversight to ensure proper planting techniques and locations, per WQC and OOC requirements. A tag clearly identified each planted shrub or sapling as a restoration planting. As required, MassDEP and ACC approved the design and materials of the tags prior to use. In addition, Tennessee implemented vegetation management activities in 2020 to focus on two invasive species, common reed (*Phragmites australis*) and water chestnut (*Trapa natans*). These activities consisted of herbicide application for common reed and hand-pulling water chestnut from a boat and on foot. The Project's WQC and OOC did not require AECOM to be on-site for these latter activities.

- **Water Chestnut Monitoring:** The Plan required water chestnut inspections to occur twice annually, limited to the southwest corner of the irrigation pond, as shown in Attachment A. The first inspection of each year (2021 through 2025) occurred in early June to document any regenerating plants. The second inspection occurred toward the end of the growing season (late summer or early fall) to evaluate the success of the management effort.
- **Common Reed Monitoring:** The Plan required common reed inspections to occur twice annually, limited to the existing 0.7-acre stand, located along the southeast shoreline of the irrigation pond, as shown in Attachment A. The first inspection of each year (2021 through 2025) occurred in early June to document any regenerating plants. The second inspection occurred towards the end of the growing season (late summer or early fall) to evaluate the success of the management effort.

2. Permit Conditions and Success Criteria

The Project's off-site compensatory wetland mitigation component is subject to permit conditions associated with the WQC and OOC (**Attachment B**).

2.1 Water Quality Certification

Relevant conditions for the Project's off-site compensatory wetland mitigation component in the WQC include condition numbers 30, 33 and 34.

Condition number 30 of the WQC directs Tennessee to implement a Bordering Vegetated Wetland (BVW) Rehabilitation Project at the Tuckahoe Turf Farm, in accordance with the Project's Plan of Record titled, "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA" (**Attachment A**).

Condition number 33 of the Project's WQC specifies, "The wetland scientist(s) approved by the Department or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labelled, 'Temporary Fill /In-Situ Restoration/Temporal Loss" (tinted Mustard) and the BVW Rehabilitation at the Tuckahoe Turf Farm' in calendar years 2021 through and including 2025, and until such time as these Compensatory Mitigation Areas function in accordance with 314 CMR 9.06 (2), as established by data collected during the monitoring."

The requirements of 314 CMR 9.06 (2) are provided below.

> *314 CMR 9.06 (2) No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will avoid and minimize potential adverse impacts to the bordering or isolated vegetated wetlands, land under water or ocean, or the intertidal zone. However, no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species. (a) For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication. The Department may waive the requirement for 1:1 restoration or replication for Ecological Restoration Projects and for maintenance or repair (but not replacement, reconstruction, or substantial enlargement) of existing and lawfully located dams. (b) An applicant proposing a discharge of dredged or fill material in connection with the construction, repair, replacement or expansion of a stream crossing shall be presumed to be taking appropriate and practicable steps to avoid and minimize potential adverse impacts to the bordering or isolated vegetated wetlands, land under water or ocean or the intertidal zone provided that: 1. The applicant demonstrates to the satisfaction of the Department that he or she has developed and will implement an operation and maintenance plan to ensure that the crossing will function as designed; 2. If the project includes the construction of a new non-tidal crossing, the applicant demonstrates to the satisfaction of the Department that the crossing complies with the Massachusetts Stream Crossing Standards; 3. If the project includes the construction of a new tidal crossing, the applicant demonstrates to the satisfaction of the Department that the project is designed in a manner that does not restrict tidal flow over the full natural tidal range; 4. If the project includes work on an existing non-tidal crossing, the applicant demonstrates to the satisfaction of the Department that the crossing complies with the Massachusetts Stream Crossing Standards to the maximum extent practicable; and 5. If the project includes work on an existing tidal crossing that restricts tidal flow, the applicant demonstrates to the satisfaction of the Department that tidal restriction will be eliminated to the maximum extent practicable. This presumption may be overcome by credible evidence from a competent source showing that based on site considerations, impact on the resource, or cost considerations, compliance with all applicable provisions of 314 CMR 9.06(2)(b)1. through 5. is not practicable.*

Condition number 34 required the Project's approved wetland scientist to render a conclusion, within each monitoring report required by Condition 33, as to the success of each separate Compensatory Mitigation Area, based upon data collected during sampling events and in terms of 314 CMR 9.06 (2).

2.2 Order of Conditions

Relevant conditions for the Project's off-site compensatory wetland mitigation component in the OOC include Special Conditions 26, 27 and 28.

Special Condition 26 of the ACC's OOC required Tennessee to conduct a Rehabilitation Project within designated BVW, Riverfront Area, and Buffer Zone upon the Tuckahoe Turf Farm (referred to as Assessors Map C7, Lot 2-4, with frontage on Southwest Road) per the plan of record titled, "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA" (Sheet 1.0), prepared by SWCA Environmental Consultants (October 11, 2019).

Special Condition 27, required Tennessee's approved wetland scientist to monitor the status of the Compensatory Mitigation Areas on the plans of record, "Temporary Fill/In Situ Restoration Temporal Loss" and the "Resource Area Rehabilitation at the Tuckahoe Turf Farm" in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 310 CMR 10.55 (4), as established by data collected during monitoring."

The requirements of 310 CMR 10.55 (4) are provided below.

> *310 CMR 10.55 (4) General Performance Standards. (a) Where the presumption set forth in 310 CMR 10.55(3) is not overcome, any proposed work in a Bordering Vegetated Wetland shall not destroy or otherwise impair any portion of said area. (b) Notwithstanding the provisions of 310 CMR 10.55(4)(a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5,000 square feet of Bordering Vegetated Wetland when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost: 1. the surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area"); 2. the ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area; 3. The overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area; 4. the replacement area shall have an unrestricted hydraulic connection to the same water body or waterway associated with the lost area; 5. the replacement area shall be located within the same general area of the water body or reach of the waterway as the lost area; 6. at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods; and 7. the replacement area shall be provided in a manner which is consistent with all other General Performance Standards for each resource area in Part III of 310 CMR 10.00. In the exercise of this discretion, the issuing authority shall consider the magnitude of the alteration and the significance of the project site to the interests identified in M.G.L. c. 131, § 40, the extent to which adverse impacts can be avoided, the extent to which adverse impacts are minimized, and the extent to which mitigation measures, including replication or restoration, are provided to contribute to the protection of the interests identified in M.G.L. c. 131, § 40. (c) Notwithstanding the provisions of 310 CMR 10.55(4)(a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of a portion of Bordering Vegetated Wetland when; 1. said portion has a surface area less than 500 square feet; 2. said portion extends in a distinct linear configuration ("finger-like") into adjacent uplands; and 3. in the judgment of the issuing authority it is not reasonable to scale down, redesign or otherwise change the proposed work so that it could be completed without loss of said wetland. (d) Notwithstanding the provisions of 310 CMR 10.55(4)(a),(b) and (c), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59. (e) Any proposed work shall not destroy or otherwise impair any portion of a Bordering Vegetated Wetland that is within an Area of Critical Environmental Concern designated by the Secretary of Energy and Environmental Affairs under M.G.L. c. 21A, § 2(7) and 301 CMR 12.00: Areas of Critical Environmental Concern. 310 CMR 10.55(4)(e): 1. supersedes the provisions of 310 CMR 10.55(4)(b) and (c); 2. shall not apply*

> *if the presumption set forth at 310 CMR 10.55(3) is overcome; 3. shall not apply to work proposed under 310 CMR 10.53(3)(l); and 4. shall not apply to maintenance of stormwater detention, retention, or sedimentation ponds, or to maintenance of stormwater energy dissipating structures, that have been constructed in accordance with a valid order of conditions.*

Special Condition 28 of the ACC's OOC required the approved wetland scientist to provide a conclusion in each report required by Special Condition 27 and based upon data collected during monitoring events, as to the success of each separate Compensatory Mitigation Area in terms of 310 CMR 10.55 (4).

As noted in 310 CMR 10.55 (4) 6, in a typical wetland mitigation replacement area (wetlands created in what was previously an upland area), at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons. However, in the case of the Compensatory Wetland Mitigation Areas at the offsite Tuckahoe Turf Farm, Restoration Areas 1, 2 and 5 are within existing BVWs. Therefore, the "survivorship performance standards" for plant material installed in these areas was set at 75% or better, after five years.

3. Methods

3.1 Vegetated Wetland Restoration Areas 1, 2, and 5

During 2025, AECOM conducted an initial round of vegetation monitoring of Restoration Areas (RA) 1, 2, and 5 in June and a second round of monitoring in August. The initial monitoring event included an assessment and documentation of the health, vigor, and estimated height for all planted woody hydrophytes in the three RAs. Each RA included a series of permanent photograph stations and photographs that document the 2025 monitoring events from these fixed positions are included in **Attachment C**.

Consistent with the approved monitoring protocol, AECOM collected data per the U.S. Army Corps of Engineers "Wetland Determination Data Form – Northcentral and Northeast Region."[1] One Wetland Determination Data Form was completed at an established observation plot within each RA (**Attachment D**). Species nomenclature of the plants identified by AECOM was consistent with Cullina, et al. (2011).[2] Additionally, AECOM evaluated each RA for success in relation to 314 CMR 9.06(2) and 310 CMR 10.55(4).

3.2 Water Chestnut (*Trapa natans*) Monitoring

Water chestnut inspections occurred in the spring and late summer of 2025. Inspections in the irrigation pond focused on its southwest portion (**Attachment A**). AECOM surveyed this area from the shore and adjacent shallow water on foot to assess the efficacy of the hand pulling that occurred during the previous growing seasons.

3.3 Common Reed (*Phragmites australis*) Monitoring

Common reed inspections occurred in the spring and late summer of 2025, including a visual assessment of the existing 0.7-acre colony to identify success of herbicide treatment and to document any regenerating plants. AECOM identified vascular plants within the treatment area to the species level using the scientific nomenclature described in Cullina, et al. (2011).

[1] U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed J.S. Wakeley, R. W. Lichvar, C. V. Noble, and J.F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[2] Cullina, Melissa Dow, Bryan Connolly, Bruce Sorrie and Paul Somers. 2011. The Vascular Plants of Massachusetts: A County Checklist-First Revision. Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife.

4. Results

4.1 Restoration Area 1

Early in the monitoring program thorn and vine thickets formed by invasive species, (e.g., Asiatic bittersweet and multiflora rose), and aggressive native species, (e.g., arrow-leaved tearthumb and fox grape) within peripheral portions of RA-1 smothered many planted shrubs and trees to the extent they could not be located easily and necessitated vegetation control methods. Accordingly, vegetation control techniques implemented in these areas included physical removal of invasive/aggressive growth and/or spot herbicide application in 2023 and 2024. After implementation of these vegetation control techniques, plantings were easier to locate and assess and long-term survivorship of affected plantings appears more likely. Attachment C includes representative photographs of conditions in the area.

A total of 480 trees and 480 shrubs were planted within RA-1 in 2020. Overall, tree survivorship throughout the monitoring period (2021-2025) remained high, with a final combined 78% survival rate. During the 2025 monitoring 383 trees (80%) were assessed as demonstrating positive growth during the five growing seasons. With 91 trees observed dead and an additional 6 specimens missing, overall tree survivorship is estimated to be approximately 80%. Shrub survivorship in 2025 was at approximately 73%, (352/480) survivorship. Collectively, the total percent survivorship of tree and shrub plantings of RA-1 was approximately 77%.

In AECOM's opinion, based upon conditions observed and the percentage of surviving plantings, RA-1 is compliant with the requirements of 314 CMR 9.06 (2) and 310 CMR 10.55 (4).

AECOM also evaluated the overall plant community within RA-1, and Table 1 includes the following information for the observed plants: type, scientific name, common name, wetland indicator status, nativity status, and on-site prevalence (common, uncommon, etc.).

Table 1. Vegetation observed within RA-1

Type	Scientific Name	Common Name	Indicator	Status	Presence
Tree	*Acer rubrum**	Red Maple	FAC	Native	Common
	*Betula alleghaniensis**	Yellow Birch	FAC	Native	Common
	*Populus deltoides**	Cottonwood	FAC	Native	Dominant
	*Quercus bicolor**	Swamp White Oak	FACW	Native	Common
	*Salix nigra**	Black Willow	OBL	Native	Dominant
Shrubs	*Alnus incana**	Speckled Alder	FACW	Native	Uncommon
	Rosa multiflora	Multiflora Rose	FACU	Invasive	Uncommon
	*Cornus amomum**	Silky Dogwood	FACW	Native	Common
	*Cornus alba**	Red Osier Dogwood	FACW	Native	Dominant
	*Sambucus nigra**	Common Elderberry	FACW	Native	Common
	*Viburnum dentatum**	Northern Arrowwood	FAC	Native	Common
Herbs	*Carex vulpinoidea*	Fox Sedge	OBL	Native	Uncommon
	Carex scoparia	Blunt Broom Sedge	FACW	Native	Uncommon
	Carex lurida	Lurid Sedge	OBL	Native	Common
	Carex lupulina	Hop Sedge	OBL	Native	Uncommon
	Bidens frondosa	Beggar Ticks	FACW	Native	Common
	Echinochloa crus-galli	Barnyard Grass	FAC	Invasive	Uncommon
	Persicaria maculosa	Lady's Thumb	FAC	Native	Common

Type	Scientific Name	Common Name	Indicator	Status	Presence
	Persicaria pensylvanica	Pennsylvania smartweed	FACW	Native	Common
	Mimulus ringens	Allegheny Monkey-flower	OBL	Native	Uncommon
	Scirpus hattorianus	Mosquito Bulrush	OBL	Native	Common
	Carex crinita	Fringed Sedge	OBL	Native	Uncommon
	Juncus effusus	Soft Rush	OBL	Native	Uncommon
	Symphyotrichum lanceolatum	Panicled Aster	FACW	Native	Common
	Symphyotrichum lateriflorum	Starved Aster	FAC	Native	Common
	Eutrochium maculatum	Spotted Joe Pye Weed	OBL	Native	Common
	Pilea pumila	Canada Clearweed	FACW	Native	Uncommon
	Symphyotrichum novae-angliae	New England Aster	FACW	Native	Common
	*Scirpus cyperinus**	Woolgrass	OBL	Native	Uncommon
	Onoclea sensibilis	Sensitive Fern	FACW	Native	Common
	Urtica dioica	Stinging Nettle	FAC	Introduced	Rare
	Symplocarpus foetidus	Skunk Cabbage	OBL	Native	Dominant
Vines	*Solanum dulcamara*	Climbing Nightshade	FAC	Invasive	Common
	Clematis virginiana	Virginia Virgin's-bower	FAC	Native	Rare
	Rubus allegheniensis	Common Blackberry	FACU	Native	Rare
	Persicaria sagittata	Arrow-leaved Tearthumb	OBL	Native	Common

* Indicates species planted as part of restoration activities

4.2 Restoration Area 2

Similar to RA-1, thorn and vine thickets of invasive species (e.g., Asiatic bittersweet and multiflora rose), and aggressive native species (e.g., arrow-leaved tearthumb and fox grape), had formed within RA-2 and smothered many planted shrubs and trees to the extent they could not be easily located early in the monitoring program. Vegetation control techniques were implemented in the area, which included physical removal of invasive/aggressive growth and/or spot herbicide application. After implementation of these vegetation control techniques, plantings were easier to locate and assess and long-term survivorship of affected plantings appears more likely. **Attachment C** includes representative photographs of conditions in the area.

RA-2 was originally planted with 480 shrubs. Overall survivorship in 2025 was low, with only 211 shrubs surviving, or 44% survival rate. As noted in previous year's reporting, there was considerably higher mortality and stress observed within RA-2, as compared to other restoration areas, which was attributed to extended inundation and/or saturated soils, resulting in anaerobic soil conditions due to the elevated pond level, and increased planting mortality.

The observed mortality was primarily associated with shrubs placed closest to the pond's waterline, which had remained flooded for extended period since the project's inception. This situation was exacerbated due to improvements made to the pond's outlet structure, which appears to have raised the overall water level and extended the hydroperiod of standing water and saturated soils in areas peripheral to the pond. In 2025, the majority of surviving shrubs within RA-2 were not subjected to significant hydrological influences exerted from the pond water elevations and were classified as optimal in health and vigor.

After the 2025 growing season, shrub plantings within RA-2 have a survivorship percentage of approximately 44%, which includes some plantings identified as "stressed". Due to the high shrub

mortality changes to the plantings within RA-2 were implemented during the 2023 growing season, which precluded a definitive assessment regarding the performance standards for the original shrubs.

To remain compliant with the performance standards and to avoid planting additional shrubs in hostile conditions, which would likely result in continued mortality of woody plant material, Tennessee's consultants recommended changing the proposed plant community in the wetter portions of RA-2 from shrub thicket to emergent aquatic vegetation. The proposed changes were formally defined and documented in a corrective action plan (CAP) for RA-2. Tennessee then initiated discussions with both the ACC and MassDEP, each of which subsequently approved the approach. Documentation of regulatory approvals regarding these changes in proposed plant community for a portion of RA-2 are included in **Attachment E**. The approved RA-2 modifications are included in **Attachment F**.

On August 22 and 23, 2023 an AECOM wetland scientist was at the site to meet representatives from Williams Forestry & Associates (WFA) to plant the proposed aquatic emergent plantings in RA-2. To establish areas of aquatic emergent vegetation in lieu of shrub ticket habitat, WFA planted 5,260 two-inch plugs consisting of the following:

- 512 Arrow Arum (*Peltandra virginica*),
- 768 Broadleaf Arrowhead (*Sagittaria latifolia*),
- 512 Pickerelweed (*Pontederia cordata*), and
- 3,468 Soft-stem Bulrush (*Schoenoplectus tabermaemontani*).

During the 2025 evaluation, the aquatic emergent plantings were observed to have expanded significantly compared to the original coverage of the planting cells. Percent survival of original plant material in the area was estimated to be approximately 80 to 90%. However, as stated, many of the planting cells have also expanded significantly and the northern end of the pond now supports large areas of emergent marsh habitat where none previously existed. The newly created emergent marsh habitat is shown on the third page of photographs in **Attachment C**. Based upon conditions observed within RA-2 in 2025, it is AECOM's opinion that this restoration area is functioning as intended and is in compliance with the requirements of 314 CMR 9.06 (2) and 310 CMR 10.55 (4).

AECOM also evaluated the overall plant community within RA-2. Table 2 includes the following information for the observed plants: type, scientific name, common name, wetland indicator status, nativity status, and on-site prevalence (common, uncommon, etc.).

Table 2. Vegetation observed within RA-2

Cover Type	Scientific Name	Common Name	Indicator	Status	Presence
Trees	*Acer rubrum**	Red Maple	FAC	Native	Common
	*Betula alleghaniensis**	Yellow Birch	FAC	Native	Common
	*Populus deltoides**	Eastern Cottonwood	FAC	Native	Common
	*Quercus bicolor**	Swamp White Oak	FACW	Native	Common
	*Salix nigra**	Black Willow	OBL	Native	Dominant
Shrubs	*Alnus incana**	Speckled Alder	FACW	Native	Uncommon
	*Cornus amomum**	Silky Dogwood	FACW	Native	Common
	*Cornus alba**	Red Osier Dogwood	FACW	Native	Dominant
	Rosa multiflora	Multiflora Rose	FACU	Invasive	Uncommon
	*Sambucus nigra**	Common Elderberry	FACW	Native	Common

Cover Type	Scientific Name	Common Name	Indicator	Status	Presence
	*Viburnum dentatum**	Northern Arrowwood	FAC	Native	Common
Herbs	*Leersia oryzoides*	Rice Cutgrass	OBL	Native	Dominant
	Phalaris arundinacea	Reed Canary Grass	FACW	Invasive	Common
	Phragmites australis	Common Reed	FACW	Invasive	Rare
	Scirpus cyperinus	Woolgrass	OBL	Native	Uncommon
	Persicaria maculosa	Lady's Thumb	FAC	Native	Common
	Persicaria pensylvanica	Pinkweed	FACW	Native	Common
	Bidens frondosa	Beggar Ticks	FACW	Native	Common
	Mimulus ringens	Allegheny Monkey-flower	OBL	Native	Uncommon
	Juncus effusus	Soft Rush	OBL	Native	Rare
	Echinochloa crus-galli	Barnyard Grass	FAC	Invasive	Uncommon
	Symphyotrichum lanceolatum	Panicled Aster	FACW	Native	Common
	Typha latifolia	Broad-leaved Cattail	OBL	Native	Rare
	Ludwigia palustris	Common Water-primrose	OBL	Native	Dominant
Aquatic Emergent	*Pontederia cordata***	Pickerelweed	OBL	Native	Uncommon
	*Sagittaria latifolia***	Arrowhead	OBL	Native	Uncommon
	*Schoenoplectus tabermaemontani***	Soft-stem Bulrush	OBL	Native	Uncommon
	*Peltandra virginica***	Arrow-arum	OBL	Native	Uncommon
Vines	*Solanum dulcamara*	Climbing Nightshade	FAC	Invasive	Common
	Persicaria sagittata	Arrow-leaved Tearthumb	OBL	Native	Dominant

* Indicates species planted as part of restoration activities

** Indicates supplemental species planted August 2023 for submerged conditions

4.3 Restoration Area 5

RA-5 was originally planted with 645 trees to achieve the goal of creating a palustrine forested wetland (PFO). Of the 645 trees located in 2025, 419 showed optimal health and vigor and an additional 176 exhibited varying stress levels due to herbivory. Herbivory stress appeared to be the primary damage and was caused by browsing whitetail deer. In 2025, 50 trees were recorded as dead. Accordingly, the final survival percentage for the trees in RA-5 is approximately 92%.

It is AECOM's opinion that RA-5 is compliant with the requirements of 314 CMR 9.06 (2) and 310 CMR 10.55 (4), and the 75% performance standard for installed plant material survivorship has been exceeded.

AECOM also evaluated the overall plant community within RA-5, and Table 3 includes the following information for the observed plants: type, scientific name, common name, wetland indicator status, nativity status, and on-site prevalence (common, uncommon, etc.).

Table 3. Vegetation observed within RA-5

Type	Scientific Name	Common Name	Indicator	Status	Presence
Trees	*Acer rubrum**	Red Maple	FAC	Native	Common
	*Betula alleghaniensis**	Yellow Birch	FAC	Native	Common
	*Populus deltoides**	Cottonwood	FAC	Native	Dominant
	*Quercus bicolor**	Swamp White Oak	FACW	Native	Common
	*Salix nigra**	Black Willow	OBL	Native	Common
Shrubs	*Alnus incana*	Speckled Alder	FACW	Native	Common
	Cornus alba	Red Osier Dogwood	FACW	Native	Common
	Elaeagnus umbellata	Autumn Olive	None	Invasive	Rare
	Rosa multiflora	Multiflora Rose	FACU	Invasive	Common
Herbs	*Carex stricta*	Tussock Sedge	OBL	Native	Uncommon
	Mimulus ringens	Allegheny Monkey-flower	OBL	Native	Uncommon
	Verbena hastata	Blue Vervain	FACW	Native	Uncommon
	Euthamia graminifolia	Common Grass-Leaved Goldenrod	FAC	Native	Common
	Bidens frondosa	Beggar Ticks	FACW	Native	Common
	Eupatorium perfoliatum	Boneset	FACW	Native	Uncommon
	Scirpus hattorianus	Mosquito Bulrush	OBL	Native	Uncommon
	Carex crinita	Fringed Sedge	OBL	Native	Uncommon
	Juncus effusus	Soft Rush	OBL	Native	Uncommon
	Epilobium coloratum	Purple-Leaf Willow-herb	OBL	Native	Uncommon
	Lysimachia terrestris	Swamp Candles	OBL	Native	Uncommon
	Galium palustre	Marsh Bedstraw	OBL	Native	Common
	Symphyotrichum novae-angliae	New England Aster	FACW	Native	Common
	Symphyotrichum puniceum	Purplestem Aster	OBL	Native	Common
	Symphyotrichum lanceolatum	Panicled Aster	FACW	Native	Common
	Scirpus cyperinus	Woolgrass	OBL	Native	Uncommon
	Onoclea sensibilis	Sensitive Fern	FACW	Native	Common
	Solidago canadensis	Canada Goldenrod	FACU	Native	Uncommon
	Solidago spp.	Goldenrod	FAC	Native	Common
	Asteraceae family	Asters	NA	Native	Common
	Phalaris arundinacea	Reed Canary Grass	FACW	Invasive	Dominant
	Lythrum salicaria	Purple Loosestrife	OBL	Invasive	Common
	Vicia cracca	Bird Vetch	None	Introduced	Common
Vines	*Rosa multiflora*	Multiflora Rose	FACU	Invasive	Dominant
	Vitis labrusca	Fox Grape	FACU	Native	Uncommon

* Indicates species planted as part of restoration activities

4.4 Common Reed Treatment Area

The herbicide treatment for the existing 0.7-acre common reed (*Phragmites australis*) colony along the southeast shore of the irrigation pond was highly effective. After repeated annual application of herbicide to the area, regeneration of the phragmites colony was extremely low; with only approximately 6 stems of common reed observed in 2024. In 2025, no common reed was observed within the area. Revegetation of "volunteer" wetland plant species continues to be robust. Table 4 below lists the plant species observed in the area.

Table 4. Volunteer vegetation observed within the Common Reed treatment area

Type	Scientific Name	Common Name	Indicator	Status	Presence
	Carex crinita	Fringed Sedge	OBL	Native	Uncommon
	Scirpus cyperinus	Wool Grass	OBL	Native	Common
	Eupatorium perfoliatum	Common Boneset	FACW	Native	Uncommon
	Persicaria punctata	Dotted Smartweed	OBL	Native	Common
	Bidens cernua	Nodding Bur Marigold	OBL	Native	Common
	Impatiens capensis	Jewelweed	FACW	Native	Dominant
	Epilobium coloratum	Purple-Leaf Willow-herb	OBL	Native	Uncommon
	Leersia oryzoides	Rice Cutgrass	OBL	Native	Common
	Pilea pumila	Canada Clearweed	FACW	Native	Common
	Mimulus ringens	Allegheny monkeyflower	OBL	Native	Uncommon
	Ludwigia palustris	Marsh Purslane	OBL	Native	Common
	Erechtites hieraciifolius	American Burnweed	FACU	Native	Uncommon
	Eleocharis spp.	Spikerush	OBL/FACW	Native	Uncommon
	Typha latifolia	Broad-leaved Cattail	OBL	Native	Common
	Galium palustre	Marsh Bedstraw	OBL	Native	Common
	Cuscuta gronovii	Common Dodder	NA	Native	Uncommon
	Lythrum salicaria	Purple Loosestrife	OBL	Invasive	Uncommon
	Symplocarpus foetidus	Skunk Cabbage	OBL	Native	Dominant
Vines	*Solanum dulcamara*	Climbing Nightshade	FAC	Invasive	Common
	Echinocystis lobata	Wild Cucumber	FACW	Native	Rare
	Persicaria sagittata	Arrow-leaved Tearthumb	OBL	Native	Dominant

4.5 Water Chestnut Monitoring

Water chestnut inspections occurring in spring of 2025 documented three water chestnut plants (See Attachment C) growing in the southwest corner of the irrigation pond. After additional removal took place in summer of 2025, follow-up inspections in August of 2025 did not locate any water chestnut plants in this same area.

5. Discussion

Due to the presence of invasive species within portions of RA-1 and RA-2 (e.g., Asiatic bittersweet and multiflora rose), combined with aggressive growth of native species (e.g., arrow-leaved tearthumb and fox grape), many planted shrubs and trees were largely obscured during monitoring activities by dense, thicket-like vegetation and could not be located easily. Therefore, vegetation control techniques were implemented in these areas, which included physical removal of invasive/aggressive growth and/or spot herbicide application. Subsequent to these control techniques, restoration plantings were easier to locate and assess and anticipated long-term survivorship of affected plantings was positive. The treatment plan designed to control invasive and other aggressive species was implemented on an as-needed basis to achieve the long-term planting survival goal of 75% or greater after five years for each RA.

Overall, the 2025 wetland enhancement/restoration monitoring conducted within RA-1, RA-2, and RA-5 yielded excellent results. Tree survivorship in RA-1 remained high at approximately 79% and most surviving trees demonstrated a net growth during the five-year monitoring period. Data collected during the 2025 monitoring period showed tree growth commonly ranged from 8 feet to over 15 feet in height, as compared to tree sizes at planting. 2025 shrub survivorship was estimated at approximately 73%. In RA-1 to date, the total percent survivorship of tree and shrub plantings is approximately 76%. Therefore, after five growing seasons, RA-1 exceeds the performance standard of 75% survivorship.

Shrub survivorship in RA-2 was low by the fifth growing season. Of the 480 planted shrubs, many suffered mortality due to hostile conditions associated with anaerobic soil conditions resulting in a survivorship of only 44%. As previously stated, the observed shrub mortality was predominantly associated with those individuals placed closest to the pond's waterline, which dramatically increased due to improvements that were made to the pond's outlet in an effort to retain more water within the pond for recreational activities. As a result of changes to pond hydrology, shrub plantings within RA-2 did not meet the performance standards of 75% survivorship.

To compensate for shrub mortality observed in RA-2, changes to the proposed plantings were implemented during the latter part of the 2023 growing season. Specifically, to remain compliant with the performance standards and avoid planting additional shrubs in hostile conditions, which would likely result in continued mortality of woody plant material, Tennessee's consultants recommended changing the proposed plant community in the wetter portions of RA-2 from scrub/shrub thicket to emergent marsh vegetation. The proposed changes were formally defined and documented in a corrective action plan (CAP) for RA-2. Tennessee then initiated discussions with both the ACC and MassDEP, each of which subsequently approved the approach. Documentation of regulatory approvals regarding these changes in proposed plant community for a portion of RA-2 are included in **Attachment E**. The approved RA-2 modifications are included in **Attachment F**. Supplemental planting notes are included in **Attachment G**.

On August 22 and 23, 2024 an AECOM wetland scientist was at the site to meet representatives from Williams Forestry & Associates (WFA) to place the proposed aquatic emergent plantings in RA-2. To establish areas of aquatic emergent vegetation in lieu of shrub ticket habitat, WFA planted 5,260 two-inch plugs consisting of the following:

- 512 Arrow Arum (*Peltandra virginica*),
- 768 Broadleaf Arrowhead (*Sagittaria latifolia*),
- 512 Pickerelweed (*Pontederia cordata*), and
- 3,468 Soft-stem Bulrush (*Schoenoplectus tabermaemontani*).

The 2025 growing season monitoring observations and data showed a positive trend of long-term survival of the newly installed aquatic emergent plantings, coupled with significant expansion in many areas.

The plant community in RA-5 was mostly free of invasive plants with the capability of smothering planted trees. With a survivorship of approximately 92% after five growing seasons, the area exceeds the long-term survivorship goal of 75%.

With the goal of reaching the stated performance standard of 75% survivorship of plant material after 5 years, where suitable growing conditions occur, Tennessee's consultant has periodically replaced dead woody plantings. AECOM's assessments have included these replacement woody plantings in the monitoring and reporting, including the calculations of percent survivorship. However, based on hostile growing conditions observed in a portion of RA-2, a decision was made by Tennessee and approved by the regulating agencies, to replace dead shrubs in the northern portion of RA-2 with aquatic emergent vegetation. Vegetation monitoring through 2025 concluded that the newly planted emergent vegetation had a survivorship rate of 80 to 90% and significant expansion of surviving plants was also documented. It is AECOM's opinion that all restoration areas substantially meet the performance standards including the 75% survivorship standard.

The herbicide treatment to the existing 0.7-acre common reed colony along the southeast shore of the irrigation pond was highly effective, and regeneration within the colony was limited to approximately 6 live stems during the 2024 growing season. In 2025, no Phragmites was observed growing in the area. Significant revegetation by "volunteer" native wetland plant species has formed a robust wetland plant community in the area.

Water chestnut inspections within the southwest corner of the irrigation pond documented 3 water chestnut plants early in the 2025 growing season. However, additional eradication measures, consisting of hand pulling of observed plants, during the summer of 2025, resulted in the removal of all water chestnut in the southwest corner of the pond. However, water chestnut continues to be observed in other locations within the pond.

6. Conclusions

After five growing seasons, the total combined survivorship of planted trees and shrubs in RA-1 is 76%, and above the performance standard of 75% survivorship.

After five growing seasons, survivorship of planted shrubs within RA-2 is approximately 44%, which is below the performance standard of 75%. However, as previously described, changes to the proposed plantings within RA-2 were implemented during the latter part of the 2023 growing season. These changes resulted in the establishment of a substantial area of shallow marsh habitat that was previously lacking in the pond. Survivorship of planted aquatic vegetation was estimated at approximately 80-90% in 2025, with significant expansion in overall area.

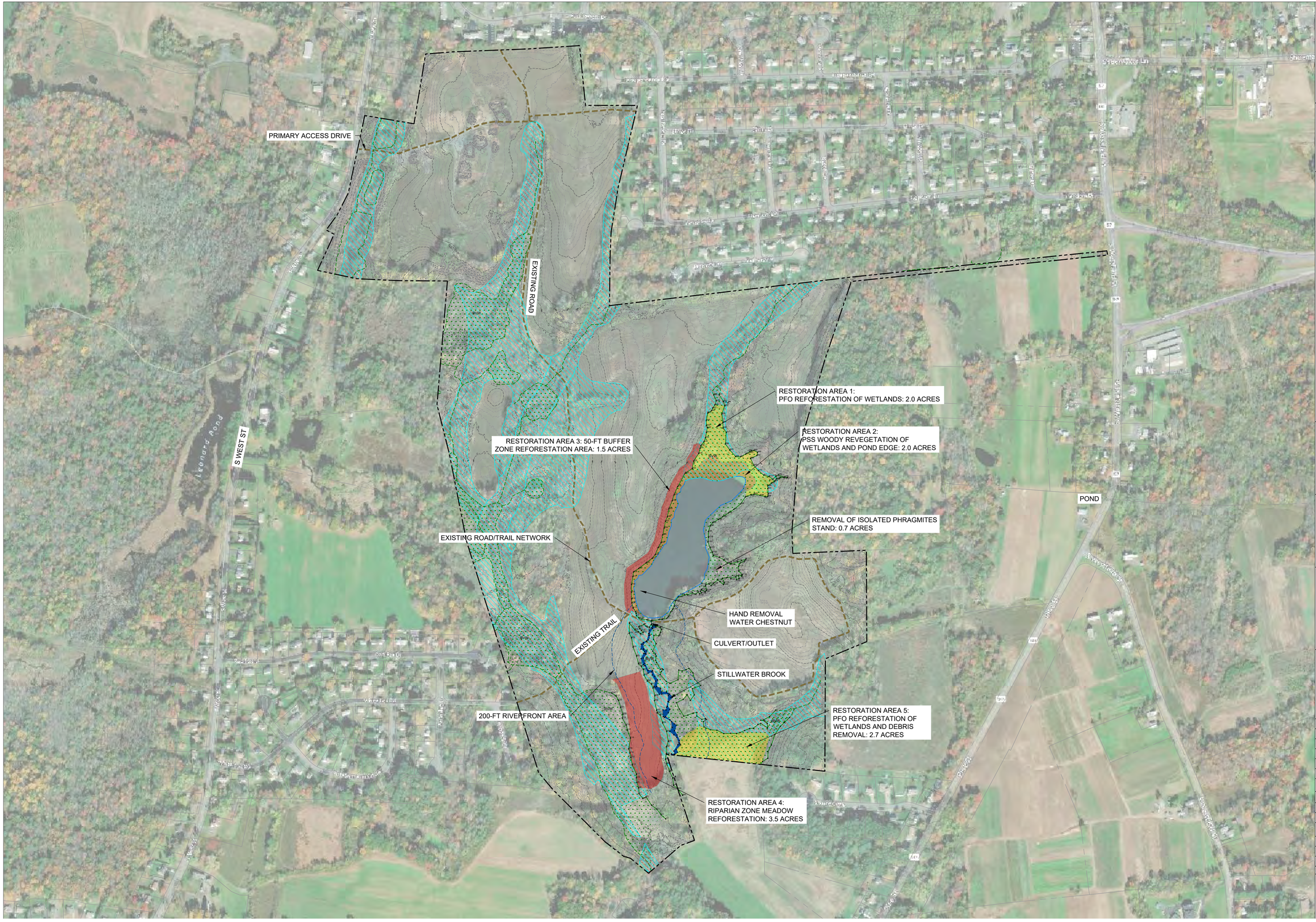
Plant material installed within RA-5 has a survivorship of approximately 92% at the end the fifth growing season and exceeds the 75% survival threshold in the performance standard.

The herbicide treatment to the existing 0.7-acre common reed colony along the southeast shore of the irrigation pond was highly effective. Common reed has been eliminated and the 0.7-acre area has been revegetated by volunteer native wetland plant species. Water chestnut within the southwest corner of the irrigation pond has likewise been eliminated.

Conditions within the restoration areas and invasive species control efforts during the fifth growing season reflect successful development of wetland plant communities and successful achievement of the approved restoration area design plan goals. Plant species composition and coverage reflect the planting program implemented at the site. Invasive species control and treatment had a significant impact, eradicating the common reed and fostering establishment of a “volunteer” native wetland plant community. Water chestnut has likewise been removed from the southwestern corner of the pond. Based on these observations and data collected during the fifth and final growing season of monitoring, development of the restoration areas has been consistent with the design intent and meet or exceed the performance standards, as described above.

Attachment A

Compensatory Wetland Mitigation Plan, Offsite Mitigation Details


PRIMARY ACCESS DRIVE
EXISTING ROAD
RESTORATION AREA 1:
PFO REFORESTATION OF WETLANDS: 2.0 ACRES
RESTORATION AREA 2:
PSS WOODY REVEGETATION OF
WETLANDS AND POND EDGE: 2.0 ACRES
RESTORATION AREA 3: 50-FT BUFFER
ZONE REFORESTATION AREA: 1.5 ACRES
REMOVAL OF ISOLATED PHRAGMITES
STAND: 0.7 ACRES
EXISTING ROAD/TRAIL NETWORK
HAND REMOVAL
WATER CHESTNUT
EXISTING TRAIL
CULVERT/OUTLET
STILLWATER BROOK
200-FT RIVERFRONT AREA
RESTORATION AREA 5:
PFO REFORESTATION OF
WETLANDS AND DEBRIS
REMOVAL: 2.7 ACRES
RESTORATION AREA 4:
RIPARIAN ZONE MEADOW
REFORESTATION: 3.5 ACRES
POND
S WEST ST
Leonard Pond
Powers Rd
Stillwater Ln
Meadow Rd
Pheasant Run
Deer Run Dr
Forest Dr
Hillcrest Dr
Sunset Ridge Dr
Woodland Dr
Cedar Ridge Dr
Laurel Dr
Pine Ridge Dr
Meadow Ln
Shadow Ln
Sunset Ridge Dr
Powers Rd

PLANT RESTORATION SCHEDULE

Wetland Restoration Areas

Cover Type	Abbrev.	Scientific Name	Common Name	Size	Restoration Area 1	Restoration Area 2	Restoration Area 5
				Total Enhancement Area (sf)	87,454	86,760	116,894
	Ar	Acer rubrum	Red Maple	4-6'	96		129
	Ba	Betula alleghaniensis	Yellow Birch	4-6'	96		129
	Pd	Populus deltoides	Cottonwood	4-6'	96		129
	Qb	Quercus bicolor	Swamp White Oak	4-6'	96		129
	Sn	Salix nigra	Black Willow	4-6'	96		129
Shrubs	Ai	Alnus incana	Speckled Alder	3-4'	96	96	
	Ca	Cornus amomum	Silky Dogwood	3-4'	96	96	
	Cs	Cornus sericea	Red Osier Dogwood	3-4'	96	96	
	Sc	Sambucus canadensis	Common Elderberry	3-4'	96	96	
	Vd	Viburnum dentatum	Northern Arrowwood	3-4'	96	96	
Herbaceous		New England Moist Seed Mix (Lbs)		35lbs/acre		X	X
Herbaceous		New England Wet Seed Mix (Lbs)		18lbs/acre	X		

Upland Restoration Areas					Restoration Area 3	Restoration Area 4
				Total Enhancement Area (sf)	65,716	151,826
Trees	Ar	Acer rubrum	Red Maple	4-6'	52	120
	As	Acer saccharum	Sugar Maple	4-6'	52	120
	Bp	Betula populifolia	Gray Birch	4-6'	52	120
	Pd	Populus deltoides	Cottonwood	4-6'	52	120
	Ps	Pinus strobus	White Pine	4-6'	52	120
	Qa	Quercus alba	White Oak	4-6'	52	120
	Qr	Quercus rubra	Red Oak	4-6'	52	120
Shrubs	Ac	Amelanchier canadensis	Shadblow	3-4'	91	209
	Ca	Cornus amomum	Silky dogwood	3-4'	91	209
	Cr	Cornus racemosa	Gray Dogwood	3-4'	91	209
	Rt	Rhus typhina	Staghorn Sumac	3-4'	91	209
Herbaceous		New England Semi-Shade Grass and Forbs Mix (Lbs)		30lbs/acre	X	
Herbaceous		New England Erosion Control/Restoration Mix for Dry Sites (Lbs		35lbs/acre		X

Tree quantities specified are based off the USDA New England Forest: Baseline for New England Forest Health Monitoring report.
Trees shall be installed not less than 10 feet on center.
Shrubs shall be planted in clusters of 2 or 3, and shall be installed not less than 3 feet on center.
Areas within planting areas not 100% vegetated with existing herbaceous plants will be seeded with the appropriate seed mix at the manufacturers specified rate to cover the bare area.
A wetland scientist or landscape architect shall provide supervision of the plant layout.
Plant substitutions may be necessary due to commercial availability. Substitutions shall be approved by the supervising wetland scientist or landscape architect.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

Apply: 18 lbs/acre

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York Ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens frondosa	Beggar Ticks	FACW
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia)	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+

Apply: 35 lbs/acre

New England Erosion Control/Restoration Mix for Dry Sites

Botanical Name	Common Name	Indicator
Elymus canadensis	Canada Wild Rye	FACU+
Festuca rubra	Red Fescue	FACU
Lolium multiflorum	Annual Ryegrass	
Lolium perenne	Perrenial Ryegrass	
Schizachyrium scoparium	Little Bluestem	FACU
Panicum virgatum	Switch Grass	FAC
Sorghastrum nutans	Indian Grass	UPL

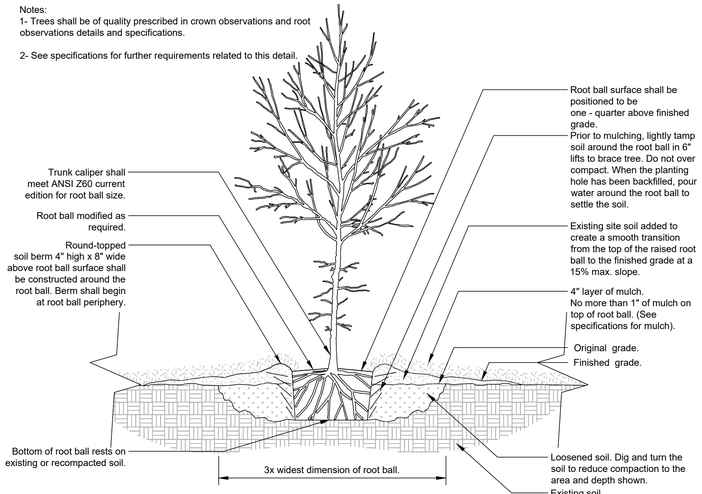
Apply: 35 lbs/acre

New England Semi-Shade Grass and Forbs Mix

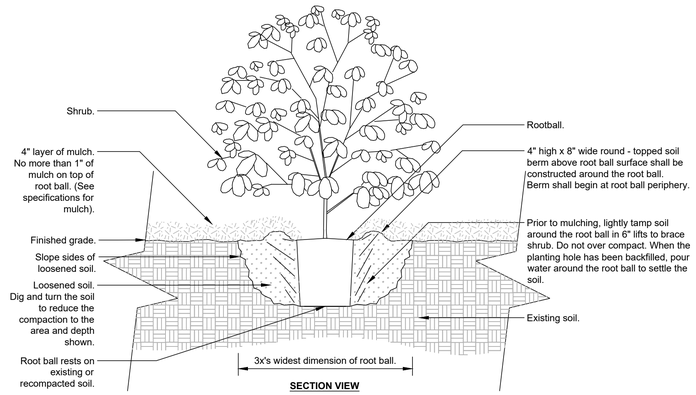
Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Elymus canadensis	Canada Wild Rye	FACU+
Festuca rubra	Red Fescue	FACU
Chamaecrista fasciculata	Partridge Pea	FACU
Liatris spicata	Spiked Gayfeather/Marsh Blazing Star	FAC+
Onoclea sensibilis	Sensitive Fern	FACW
Aster prenanthoides (Symphyotrichum prenanthoide)	Zigzag Aster	FAC
Eupatorium fistulosum (Eutrochium fistulosum)	Hollow-Stem Joe Pye Weed	FACW
Eupatorium perfoliatum	Boneset	FACW
Juncus tenuis	Path Rush	FAC

Apply: 30 lbs/acre

Source: Seed mixes referenced herein are provided by New England Wetland Plants, Inc.

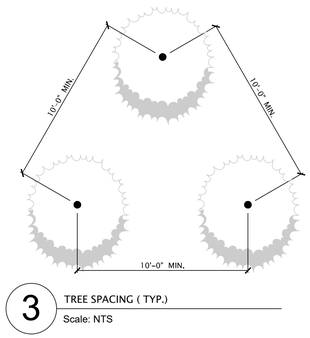


1 TREE PLANTING DETAIL
Scale: NTS

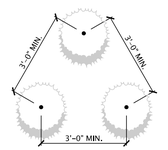


Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

2 SHRUB PLANTING DETAIL
Scale: NTS



3 TREE SPACING (TYP.)
Scale: NTS



4 SCRUB SPACING (TYP.)
Scale: NTS

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Sheet Title:
OFFSITE MITIGATION POND PLANTING DETAILS, SCHEDULE AND SEEDING MIXES

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WOODY PLANT INSTALLATION GUIDANCE

Site Preparation

The Planting hole must be dug no deeper than the container as measured from the trunk flare to the bottom of the ball. Planting holes dug deeper than the container often result in the settling of the plant above the trunk flare and structural roots which can result in the rootball being planted too deep. Research shows that the fibrous or absorbing roots of most woody plants are usually found within the top 6 to 12 inches of soil, and since root development often extends beyond the canopy or dripline, it is recommended that the planting area be loosened and aerated at least 3 to 5 times the diameter of the container.

Planting Hole Preparation

One of the most common errors in tree planting is that the rootball is either planted too deep or too high, both of which can cause serious problems. To properly plant container plant material, start by locating the point at which the trunk flare begins. Measuring from the trunk flare to the bottom of the ball will give the correct planting hole depth.

Alternatively, if the trunk flare is not well developed, the rootball can be probed for structural roots using a surveyor's chaining pin or similar tool. Generally, the uppermost structural roots in the rootball should be planted within 1-3 inches of the soil surface, measured 2-5 inches from the trunk.

The Integrity of the rootball should be maintained until it is secure in the hole. In the event that some of the soil falls away from the roots, proceed with the planting, taking care to ensure that the roots do not dry out from sun or wind. The planting hole size should be approximately 3 to 5 times the width of the container and have sloping sides.

Setting the Plant

Carefully set the plant in the hole so that the trunk flare is at, or 1 to 2 inches above, the existing grade. Once the plant is properly placed, remove the container and reset the rootball in the prepared hole.

Backfilling the Planting Hole

According to research, backfilling with soil dug from the planting hole is preferable to mixing the soil with large amounts of organic soil amendments such as peat moss, compost, etc. The addition of an organic soil amendment may be called for if the existing soil is of poor quality, such as excessively sandy or heavy clay soils or those consisting of undesirable fill material. Alternatively, quality topsoil, similar in texture to the existing soil, may be brought in and used for backfilling.

While backfilling the hole, it has been customary to tamp the soil to avoid leaving large air pockets. However, this practice often results in the soil being packed so firmly as to drive out all the fine air spaces needed for a well-aerated soil. An alternative to tamping the soil would be to water the soil halfway through the backfill process and allow it to drain. When the water has drained away, resume backfilling and water again thoroughly. If the practice of tamping the soil is chosen, it should be done lightly so as to not compact the soil in the planting hole.

To complete the backfilling, smooth the surface soil and check to ensure that the trunk flare is completely exposed (The structural roots should be within the top 3 inches of soil as measured 4 inches from the trunk).

Fertilizing

Fertilization should be avoided unless it is determined in the field that nutrient availability is insufficient for establishment. Fertilization is not likely to be effective during the first growing season, as long as there is no nutrient deficiency. Avoid placing water-soluble {quick release) nitrogen fertilizer directly in the planting hole as this may cause injury to roots. If needed, a slow release or organic form of nitrogen could be mixed into the planting area or be applied on the soil surface around the tree basin.

Staking

While there are many opinions on the method and value of staking trees at planting time, most experts agree that staking is not necessary for all trees. Trunk strength, size of the canopy, wind direction and site traffic problems should all be considered before staking a tree. Research has shown that staked trees may develop a smaller root system and decreased trunk taper. Based on the prescribed installation sizes staking should not be necessary on this project.

Mulching

Mulching is a cultural practice that can be of benefit in the landscape when done correctly. Mulching will reduce weeds, moderate soil temperatures, conserve soil moisture in the root zone, and add an aesthetic quality to the landscape. However, improper mulching can impair plant health and may lead to the decline of the plant material.

Pruning

After transplanting, prune only broken or damaged branches. Top pruning to compensate for root loss is no longer recommended. It is important to leave as much foliage on the tree as possible because carbohydrates and other products produced by photosynthesis in the leaves are necessary for root system regeneration and development.

Tree Wrapping

The bark on a tree or shrub is as important as skin to an animal. It acts as a barrier to exclude insects and disease organisms from the vascular system, which lies directly under the bark. Some bark injuries may occur because of damage from the sun {sunscald) or temperature extremes {frost cracks). For many years, it has been a common practice to use tree wrap on newly planted or thin-barked trees in an effort to reduce sun or temperature damage to the bark.

Research has found that some tree wraps may not provide the protection that was originally intended. In experiments using plastic tree guards on dogwoods, large numbers of dogwood borers were found under the guards while few were found in trees without guards. In addition, some tree wraps were found to retain excess moisture beneath the wrap. This may encourage fungal or bacterial growth, especially if there were pre-existing wounds in the trunk.

If tree wrap is to be used, it is recommended that appropriate material be selected, checked frequently, and the wrap be removed during periods of active growth.

SEEDING GUIDANCE

Seed Methodology

The following methodology provides sequencing for establishing the seed mixes prescribed on the accompanying details sheet. This process should begin following final grading. This methodology does not specify a temporary cover crop. A cover crop may be needed to stabilize the site depending on weather conditions and construction timing relative to the seasons and the ideal time frame for establishing the seeded areas. The best time to seed for this project is in the spring when the soils are at a normal moisture content level (moist, not saturated) and no later than June 30. Weather forecasts should be monitored as occasional watering may be necessary if a dry spring season occurs. The seeding sequence should begin no longer than 48 hours after final grading. Site stabilization techniques should be utilized in this 48-hour time period.

Soil Scarification/ Seed Bed Preparation

Seed bed preparation is the process of scarifying and loosening the soil surface in order to create a loose, friable, soil surface. The soil surface should be a uniform planar surface that is flat and without excessive ridges, furrows, ruts or mounds and low spots where water can collect. Soil scarification should only when weather, soil conditions, and construction phasing allows for no longer than 48 hours between scarification (the beginning of the seeding process) and covering the seed with weed free straw mulch (not hay). The soil should be scarified to maximum depth of 3 inches (see below). During this process, areas where coarse gravel dominates the soil surface should be identified and amended with fine sandy-soil common borrow generated from on-site earthwork. The importation of topsoil should be a last resort and only used as an amendment for “localized” spots that lack the characteristics of a soil seed bed.

Seed Application

A well-prepared seed bed provides a loose friable soil surface for which the seed can be sown into. Seed application is a two-part process: 1) seed application at proper rates per acre and 2) sow the seed into the soil ¼ to ½” depth maximum. Appropriate seed rates for each prescribed seed mix are specified on the accompanying details sheet.

Seeding by Hand: Check the seed label prior to opening the bulk bag to confirm the correct seed is being applied to the specified location. The bulk bags of seed should be agitated by hand on site to redistribute the seeds in the matrix before spreading. In bare areas a weed free straw mulch may be used to cover the soil surface following the seed application.

Sowing the Seed: Once the seed is spread the seed must be sown into the soil to the depth above in order to increase chances of germination by keeping soil moisture close to the seed. The seed can be sown by a number of ways including “tracked” in with a low PSI rubber tire or tracked machine, using a York landscape rake or similar, or the traditional means of using a metal leaf rake.

Reseeding

Areas to be reseeded shall follow the same seeding sequence outlined above. It is expected that some seeded areas may not germinate, but that over time the planted areas shall fill in through seed proliferation and growth habits. Areas large enough to be identified through monitoring as being dominated by weeds or other invasive species that have out competed the specified seed mix or areas deemed unstable due to low plant growth shall be reseeded accordingly.

Plant Succession Notes

It is possible that over time some seeded areas might become dominated by native plant species existing in the soil seed bank. One example of this is the likelihood that various types of native ferns could emerge in shaded areas. No species of ferns are in the prescribed seed mix, but are highly desirable species that can exist and thrive in the identified planting areas adding to landscape diversity. Native species such as ferns that emerge due to being in the soil seed bank should remain. Thorough and regular monitoring during the maturation of the establishment areas is a key component to balancing areas to be reseeded and areas where successional plant growth of natives should be allowed to thrive.

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Attachment B

261 Upgrade Projects
Water Quality Certification and Order of Conditions

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

Deborah J. McCartney, Senior Permitting and Compliance Specialist — September 16, 2019
Tennessee Gas Pipeline Company, LLC
1001 Louisiana Street, Suite 1000
Houston, Texas 77002
Debi_McCartney@kindermorgan.com

Re: WATER QUALITY CERTIFICATION
Application for: BRP WW 10
MAJOR FILL AND EXCAVATION PROJECT
Line 261 Upgrade Projects (Line 261B Looping Project)
Tarkill, Threemile, and Worthington Brook Watersheds
Tennessee Gas Pipeline Company Line 261 Right-of-Way
Agawam, Massachusetts

USACOE Application Number:	NAE-2018-00162
MassDEP Wetlands File Number:	087-0644
MassNHESP File Number:	18-37497
MEPA EOEEA Number:	15879
Transmittal Number:	**X281739**

Dear Ms. McCartney:

The Massachusetts Department of Environmental Protection (hereinafter the Department) has completed its Supplemental Technical Review of the permit application for the project listed above. In accordance with the provisions of Massachusetts General Laws, Chapter 21, Sections 26 through and including 53 and the Regulations promulgated thereunder at 314 CMR 9.00, and its subpart at 314 CMR 9.09(1)(c); and Section 401 of the federal Clean Water Act as amended (33 USC §1251 et seq.), it has been determined that there is reasonable assurance this "gas pipeline upgrade project" will be conducted in a manner which will not violate applicable Surface Water Quality Standards at 314 CMR 4.00 *Massachusetts Surface Water Quality Standards* as implemented at 314 CMR 9.00; and other applicable requirements of state law.

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

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Findings:

- The activity, as defined at 314 CMR 9.02 Activity, described within the Water Quality Certification application and supplemental information (hereinafter the "application") will result in the "discharge of dredged or fill material" into and within "Waters of the United States within the Commonwealth" [each as defined at 314 CMR 9.02] at the Project Locus described below;
- The application involves a parcel(s) of land referred to as the Line 261B Right-of-Way and Compressor Station 261, with a street address of 1615 Suffield Street, located within the Town of Agawam, Hampden County, Massachusetts (hereinafter the "Project Locus");
- The proposed project has been determined to be non-water dependent per 310 CMR 9.12;
- The scope of the requisite alternatives analysis was determined in the "Certificate of the Secretary of Energy and Environmental Affairs on the Final Environmental Impact Report" for MEPA File Number 15879, dated August 2, 2019, per 314 CMR 9.06(1)(b)2.;
- The Project Locus contains and includes "Waters of the United States within the Commonwealth" which have been determined to meet the jurisdictional definition of "Bordering Vegetated Wetland" (BVW), "Isolated Vegetated Wetland" (IVW), [each as defined at 314 CMR 9.02]; and Land Under Water;
- The Department hereby approves the following site plan(s) and documents as the "plan(s) of record":
    - "Tennessee Gas Pipeline Company, 261 Upgrade Projects, Proposed Activities by Type and In-Situ Restoration" (Pages 1 through 15 of 15), created by Tennessee Gas Pipeline Company, LLC, and dated February 27, 2019 (Revised);
    - "Line 261B Looping Project, Agawam, MA, Compensatory Wetland Mitigation Plan, *In Situ* Wetland Restoration Details, Attachment 3" (Pages 1 through 14 of 14), prepared by Tennessee Gas Pipeline Company, LLC, and dated August 5, 2019 (Revised);
    - "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA", (Sheet 1.0), prepared by SWCA Environmental Consultants, dated August 21, 2019;
    - "Offsite Mitigation Pond Planting Details, Schedule and Seeding Mixes, Line 261B Looping Project, Agawam, MA", (Sheet 2.0), prepared by SWCA Environmental Consultants, dated August 21, 2019;
    - "Offsite Mitigation Plant and Seed Installation Guidance, Line 261B Looping Project, Agawam, MA", (Sheet 3.0), prepared by SWCA Environmental Consultants, dated August 21, 2019;
    - "Attachment 5, Dean Property Wetland Delineation, 261B Looping Project, Agawam, MA", prepared by SWCA Environmental Consultants, and dated August 20, 2019;
    - "Line 261B Looping Project, Preliminary Invasive Plant Management Plan, Agawam, Massachusetts" (October 2018);
    - "261B Pipeline Looping Project Wetland Crossing Conventional Bore, Wetland F @ MP 1.57, Town of Agawam, Hampden County, Massachusetts", (Sheet 1 of 1) dated August 16, 2019 and prepared by Tennessee Gas Pipeline Company, LLC;

- The boundary of the Bordering Vegetated Wetland(s) on the parcel in question are demarcated as shown on the plans of record;
- The boundary of the Isolated Vegetated Wetland(s) on the parcel in question are demarcated as shown on the plan(s) of record;
- The boundary of Land Under Water on the parcel in question is demarcated at the "High Water Mark" [as defined at 314 CMR 9.02] as shown on the plan(s) of record;
- An unnamed tributary to Worthington Brook at the Compressor Station 261 lot is referred to in the plans of record as "MA1". Worthington Brook is referred to in the plans of record as "MA6". Tarkill Brook is referred to in the plans of record as "MA4". An unnamed perennial tributary to Threemile Brook is referred to in the plans of record as "MA3";
- The Bordering and Isolated Vegetated Wetlands and Land Under Water (collectively "Waters of the United States within the Commonwealth") bounded as described above constitute the "Project Site";
- The Department has determined that the project, as shown on the plan(s) of record and further described in supplemental information, is the "least environmentally damaging practicable alternative", and therefore meets the criteria at 314 CMR 9.06(1);
- The project, as approved in this Water Quality Certification, will result in the temporary discharge of dredged or fill material into: 250,544 square feet of Bordering Vegetated Wetland [as defined at 314 CMR 9.02]; 4,673 square feet of Isolated Vegetated Wetland [as defined at 314 CMR 9.02]; and 4,673 square feet of Land Under Water associated with Tarkill Brook (SARIS ID 3417500), Threemile Brook (SARIS ID 3417425), and Worthington Brook (SARIS ID 3417450) and tributary intermittent and perennial streams;
- The sum of these proposed activities will result in the discharge of dredged or fill material into **259,890** square feet of "Waters of the United States within the Commonwealth";
- The project will result in the permanent conversion of 24,056 square feet of Bordering Vegetated Wetland and 628 square feet of Isolated Vegetated Wetland to an actively maintained right-of-way subject to periodic vegetation management;
- The project will result in the temporary conversion of 103,053 square feet of Bordering Vegetated Wetland from dominance by woody species to emergent species, which will be restored in part via *in situ* compensatory mitigation;
- Per the authority of the Department at 314 CMR 9.09(1)(d), the Department has determined that the *in situ* Bordering and Isolated Vegetated Wetland Restoration "Compensatory Mitigation Area(s)" described within the plan(s) of record and supporting documentation meet the criteria at 314 CMR 9.06(2) as conditioned by this Water Quality Certification;
- Per the authority of the Department at 314 CMR 9.09(1)(d), the Department has determined that the off-site Bordering and Isolated Vegetated Wetland "Compensatory Mitigation Area(s)", composed of "Rehabilitation" and "Preservation" at the Tuckahoe Turf Farm; and "Preservation" at the "Dean Property" and described within the plan(s) of record and supporting documentation meet the criteria at 314 CMR 9.06(2) as conditioned by this Water Quality Certification;
- Per the authority of the Department at 314 CMR 9.09(1)(d), the Department has determined that the proposed project maintains water quality within Land Under Water

on the Site, and adequately minimizes damage to the "Aquatic Ecosystem" [as defined at 314 CMR 9.02] therein associated, through application of the compensatory mitigation proposed, and as conditioned by this Water Quality Certification;

- Per the authority of the Department at 314 CMR 9.09(1)(d), the Department has determined that the use of temporary construction mats is a best management practice to minimize adverse impacts to "Waters of the United States within the Commonwealth".

Water Quality Certification Conditions for Transmittal Number X281739

Therefore, based on information currently in the record, the Department **grants a Water Quality Certification** (hereinafter "Certification") for this project subject to the following conditions necessary to maintain water quality, to minimize impact to "Waters of the United States within the Commonwealth", and to insure compliance with appropriate state law:

Administrative and Procedural Conditions

1. This Certification does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations, including those administered by the US Army Corps of Engineers. Activities, as defined at 314 CMR 9.02 Activity, conducted in accord with this Certification may only begin following the twenty-one (21) calendar day appeal period, as specified at 314 CMR 9.09(1)(e) and 314 CMR 9.10(2), and once all other required permits and licenses have been received. The permittee shall comply with all the applicable Conditions of the "Department of the Army General Permits, Commonwealth of Massachusetts" (US Army Corps of Engineers, effective on April 16, 2018) (available from the US Army Corps of Engineers, New England District, Regulatory Division at www.nae.usace.army.mil), or an Individual Permit, whichever may apply. The General Permits or Individual Permit Conditions therein hereby form a part of, and are inseparable from, this Certification.
2. This Certification does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of property rights.
3. All successors and assigns in interest or control of the property subject to this Certification and any contractor or other person performing work conditioned by this Certification shall adhere to **all** applicable procedural and technical Conditions of this Certification. All work upon or within "Waters of the United States within the Commonwealth" allowed per this Certification shall be accomplished by reference to the plan(s) of record, and to the several Conditions of this Certification. In the event of any conflict between the several Conditions of this Certification and the plans of record, the Conditions of this Certification shall prevail.
4. The permittee shall arrange to procure and submit via hand to the Department's Western Region Wetlands Program (Springfield State Office Building, 5th Floor, 436 Dwight Street, Springfield, Massachusetts) at least three (3) copies of the plan(s) of record (as referenced above) in 11x17-inch format at least ten (10) business days prior to the initiation of activities at the Project Site, and subject to the Department's jurisdiction. Upon review and acceptance of these plan(s) of record, the Department will affix an "Approved" stamp upon each sheet or bound set, which will then be signed by appropriate Department staff. A copy shall be retained by the Department as a permanent record, and a copy will be returned via hand delivery to the permittee and the general contractor (or equivalent). The permittee shall procure good

resolution electronic scans of the plan(s) of record and submit same to the Department within 5 calendar days of the Department's approval. Thereafter, all work conducted per this Certification shall fully and completely comply with these plan(s) of record.

5. While submitting the three (3) copies of the plan(s) of record required at Condition #4 of this Certification, and prior to the initiation of any activities otherwise permitted by this Certification, the permittee shall arrange for a "Pre-construction Meeting" to be held with the Department's Western Region Wetlands Program at the Springfield State Office Building, 5th Floor, 436 Dwight Street, Springfield, Massachusetts. It shall be the responsibility of the permittee to ensure that their representative(s) (if any), as well as the general contractor, all appointed compliance monitors and environmental consultants required within this Certification (if any), and all other pertinent firms or persons, are in attendance. The permittee shall also ensure that all plan(s) of record, contracts, and other pertinent documents are made available. No activities otherwise permitted by this Certification may proceed until this "Pre-construction Meeting" has been held.
6. Should the plan(s) of record approved in this Certification (or any sheet, detail, schematic, or collar note therein) prove not to accurately reflect site conditions (or standard construction methodologies, or practical construction considerations) sufficient in order for contractors to be able to build according to said plan(s), the Department maintains the right to require an immediate cessation of work, in whole or in part. Should the Department, at its sole discretion, require such cessation, it shall do so in writing to the permittee, and such notice shall require adequate interim erosion and sedimentation controls and the submittal of proposed plan revisions that address the inadequacies, and result in the same or reduced alterations to "Waters of the United States within the Commonwealth" (as defined at 314 CMR 9.02) as approved in the plan(s) of record. Activities shall not recommence until written approval to proceed has been issued by the Department.
7. Tarkill Brook, Threemile Brook, and Worthington Brook and their associated tributaries and Bordering and Isolated Vegetated Wetlands are classified in the Massachusetts Surface Water Quality Standards [314 CMR 4.00] as Class B, High Quality Waters. As such, they are protected by the antidegradation provisions specified in 314 CMR 4.04(1) and the last clause of 314 CMR 4.04(2). The antidegradation provisions are implemented and supplemented, without limitation, by 314 CMR 9.00, per 314 CMR 9.01(3). Therefore, reasonable care and diligence shall be taken by the permittee to assure that the proposed activity will be conducted in a manner that will avoid violations of these Standards.
8. The contractor(s) employed to execute earth-moving, vegetation removal, demolition, and/or motorized vehicle operation activities on the property subject to this Certification must be provided a copy of this Certification prior to the commencement of any such activities. Said contractor(s) may be held responsible with the permittee and property owner for violations by the contractor and may be subject to penalties authorized by law and/or regulation for those violations.
9. This Certification specifically prohibits any activity, as defined at 314 CMR 9.02 Activity, within or upon any "Waters of the United States within the Commonwealth" not specifically authorized by this Certification. Any failure to abide by the Conditions of this Certification that results in or contributes to a discharge of dredged or fill material or discharge from dredging, as defined at 314 CMR 9.02, into "Waters of the United States within the Commonwealth", may result in a potential enforcement action on the part of the Department, and possibly other regulatory agencies.

10. As this project has been determined to meet the definition of "Single and Complete Project" at 314 CMR 9.02, the amount of proposed "discharge of dredged or fill material" within "Waters of the United States within the Commonwealth" permitted by this Certification shall not be exceeded, regardless of future project modifications or any proposed modifications under Condition #11 of this Certification. This prohibition does not expire.
11. The Department shall be notified in writing of any proposed changes in construction methodology or design necessary to complete this project. Any proposed modifications involving additional "discharge of dredged or fill material" are strictly prohibited. Proposed reduction of "discharge of dredged or fill material" may be submitted under this Condition. Based upon submittals under this Condition, the Department will determine whether any proposed changes will require an "Amendment" to this Certification per the Department's authority at 314 CMR 9.09(2).
12. Failure to comply with this Certification is grounds for enforcement, including but not limited to civil and criminal penalties, under MGL c. 21, § 42; 314 CMR 9.00; MGL c. 21A, § 16; and 310 CMR 5.00.
13. Department staff shall have the right to enter and inspect the property subject to this Certification at reasonable hours to evaluate compliance with the Conditions of this Certification.
14. This Water Quality Certification expires on April 5, 2023, unless the US Army Corps of Engineers, New England District, Regulatory Division specifically authorizes a different expiration date in writing in a Pre-Construction Notification Authorization or Individual Permit issued under § 404 of the federal Clean Water Act and the "Department of the Army General Permits, Commonwealth of Massachusetts" (US Army Corps of Engineers, effective April 16, 2018) issued thereunder.

Site Stabilization Conditions

15. This Certification prohibits the discharge of any amount of untreated sediment-laden stormwater at any time from within or adjacent to the Project Site to any "Waters of the United States within the Commonwealth" outside the demarcated limit-of-work, as shown on the plan(s) of record. This prohibition applies regardless of any structural or nonstructural stormwater best management practices otherwise required by this Certification or any other regulatory authority; and despite any singular precipitation event, climactic pattern, or related phenomena. Discharges of untreated sediment-laden stormwater in violation of this Condition would constitute a violation of this Certification, and could result in enforcement actions taken by the Department, and possibly other regulatory agencies.
16. Prior to commencement of any work on the Site, adequate erosion and sedimentation control measures shall be implemented, including any necessary controls not specifically referenced in the plan(s) of record, and they shall be maintained in effect throughout the entire project, and until the Site has become stabilized with an adequate vegetative or landscaping cover. Structural failure of the erosion and sedimentation controls required by this Certification, and subsequent discharge of untreated stormwater to "Waters of the United States within the Commonwealth" (WUSWC), would constitute a violation of this Certification, and could result in enforcement actions taken by the Department, and possibly other regulatory agencies.

17. Prior to the commencement of any earth-moving activity, and in specific portions of Bordering and Isolated Vegetated Wetland that will be subject to soil excavation or discharge of unconsolidated materials (on the downgradient side of the "Limit of Disturbance" as shown on the plans of record unless specified elsewhere in the plans), a double-staked hay bale barrier (end to end) shall be placed along the limit of activity between all disturbed areas and jurisdictional WUSWC, regardless of what is shown on the plan(s) of record. Each bale shall be properly bound with at least two (2) lengths of twine or wire, and shall be entrenched to an excavated depth of at least four (4) inches, but no greater than six (6) inches. Excavated spoils from entrenching shall be deposited on the up-gradient side of the barrier. Bales shall be tightly butted against each other. A geotextile siltation fence shall be placed on the down-gradient side of the aforementioned hay bale barrier, and shall be entrenched in a like manner such that the base of the fabric lies below grade extending at least six (6) inches away from the fence. This fence shall be located no further than twelve (12) inches from the down-gradient side of the hay bale barrier. These erosion and sedimentation controls shall be constructed and installed per this Condition, and shall be maintained in proper functioning condition until all disturbed areas have been stabilized, or until the Department has determined that the control measures are no longer necessary. The geotextile siltation fence shall constitute a limit-of-work-line. No work shall be permitted on the down-gradient side (the WUSWC side) of this line under this Certification.
18. Prior to the initiation of any activities otherwise permitted in this Certification the permittee shall insure that a "Construction Sequencing Plan" appropriate to project and site conditions is submitted to the Department and approved in writing by the Department. Such a plan shall minimally follow the US Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) "Construction Sequencing" Best Management Practice. In addition, at no time shall greater than ½ acre of land be disturbed or in a state of disturbance in any catchment at the site without the express written permission of the Department.
19. The permittee shall make every reasonable effort to ensure that tree roots and stumps remain intact and viable within the portions of BVW/IVW labeled on the plans of record as "Temporary Fill/In-Situ Restoration/Temporal Loss," wherever practicable. Such efforts are intended to maximize the rapid reestablishment of woody vegetation through coppice growth. Similarly, surface microtopography (e.g., pits and mounds) and abiotic components (ledge, rock fragments) shall be preserved in place wherever practicable.

Compliance Monitoring Conditions

20. Within ten (10) business days of the issuance date of this Certification, the permittee shall nominate one or more compliance monitors in writing, who shall be accepted in writing by the Department. Nominated compliance monitors shall have adequate and relevant education, training, and/or experience necessary to understand and perform the duties described herein, and the Department reserves the right to accept nominees based upon its review of such education, training, and/or experience, as documented in resumes submitted to the Department. The approved compliance monitor(s) shall personally observe all "construction activity" at all times within all "Waters of the United States within the Commonwealth" (as defined at 314 CMR 9.02) permitted by this Certification and subject to it (said compliance monitor can be the same person identified at Condition #21 of this Certification). For purposes of this Certification, "construction activities" are all activities

(as defined at 314 CMR 9.02 Activity) within "Waters of the United States within the Commonwealth" (WUSWC) which entail the initial placement and/or extraction of fill or materials and the initial excavation or dredging of substrate:

a. including the placement and the extraction of the proposed construction mats and temporary storage of spoils;
b. the initial placement of cofferdams, flume pipes, and any other devices or material into standing water within WUSWC;
c. the initial placement of fill, and scarification and excavation of soil into Bordering and Isolated Vegetated Wetlands;
d. the extraction of temporary fill from any WUSWC; and
e. The removal and placement of any material or substance from or into WUSWC for purposes of compensatory mitigation which is required in this Certification

The compliance monitor(s) are not required to be present for any work:

f. taking place within the area dewatered by the proposed temporary cofferdams and either pumps or flume pipes;
g. taking place upon the surface of construction mats or temporary fills after their initial placement; or
h. taking place in areas that are not "Waters of the United States within the Commonwealth"

In addition to the above, the compliance monitor(s) shall conduct a thorough inspection of the site within 24 hours of any rainfall which equals or exceeds 0.5 inches within 24 hours (as measured from the nearest applicable station on the NOAA "Daily Summaries Map", see https://gis.ncdc.noaa.gov/maps/clim/summaries/daily) or at least once every calendar week during active construction in the absence of a threshold rainfall event as outlined above.

While performing these duties the compliance monitor(s) shall confirm that all relevant Conditions of this Certification are being complied with at all times whilst they are present.

While on site, the compliance monitor(s) shall sufficiently document any and all observed noncompliance with any of the Conditions of this Certification. The compliance monitor(s) shall submit such electronic documentation to: David.Foulis@mass.gov. This electronic documentation shall be in the form of a concise written report which adequately describes the noncompliant activities and/or conditions and cites the Condition(s) which have been violated, and shall always be accompanied by the submittal of digital photographs, which shall clearly and adequately show the nature and extent of noncompliant activities and/or conditions and support the written report. This electronic documentation shall be submitted as such noncompliance is occurring and/or is first noted by the compliance monitor(s). If, in unusual circumstances, this is not physically possible, then the compliance monitor(s) shall submit electronic documentation within no more than four (4) hours of the initial observance of the noncompliant activity and/or condition. Within this same time period, the compliance monitor(s) shall also report the noncompliant activities and/or conditions via telephone to each of the following Department staff: David Foulis at 413-755-2154 and David Cameron at

413-755-2138. If neither David Foulis or David Cameron can be reached directly, the Compliance Monitor shall leave a voicemail for each of David Foulis and David Cameron and contact the Region's switchboard at 413-784-1100 and ask to speak with a Wetlands Program staff person. Failure to comply with this Condition will constitute a violation of this Certification and could result in enforcement actions taken by the Department. Failure of any compliance monitor to fulfill these duties in compliance with this Condition is grounds for a potential enforcement action against the permittee. The permittee, its employees, agents, successors, and assigns shall not impede the compliance monitor(s) in the performance of their duties under this Certification. Any change in staffing of the compliance monitor(s) must be approved by the Department per Condition #11 of this Certification.

Conditions Which Apply to all Physical Vegetated Wetland Compensatory Mitigation (*in situ* restoration, *ex situ* rehabilitation) at Conditions 25 through 30

21. At least ten (10) business days prior to the initiation of construction, the permittee shall nominate a wetland scientist(s) in writing, who shall be accepted in writing by the Department. Nominated wetland scientist(s) shall have at least five (5) years of experience in developing "Compensatory Mitigation Area" plans for Bordering Vegetated Wetland ("BVW") alteration per 314 CMR 9.06(2) and 310 CMR 10.55(4)(b)1. through 7., inclusive. The Department maintains the right to approve or deny the nominee based upon the individual's level of experience as it relates to the successful construction and completion of BVW "Compensatory Mitigation Areas". Any change in staffing of the wetland scientist(s) must be approved by the Department per Condition #11 of this Certification.
22. The permittee shall provide compensatory mitigation for all approved fill and excavation, either permanent or temporary, within Bordering Vegetated Wetland (BVW) and Isolated Vegetated Wetland (IVW) [as defined at 314 CMR 9.02] at a ratio of at least 1:1 per the requirements of 314 CMR 9.06(2). This compensatory mitigation shall be referred to collectively in this Certification as the "Compensatory Mitigation Areas". The Compensatory Mitigation Areas shall be constructed and monitored under the supervision and direction of the wetland scientist(s) per the several Conditions of this Certification and per the methodologies described in the plan(s) of record listed in the "Findings" section of this Certification. Any deviation from the methodologies approved by this Certification must be requested in writing and approved by the Department per Condition #11 of this Certification.
23. Failure to maintain an appropriate standard of care in the installation or post-installation components of required Compensatory Mitigation Areas, at any time, including but not limited to planting at inappropriate times of year, failure to reach appropriate subsurface hydrology, failure to restore or replicate suitable substrate conditions, failure to implement standard horticultural practices (such as irrigation, fertilization, disease and pest control), failure to maintain erosion and sedimentation controls, failure to adequately control nonindigenous invasive species, and the loss of plantings of a sufficient number to impair the success of Compensatory Mitigation Areas may be deemed noncompliance with this Certification at the sole discretion of the Department. In such an event, the wetland scientist(s), or the permittee shall within five (5) business days of discovery notify the Department in writing. Any such written notification must include a "corrective plan of

action", which shall be implemented by the permittee according to a schedule and conditions established in writing by the Department. The Department maintains the right to take enforcement action per 314 CMR 9.11 for any such noncompliance, in addition to its right to require adherence to the several Conditions of this Certification.

24. The Department reserves the right to require additional field inspections, documentation, field-derived data, photographs, reports, and any other plan(s) necessary in order to meet the requirements of 314 CMR 9.00, including 314 CMR 9.06(2). The Department reserves the right to require any additional compensatory mitigation of "Waters of the United States within the Commonwealth" when, at its discretion and per its sole judgment, temporary discharges of dredged or fill material into "Waters of the United States within the Commonwealth" (WUSWC) has resulted in a long-term adverse impairment to the specific WUSWC, and/or to the proximate resource areas and "Aquatic Ecosystems" (as defined at 314 CMR 9.02.)

Provision of *In Situ* Bordering and Isolated Vegetated Wetland Restoration in Areas of No Temporal Loss and Areas of Permanent Conversion (In Part)

25. By no later than November 30, 2020 the permittee shall restore all BVW/IVW shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/No Temporal Loss" (tinted blue) and "Temporary Fill/Permanent Conversion/Off-site Compensation" (tinted lavender) per the requirements of 314 CMR 9.06(2), and per the below-listed sections of "Compensatory Wetland Mitigation Plan for Waters of the US within the Commonwealth, 261 Upgrade Projects, Agawam Massachusetts" prepared by SWCA Environmental Consultants, and dated August 6, 2019 (Revision 1) and other sections of the plans of record, as modified by this Condition, as follows:
    a. Section 3.1 of Chapter 3 on pages 10 through and including 14;
    b. Attachment 3 ("Compensatory Wetland Mitigation Plan, In-Situ Wetland Restoration Details");
    c. The Department accepts in concept the "Line 261B Looping Project, Agawam, MA, Compensatory Wetland Mitigation Plan, *In Situ* Wetland Restoration Details, Attachment 3" (Pages 1 through 14 of 14), prepared by Tennessee Gas Pipeline Company, LLC, and dated August 5, 2019 (Revised); however, inconsistent use of terms on these plans and accompanying text render their fine details unacceptable at this time. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall work with the Department to develop a clearer format for conveying the relevant information, ideally, by using the overall project plans of record referenced above, and eliminating the need for a separate set of plans intended to depict compensatory restoration (see below for additional detail on the deficiencies noted.);
    d. The Department rejects the current format of the "In-Situ Wetland Restoration Planting Table for 261 Upgrade Projects" described in Table 3-2, and elsewhere, as it does not simply relay the intended information. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall work with the Department to develop a clearer format for conveying the relevant information, and upon conclusion shall prepare and submit a clearer format for Table 3-2.; and
    e. The Department rejects the "Seed Mix Composition" described in Table 3-3, and elsewhere, as they are evidently intended for both upland and wetland settings, use

interchangeable terms to evidently describe the "Wet Seed Mix" described in the accompanying plans, and, in part, include inappropriate species. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall provide a seed mix list composed of hydrophytes indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
2. shall not include seed from non-Massachusetts ecotype sources; and
3. shall not include non-indigenous subspecies, cultivars, or varieties.

26. By no later than June 1, 2021, or such later date as may be approved by the Department in writing, the wetland scientist(s) shall complete monitoring of the status of each BVW in which temporary earthen fills, trenching, and construction mats have been removed and the topography reestablished per this Certification via a field inspection. Based upon this field inspection, the wetland scientist(s) shall report the condition of *in-situ* restoration within the footprint of each BVW from whence earthen fills or construction mats have been removed and trenches have been closed via the submittal of a "Letter of Certification" to the Department, which shall be sent to the Department on or before July 1, 2021. Based upon the results of the field inspection the wetland scientist(s) or their designees shall adequately certify, through signature and inclusion of professional stamps, if any, that there is no noticeable adverse impact to the hydrophytic plant community, soil characteristics and microtopography, and/or surface and near surface hydrology from the placement and removal of earthen fills and construction mats nor the replacement of overburden in trenches within "Waters of the United States within the Commonwealth".
27. If the approved wetland scientist(s) or their designee determines that they cannot certify that there is no noticeable adverse impact to specific "Waters of the United States within the Commonwealth" per Condition #26, said wetland scientist(s) or their designee shall contact the Department within two (2) business days of said discovery. In such circumstances, the permittee shall follow the "corrective plan of action" provisions of Condition #23 of this Certification.

Provision of *In Situ* Bordering and Isolated Vegetated Wetland Restoration in Areas of Temporal Loss

28. By no later than November 30, 2020, or such later date as may be approved by the Department in writing, the permittee shall restore all BVW/IVW shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" (tinted mustard) per the requirements of 314 CMR 9.06(2), and per the below-listed sections of "Compensatory Wetland Mitigation Plan for Waters of the US within the Commonwealth, 261 Upgrade Projects, Agawam Massachusetts" prepared by SWCA Environmental Consultants, and dated August 6, 2019 (Revision 1) and other sections of the plans of record, as modified by this Condition, as follows:
    a. Section 3.1 of Chapter 3 on pages 10 through and including 14;

b. Attachment 3 ("Compensatory Wetland Mitigation Plan, In-Situ Wetland Restoration Details");

c. The Department accepts in concept the "Line 261B Looping Project, Agawam, MA, Compensatory Wetland Mitigation Plan, *In Situ* Wetland Restoration Details, Attachment 3" (Pages 1 through 14 of 14), prepared by Tennessee Gas Pipeline Company, LLC, and dated August 5, 2019 (Revised), however, inconsistent use of terms on these plans and accompanying text render their fine details unacceptable at this time. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall work with the Department to develop a clearer format for conveying the relevant information, ideally, by using the overall project plans of record referenced above, and eliminating the need for a separate set of plans intended to depict compensatory restoration (see below for additional detail on the deficiencies noted);

d. The Department rejects the current format of the "In-Situ Wetland Restoration Planting Table for 261 Upgrade Projects" described in Table 3-2, and elsewhere, as it does not simply relay the intended information. Moreover, the proposed heights of woody plants are insufficient. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall work with the Department to develop a clearer format for conveying the relevant information and make provisions for planting larger woody plants (i.e., a size acceptable to the Department) and upon conclusion shall prepare and submit a clearer format for Table 3-2.

e. Upon planting, each planted shrub or sapling shall be identified with a tag which clearly indicates the planting as a restoration planting. The design and materials of such tags shall be approved by the Department prior to use;

f. The Department rejects the "Seed Mix Composition" described in Table 3-3, and elsewhere, as they are evidently intended for both upland and wetland settings, use interchangeable terms to evidently describe the "Wet Seed Mix" described in the accompanying plans, and, in part, include inappropriate species. Prior to initiation of any activities otherwise permitted within this Certification, the permittee shall provide a seed mix list composed of hydrophytes indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

   1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
   2. shall not include seed from non-Massachusetts ecotype sources;
   3. shall not include non-indigenous subspecies, cultivars, or varieties.

29. Monitoring---See Special Condition #33 for monitoring requirements for BVW/IVW shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" (tinted mustard).

Provision of Off-Site/Not-in-Kind Bordering and Isolated Vegetated Wetland Compensatory Mitigation

30. Due to the unavoidable temporal loss in functions and values of WUSWC in the proposed Temporary and Additional Temporary Work Spaces (TWS and ATWS) and the Areas of "Permanent Conversion", and per 314 CMR 9.02 Activity and 314 CMR 9.06(2), the Permittee shall conduct a Rehabilitation project within designated BVW upon the Tuckahoe Turf Farm (referred to as Assessor's Map C7, Lot 2-4, with frontage on Southwest Road) per the plan of record titled "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA", (Sheet 1.0), prepared by SWCA Environmental Consultants, and dated August 21, 2019. This Rehabilitation project shall be completed by no later than April 1, 2020. No less than **348,480** square feet of BVW which is presently anthropogenically modified and herbaceous-dominated emergent marsh and wet meadow shall be planted with indigenous woody hydrophytes per the Planting Schedule at "Offsite Mitigation Plant and Seed Installation Guidance, Line 261B Looping Project, Agawam, MA", (Sheet 3.0), prepared by SWCA Environmental Consultants, and dated August 21, 2019 within the Areas designated on the above-referenced "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA". Upon planting, each planted shrub or sapling shall be identified with a tag which clearly indicates the planting as a restoration planting. The design and materials of such tags shall be approved by the Department prior to use.

Preservation Component of Compensatory Mitigation Package

31. Per "Attachment 5 (Revised), Dean Property Wetland Delineation, 261B Looping Project, Agawam, MA", prepared by SWCA Environmental Consultants, and dated August 20, 2019, and per the authority of the Department at 314 CMR 9.09(1)(d), the permittee shall effectuate the legal transfer in fee simple of the portion of land referred to in the plans of record as the "Dean Property" (Tax Parcel I5-1-15, with frontage on Suffield Street) and specifically those portions of said property identified as Conservation Area #1 (3.29 acres) and Conservation Area #2 (3.03 acres), to the Town of Agawam for the purpose of perpetual conservation; and the permittee shall submit a completed Conservation Restriction prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel. This legal transfer and recordation of a Conservation Restriction shall occur prior to the initiation of any activities otherwise permitted in this Certification, and the Department shall be provided a copy of the records within the Hampden County Registry of Deeds demonstrating this transfer.
32. Per the "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA", (Sheet 1.0), prepared by SWCA Environmental Consultants, dated August 21, 2019, and per the authority of the Department at 314 CMR 9.09(1)(d), the permittee shall effectuate the recordation of a Conservation Restriction for portions of the Tuckahoe Turf Farm to be approved by the Department and described and delineated on a site plan to be labeled "Tuckahoe Turf Farm Conservation Restriction Area, Town of Agawam, Massachusetts", prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel. This legal recordation of a Conservation Restriction shall occur prior to the initiation

of any activities otherwise permitted in this Certification, and the Department shall be provided a copy of the records within the Hampden County Registry of Deeds demonstrating this recordation. In the event that the Tuckahoe Turf Farm is already subject to protection pursuant to Article 97 of the Constitution of the Commonwealth of Massachusetts, this provision shall be deemed satisfied upon submittal of proof of such protection to the Department.

Monitoring of Restored and Rehabilitated Vegetated Wetlands (both *in-situ* and at Tuckahoe Turf Farm)

33. The wetland scientist(s) approved by the Department or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" (tinted mustard) and the BVW Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 314 CMR 9.06(2), as established by data collected during monitoring. Monitoring shall include, at a minimum, the collection of all data required in pages 1 **and** 2 of "Wetland Determination Data Form – Northcentral and Northeast Region" [as found within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision*, by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Department (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens. All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Department on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Department within thirty (30) calendar days of the receipt of draft comments by the Department, if any.
34. Based upon the data collected during sampling events, the wetland scientist(s), or the Department upon its own discretionary initiative, shall render a conclusion within each report required by Condition #33, as to the success of each separate Compensatory Mitigation Area in terms of 314 CMR 9.06(2). If, at the end of the second growing season or any time thereafter, the wetland scientist(s), or the Department upon its own discretionary initiative, render a conclusion that a given Compensatory Mitigation Area has failed the standards specified at 314 CMR 9.06(2), said wetland scientist(s) shall prepare and submit a written

"**corrective plan of action**" no later than the end of that calendar year to the Department for approval. The approved "corrective plan of action" shall be implemented the next growing season under the supervision of a wetland scientist approved by the Department, and shall be monitored via the requirements specified in the several Conditions of this Certification.

Prohibitions and Mitigation for Activities in Land Under Water

35. Activities below the High Water Mark [as defined at 314 CMR 9.02] and within Land Under Water associated with Tarkill Brook, Worthington Brook, and two (2) unnamed tributaries shall take place between July 1st and September 30th of any given year. Work within Land Under Water may continue after September 30th only if the area of proposed work is hydrologically isolated through mechanical means from surface water after June 30th but before October 1st of that year, as confirmed and approved through Condition #11 of this Certification. Any proposed modification under Condition #11 of this Certification not conforming to this Condition of the Certification shall only occur after a written request has been submitted to the Department. The request shall specify the exact position and extent of any proposed in-stream work not in conformance with the above time-of-year (TOY) window; and shall detail why such work must take place outside the specified time period and any additional erosion and sedimentation controls necessary as a result of such proposed work. The Department reserves the right to deny any such request if a practicable alternative exists, as determined solely by the Department.
36. All work upon or within Land Under Water and below the High Water Mark allowed per this Certification shall be accomplished by reference to the plan(s) of record, as modified by the several Conditions of this Certification, if any.
37. This Certification specifically prohibits the use of stone riprap, or any other *off-site* product or substance, from permanent emplacement below the High Water Mark and upon the substrate of any Land Under Water at the Site (Emplacement of structures and materials in covered entrenchments or via use of horizontal directional drilling is authorized when conducted according to the plans of record.) All stabilization of Land Under Water ("lake", "pond", "reservoir", "river", "stream", or "creek") shall be accomplished through the methods described in the plans of record, unless some other methodology is proposed by the permittee in writing and approved by the Department per Condition #11 of this Certification.
38. Worthington Brook (SARIS ID 3417450) is designated as a Coldwater Fish Resource by the Massachusetts Division of Fisheries and Wildlife, and therefore meets the definition of "cold-water fisheries" at 314 CMR 9.02. As such, this reach is either habitat for brook trout (*Salvelinus fontinalis*) and other coldwater fish species, or consists of habitat potentially viable for brook trout and other coldwater fish species. Therefore, this Certification requires the permittee to notify the Department in writing at least seventy-two (72) hours in advance of any proposed activities with twenty-five (25) feet of the High Water Mark of this waterway. The Department reserves the right to require additional protective measures for any work within twenty-five (25) feet of the High Water Mark of this waterway, based upon actual field conditions. Any proposed deviation from this provision must be requested in writing per Condition #11 of this Certification. The Department maintains the right to deny any proposed modifications to this Condition that, in the opinion of the Department, would present short- or long-term adverse affect to the habitat requirements of brook trout, and other cold-water fisheries.

39. The use of geotextiles below the High Water Mark [as defined at 314 CMR 9.02] and within Land Under Water is prohibited.
40. Between forty (40) calendar days and twenty (20) calendar days prior to the start of any work otherwise permitted by this Certification within LUW, the signatory Registered Professional Engineer (RPE) who affixed her/his stamp upon the plan(s) of record shall conduct a site inspection to determine:

    a. If the "Ordinary High Water Mark" ("OHWM", as defined by reference at 314 CMR 9.02), or any other pertinent geomorphic feature of the subject Land Under Water, has moved from the position shown on the plan(s) of record, such that the proposed work cannot be completed according to the plan(s) of record, and/or such that the proposed work would result in a greater areal extent of "discharge of dredged or fill material" to "Waters of the United States within the Commonwealth" than is permitted by this Certification.
    b. Within 24 hours of this inspection, the signatory RPE shall submit a written confirmation that the OHWM, or any other pertinent geomorphic feature, has **not** substantially moved; or
    c. The signatory RPE shall alert the Department in writing to any movement that is substantial, and shall propose revisions to the plan(s) of record (and all necessary data, photographs, and analyses) that comply, to the greatest extent practicable, with 314 CMR 9.00 and the several Conditions of this Certification. The Department reserves the right to modify any revised plans submitted under this Condition, at its sole discretion. No work below OHWM is authorized under this Condition until such time as the Department issues authorization to proceed in writing.
    d. Upon authorization to proceed, and within twenty-four (24) hours of the initiation of any activity below the OHWM, the signatory RPE shall conduct a final inspection under this Condition to insure that no high-flow events have resulted in any subsequent substantial movement of the OHWM or other pertinent geomorphic features. Should substantial movement have occurred, the signatory RPE shall immediately notify the Department both electronically and via telephone, and no work is authorized to proceed until the Department issues authorization to proceed in writing.

41. Prior to the initiation of any activity otherwise permitted by this Certification, the permittee shall prepare a detailed dewatering plan for all proposed discharges and dredging within Land Under Water at the Site, and specific to each such dewatering location/crossing. This dewatering plan shall minimally include identification of techniques for bypass of water around each area of discharge; and separately, identification of techniques for treatment of residual water ("seepage water") within each area of discharge. All such plans shall completely segregate bypass water from residual water. This dewatering plan shall include:

    - Identification of any regulatory "time-of-year" ("TOY") restrictions governing the proposed work [from the US Army Corps of Engineers "General Permit-Commonwealth of Massachusetts" ("MGP"); any Massachusetts Natural Heritage and Endangered Species Program directive; and any presumptive directions offered by the Massachusetts Division of Fisheries and Wildlife]. The Department will require adherence to TOY restrictions unless the permittee demonstrates that compliance with them is not practicable;

- Use of temporary flume pipes to bypass flowing water in small rivers and intermittent streams, when flowing, and upstream and downstream temporary dams to isolate the work area and protect it from backwatering. Flume pipes shall be equipped with anti-seep collars where they pass through temporary dams, and fish screens on their upstream inverts. Flume pipes shall be sized to adequately handle at least a two-year storm event;
- Use of cofferdams to isolate the area of alteration from flowing water in larger rivers, and in reservoirs, lakes, and ponds;
- Use of pumps and hose lines to dewater standing water held behind cofferdams, and to dewater residual water and leaked water in isolated work areas. The rating, type, and location of all pumps and the intake and discharge positions of all hoses shall be identified and located on the revised site plans;
- Use of appropriate energy dissipaters and erosion and sedimentation control best management practices at the discharge orifices of all bypass flume pipes and pump hoses;
- Treatment of pumped residual water prior to discharge back to resource areas. Techniques such as filter bags, frac tanks, and stilling basins shall be analyzed and specifically proposed;
- Salvage and translocation of sessile aquatic organisms (vertebrates, crayfish, freshwater mussels, etc.) stranded during dewatering;
- Structural and nonstructural best management practices to separate stormwater from the area of alteration during work and while the site is unstable;
- Assurance that the substrate within each area of discharge is stable prior to the reestablishment of flow within it; and
- Provisions for the monitoring and inspection of dewatering structures and affected areas.

The Department advises that dewatering plans be designed according to *Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road Crossings* (USDA Forest Service-National Technology and development Program 0877 1801-SDTDC, May 2008) (available at http://www.nae.usace.army.mil/reg/Stream/USFS_StreamSimulationManual.pdf). This document is very useful, even for projects not located in flowing streams.

Compliance with Natural Heritage and Endangered Species Program Conservation and Management Plan

42. All parties identified at Condition #1 and 3 shall fully comply with all requirements specified within the Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife (NHESP-MassDFW) "Conservation and Management Plan", when such plan is issued, and when there is subject overlap between said plan and this Certification. In such instances, these requirements hereby form a part of, and are inseparable from, this Certification.

Compliance with the Department's Stormwater Management Regulations

43. The project conditioned by this Certification is subject to the United States Environmental Protection Agency's (EPA) "Construction General Permit" (CGP) issued under the National Pollutant Discharge Elimination System (NPDES) (reissued on June 27, 2019); and the

Department's Water Quality Certification approving the CGP. A copy of the Notice of Intent submitted to the EPA per the CGP shall be provided to the Department at the time of filing. The Department reserves the right to inspect the Stormwater Pollution Prevention Plan (SWPPP) (which, in accordance with the CGP must be maintained on Site), and Notice of Termination (NOT) during compliance inspections conducted in accordance with Condition #13 of this Certification. Failure to comply with the Construction General Permit may constitute a violation of Conditions #1 and #15 of this Certification, and may result in an enforcement action on the part of the Department, and possibly other regulatory agencies.

Hydrostatic Testing

44. The permittee does not propose to discharge hydrostatic test water upon the ground or within or proximate to Waters of the United States within the Commonwealth, and this Certification does not authorize any such discharges.

Use of Herbicides to Control Invasive, Nonindigenous Plant Species

45. Should the permittee elect, or is required to use herbicides within any "Waters of the United States within the Commonwealth" per "Line 261B Looping Project, Preliminary Invasive Plant Management Plan, Agawam, Massachusetts" (October 2018) (to be described in a Final Invasive Plant Management Plan submitted to the Department on or before the initiation of any activity otherwise permitted in this Certification), all such application shall be conducted in accordance with MGL Chapter 111, Section 5E, including any proposed usage in any Bordering or Isolated Vegetated Wetland. For most techniques, a BRP WM 04 Permit will be required for use of herbicides within any "Waters of the United States within the Commonwealth." In most cases, chemical treatments must be performed by an applicator currently licensed (in the aquatic weed category) by the Massachusetts Department of Food and Agriculture-Pesticide Bureau. Please contact Robert Kubit, Division of Watershed Management, at the Department's Central Regional Office (1-508-767-2854) for additional information.

Isolated Vegetated Wetland F

46. The Isolated Vegetated Wetland referred to in the plans of record as "Wetland F" has been determined to be a certifiable Vernal Pool, per the definitions and concepts at 314 CMR 9.02 Vernal Pool. Placement of the proposed pipeline underneath the substrate of Wetland F shall occur using conventional boring in accordance with the plan of record titled "261B Pipeline Looping Project Wetland Crossing Conventional Bore, Wetland F @ MP 1.57, Town of Agawam, Hampden County, Massachusetts", (Sheet 1 of 1) dated August 16, 2019 and prepared by Tennessee Gas Pipeline Company, LLC. Should it be determined that conventional boring underneath Wetland F is not feasible, the permittee shall prepare and submit an alternative site plan composed of open trenching when Wetland F is completely dry, and when dispersal of spotted salamanders (*Ambystoma maculatum*) and wood frog (*Rana sylvatica*) has been documented to have occurred. Such an alternative site plan shall include but not be limited to: 1) documentation of impervious soil layers; 2) provisions to avoid temporary side-casting of soils within the remaining, adjacent vernal pool; 3) evidence

of water table perching; and 4) similar information to ensure that open trenching will not have deleterious consequences on the hydrology of Wetland F. Open trenching shall not occur unless and until the Department authorizes it in accordance with this Condition.

Section 61 Findings

See Attached Section 61 Findings

Appeal Rights

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by the Department when an application is required:

a. The applicant or property owner;
b. Any person aggrieved by this certification who has submitted written comments during the public comment period;
c. Any ten (10) citizens of the Commonwealth pursuant to MGL c. 30A where a group member has submitted written comments during the public comment period; or
d. Any governmental body or private organization with a mandate to protect the environment that has submitted written comments during the public comment period.

Any person aggrieved, any ten (10) citizens of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to MGL c. 30A, § 10, a Notice of Claim to an Adjudicatory Hearing must be made in writing, provided that the request is made by certified mail or hand delivery to the Department, with the appropriate filing fee specified within 310 CMR 4.10 along with a Departmental Action Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Massachusetts Department of Environmental Protection
Case Administrator
One Winter Street, 2nd Floor
Boston, MA 02108

A copy of the request shall at the same time be sent by certified mail or hand delivery to the issuing office of the Wetlands and Waterways Program at:

Massachusetts Department of Environmental Protection
Springfield State Office Building
436 Dwight Street
Springfield, MA 01103

A Notice of Claim for Adjudicatory Hearing shall comply with the Department's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 310 CMR 4.10(3):

a. The §401 Certification Transmittal Number and DEP Wetlands Protection Act File Number;
b. The complete name of the applicant and address of the project;
c. The complete name, address, and facsimile and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, facsimile and telephone numbers, and address of the attorney;
d. If claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
e. A clear and concise statement that an adjudicatory hearing is being requested;
f. A clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the Department's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and
g. A statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Massachusetts Department of Conservation and Recreation (when the Certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

The hearing request along with a Departmental Action Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
Post Office Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory-hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

If you have further questions in regard to this Certification, please contact David Foulis at 1-413-755-2154.

Sincerely,

David Cameron, PWS
Chief, Division of Wetlands and Waterways

W:/...TGPC X281739 WQC.docx

Certified Mail #7018 2290 0002 1512 3160, return receipt requested.

ec: Agawam Conservation Commission
PKerr@agawam.ma.us

Rebecca Weissman, PWS, NHCWS
Natural Resources Team Lead / New England Oil & Gas Lead
SWCA Environmental Consultants
Rebecca.Weissman@swca.com

Barbara H. Newman, Supervisor
Regulatory Division, Permits and Enforcement Branch A
United States Department of the Army
New England District, Corps of Engineers
Barbara.H.Newman@usace.army.mil

Lauren Glorioso, Endangered Species Review Biologist
Natural Heritage and Endangered Species Program of the
Massachusetts Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581
Lauren.Glorioso@mass.gov

McCartney, Debi

From: Foulis, David (DEP) <david.foulis@state.ma.us>
Sent: Friday, September 20, 2019 10:08 AM
To: Becky Weissman
Cc: McCartney, Debi; Nowak, Matthew; Cameron, David (DEP); Pamela Kerr; Wierbonics, Michael S CIV USARMY CENAE (US)
Subject: RE: CONDITION #11 CHANGES---Water Quality Certification (WW 10)---Transmittal Number X281739---TGPC Line 261 Upgrade Projects, Agawam, Massachusetts

Importance: High

Follow Up Flag: Flag for follow up
Flag Status: Completed

Categories: 261 Upgrade Projects

[This email message was received from the Internet and came from outside of Kinder Morgan]

THIS ELECTRONIC CORRESPONDENCE HEREBY FORMS AN INTEGRAL AND INSEPARABLE PART OF THE ABOVE-REFERENCED CERTIFICATION. PLEASE RETAIN A HARDCOPY IN YOUR PERMANENT RECORDS

PLEASE Acknowledge receipt of this correspondence by return e-mail

Per its authority at Condition #11 of the above-referenced Water Quality Certification, the Massachusetts Department of Environmental Protection (MassDEP):

1. Grants an extension of the deadline at Condition #20 to January 15, 2020;
2. Grants an extension to the deadline at Condition #30 for hand-pulling of water chestnut (*Trapa natans*) to July 15, 2020; and control of common reed (*Phragmites australis*) to October 1, 2020. The deadline for all other compensatory mitigation components remains April 1, 2020 unless later extened per Condition #11;
3. Understands the claim of exemption to Condition #43, and notifies all parties that stormwater and erosion and sedimentation controls will be regulated and effectuated through Conditions #15, #16, and #17 in a manner similar to that required in a SWPPP.

Should there be any questions, comments, or concerns please feel free to contact me.

Thank you,

David B. Foulis, Environmental Analyst
Massachusetts Department of Environmental Protection
Western Region, Bureau of Water Resources

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0644
eDEP Transaction #:1155043
City/Town:AGAWAM

A. General Information

1. Conservation Commission: AGAWAM
2. Issuance: a. ☑ OOC b. ☐ Amended OOC
3. Applicant Details

a. First Name	DEBORAH	b. Last Name	MCCARTNEY		
c. Organization	TENNESSEE GAS PIPELINE CO, LLC				
d. Mailing Address	1001 LOUISIANA STREET, SUITE 1000				
e. City/Town	HOUSTON	f. State	TX	g. Zip Code	77002

4. Property Owner

a. First Name	b. Last Name		
c. Organization			
d. Mailing Address			
e. City/Town	f. State	g. Zip Code	

5. Project Location

a.Street Address	SUFFIELD STREET - TENNESSEE GAS ROW		
b.City/Town	AGAWAM	c. Zip Code	01001
d. Assessors Map/Plat#	MULTIPLE	e. Parcel/Lot#	MULTIPLE
f. Latitude	42.03493N	g. Longitude	72.63379W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
		N/A	N/A

7.Dates

a. Date NOI Filed : 3/19/2019	b. Date Public Hearing Closed:	11/14/2019	c. Date Of Issuance: 11/14/2019

8.Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
SEE LIST IN SPECIAL CONDITIONS				

B. Findings

1.Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

a. ☐ Public Water Supply	b. ☐ Land Containing Shellfish	c. ☑ Prevention of Pollution
d. ☐ Private Water Supply	e. ☐ Fisheries	f. ☑ Protection of Wildlife Habitat
g. ☐ Ground Water Supply	h. ☑ Storm Damage Prevention	i. ☐ Flood Control

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

a. ☑ The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

b. ☐ The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act , and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts:Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a). _____ a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☑ Bank	818 a. linear feet	818 b. linear feet	818 c. linear feet	818 d. linear feet
5. ☑ Bordering Vegetated Wetland	250,544 a. square feet	250,544 b. square feet	541,652 c. square feet	541,652 d. square feet
6. ☑ Land under Waterbodies and Waterways	4,438 a. square feet	4,438 b. square feet	4,438 c. square feet	4,438 d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage				

	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.☑ Riverfront Area	309276 a. total sq. feet	309276 b. total sq. feet		
Sq ft within 100 ft	130,680 c. square feet	130,680 d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	178,596 g. square feet	178,596 h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10.☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11.☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12.☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13.☐ Coastal Beaches	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14.☐ Coastal Dunes	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15.☐ Coastal Banks	a. linear feet	b. linear feet		
16.☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17.☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18.☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19.☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20.☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	c. c/y dredged	d. c/y dredged		
21.☐ Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		

22.

☐ Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

23.

☐ Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..
10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing

the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP"]
File Number :"087-0644"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) ☐ is not (2)☑ subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.*. as-built final construction

BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

g) The responsible party shall:

1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
SPECIAL CONDITIONS

Tennessee Gas Pipeline Line 261 Upgrade Projects - #87-0644

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the permittee shall be responsible for maintaining a copy of this Order at the site. The permittee shall be responsible for compliance with the conditions of this Order.

4. Prior to the start of any activity on the site other than the installation of the erosion controls and flagging, the permittee shall request a pre-construction meeting with the Conservation Commission and/or its representative, and the contractors responsible for the work to review the Conditions of this Order and ensure that they are understood. This meeting shall take place at a regularly scheduled Conservation Commission meeting.

5. The Agawam Conservation Commission requires permittee or owner to cover the costs associated with hiring a third party consultant to work for the Commission to monitor work on the site under M.G.L. Ch. 44 section 53g. Monitoring shall include bimonthly compliance inspections. Inspections must also be scheduled by the permittee to review the initial installation of ECDs, the installation of stream crossings, the HDD stockpiling, the installation of dewatering structures, and post-construction mitigation and restoration.

6. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

7. The project engineer/designer shall be held responsible and accountable for the true and accurate implementation and construction of his/her design or plan. Should any accidental deviation from the approved plan occur, the engineer/designer shall notify the Commission immediately to determine if a new Notice of Intent is required. If any changes to the approved plan are anticipated, the engineer/designer shall likewise notify the Commission in writing of any proposed changes in construction methodology or design necessary to complete this project. Based upon submittals under this Condition, the Commission will determine whether any proposed changes will require an "Amendment" to this Order or if a new Notice of Intent is required. In any case the Commission may deny any deviation, accidental or intended, from the approved plan.

8. The permittee will comply with its Spill Prevention and Control Plan (SPCP).

9. Resource Area (Areas Subject to Protection under M.G.L. c. 131, § 40. as stated under 310 CMR 10.02(1) and Buffer Zone (as defined under 310 CMR 10.04 Buffer Zone) boundaries shall be demarcated with clearly visible signs and such signs shall be maintained throughout the construction phase.

10. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

11. This Order shall apply to all successors or assignees in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this Order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this Order is recorded.

12. The petitioner shall have recorded in the Hampden County Registry of Deeds an "Order of Conditions Form" provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

13. The contractor is responsible for maintaining a stockpile of erosion controls on-site, which is equivalent to 25% of the total approved erosion controls within Resource Areas and Buffer Zones for the project.

14. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

15. The Conservation Commission shall be copied on all submittals to the MA DEP relating to this project.

16. Prior to the initiation of any activity otherwise permitted by this Order, the permittee shall prepare a detailed dewatering plan for all proposed discharges and dredging within Resource Areas at the Site, and specific to each such dewatering location/crossing. This dewatering plan shall minimally include identification of techniques for bypass of water around each area of discharge; and separately, identification of techniques for treatment of residual water ("seepage water") within each area of discharge. All such plans shall completely segregate bypass water from residual water.

Construction Monitoring

17. An Environmental Inspector (EI) shall be present with crews when any activity is taking place within MA WPA jurisdiction (Resource Areas and Buffer Zones). If work is taking place within more than one jurisdictional location additional EIs are required to ensure appropriate oversight. The permittee shall nominate EIs and provide credentials to the Commission for their review and approval.

18. EI's shall submit electronic (email) weekly inspection reports with color photographs to the Conservation Commission. Reports shall be submitted to Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us.

19. The Commission shall be immediately notified by the EI in the event that there is an inadvertent return during the HDD process. Notification shall be provided to Pamela Kerr, Assistant Planner/Conservation Officer via phone (413) 726-9737 and email to PKerr@agawam.ma.us.

20. Prior to the start of work, the permittee shall nominate one or more compliance monitors in writing, who shall be accepted in writing by the Commission. Nominated compliance monitors shall have adequate and relevant education, training, and/or experience necessary to understand and perform the duties described herein, and the Commission reserves the right to accept nominees based upon its review of such education, training, and/or experience, as documented in resumes submitted to the Commission. The approved compliance monitor(s) shall personally observe all "construction activity" at all times within all MA WPA Resource Areas and Buffer Zones permitted by this Order and subject to it (said compliance monitor can be the same person identified at Condition #17 and Condition # 21 of this Order). For purposes of this Order, "construction activities" are all activities (as defined at 310 CMR 10.04 Activity) within Resource Areas and Buffer Zones which entail the initial placement and/or extraction of fill or materials and the initial excavation or dredging of substrate:

    a. including the placement and the extraction of the proposed construction mats and temporary storage of spoils;

    b. the initial placement of cofferdams, flume pipes, and any other devices or material into standing water within Resource Areas;

    c. the initial placement of fill, and scarification and excavation of soil into Bordering Vegetated Wetlands;

    d. the extraction of temporary fill from any Resource Area; and

    e. The removal and placement of any material or substance from or into a Resource Area for purposes of compensatory mitigation which is required in this Order.

The compliance monitor(s) are not required to be present for any work:

f. taking place within the area dewatered by the proposed temporary cofferdams and either pumps or flume pipes;

g. taking place upon the surface of construction mats or temporary fills after their initial placement; or

h. taking place in areas that are not jurisdictional Resource Areas under the MA WPA regulations 310 CMR 10.00.

In addition to the above, the compliance monitor(s) shall conduct a thorough inspection of the site within 24 hours of any rainfall which equals or exceeds 0.5 inches within 24 hours (as measured from the nearest applicable station on the NOAA "Daily Summaries Map", see https://gis.ncdc.noaa.gov/maps/clim/summaries/daily) or at least once every calendar week during active construction in the absence of a threshold rainfall event as outlined above.

While performing these duties the compliance monitor(s) shall confirm that all relevant Conditions of this Order are being complied with at all times whilst they are present.

While on site, the compliance monitor(s) shall sufficiently document any and all observed noncompliance with any of the Conditions of this Order. The compliance monitor(s) shall submit such electronic documentation to: Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us. This electronic documentation shall be in the form of a concise written report which adequately describes the noncompliant activities and/or conditions and cites the Condition(s) which have been violated, and shall always be accompanied by the submittal of digital photographs, which shall clearly and adequately show the nature and extent of noncompliant activities and/or conditions and support the written report. This electronic documentation shall be submitted as such noncompliance is occurring and/or is first noted by the compliance monitor(s). If, in unusual circumstances, this is not physically possible, then the compliance monitor(s) shall submit electronic documentation within no more than four (4) hours of the initial observance of the noncompliant activity and/or condition. Within this same time period, the compliance monitor(s) shall also report the noncompliant activities and/or conditions via telephone to Pamela Kerr, Assistant Planner/Conservation Officer (413) 726-9737. Failure to comply with this Condition will constitute a violation of this Order and could result in enforcement actions taken by the Commission. Failure of any compliance monitor to fulfill these duties in compliance with this Condition is grounds for a potential enforcement action against the permittee. The permittee, its employees, agents, successors, and assigns shall not impede the compliance monitor(s) in the performance of their duties under this Order. Any change in staffing of the compliance monitor(s) must be approved by the Commission per Condition #7 of this Order.

In-situ Resource Area Restoration

21. Prior to the start of construction, the permittee shall nominate a wetland scientist(s) in writing, who shall be accepted in writing by the Commission. Nominated wetland scientist(s) shall have at least five (5) years of experience in developing "Compensatory Mitigation Area" plans for Bordering Vegetated Wetland ("BVW") alteration per 310 CMR 10.55(4)(b)l. through 7., inclusive, and at least five (5) years of experience developing "restoration/mitigation" plans for Riverfront Area alteration per 310 CMR 10.58(4)(d)l. a. and c. and 310 CMR 10.60(2)(e). The Commission maintains the right to approve or deny the nominee based upon the individual's level of experience as it relates to the successful construction and completion of BVW "Compensatory Mitigation Areas" and Riverfont Area and Buffer Zone "Restoration and Enhancements". Any change in staffing of the wetland scientist(s) must be approved by the Commission per Condition #7 of this Order.

22. By no later than November 30, 2020 the permittee shall restore all Resource Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/No Temporal Loss" and "Temporary Fill/Permanent Conversion/Off-site Compensation" prepared by SWCA Environmental Consultants, and dated August 5, 2019 and other sections of the plans of record as modified by the WQC Transmittal Number X281739 and this Condition as follows:

    Prior to initiation of any activities otherwise permitted within this Order, the permittee shall prepare and submit a clearer format for Table 3-2 of the "In-Situ Wetland Restoration Planting Table for 261 Upgrade Projects" and Table 3-3 of the "In-Situ Riverfront Area Restoration Planting Table for 261 Upgrade Projects; and,

    Prior to initiation of any activities otherwise permitted within this Order, the permittee shall provide a seed mix list composed of hydrophytes indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

    1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
    2. shall not include seed from non-Massachusetts ecotype sources; and
    3. shall not include non-indigenous subspecies, cultivars, or varieties.

23. By no later than June 1, 2021, or such later date as may be approved by the Commission in writing, the wetland scientist(s) shall complete monitoring of the status of each Resource Area in which temporary earthen fills, trenching, and construction mats have been removed and the topography reestablished per this Order via a field inspection. Based upon this field inspection, the wetland scientist(s) shall report the condition of *in-situ* restoration within the footprint of each Resource Area from whence earthen fills or construction mats have been removed and trenches have been closed via the submittal of a "Letter of Certification" to the Commission, which shall be sent to the Commission on or before July 1, 2021. Based upon the results of the field inspection the wetland scientist(s) or their designees shall adequately certify, through signature and inclusion of professional stamps, if any, that there is no noticeable adverse impact to the hydrophytic plant community, soil characteristics and microtopography, and/or surface and near surface hydrology from the placement and removal of earthen fills and construction mats nor the replacement of overburden in trenches within Resource Areas.

24. If the approved wetland scientist(s) or their designee determines that they cannot certify that there is no noticeable adverse impact to specific Resource Area per Condition #23, said wetland scientist(s) or their designee shall contact the Commission within two (2) business days of said discovery. Any such written notification must include a "corrective plan of action", which shall be implemented by the permittee according to a schedule and conditions established in writing by the Commission. The Commission maintains the right to take enforcement action for any such noncompliance, in addition to its right to require adherence to the several Conditions of this Order.

25. See Special Condition #27 for monitoring requirements for Resource Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss"

Off-site Resource Area Mitigation

26. The Permittee shall conduct a Rehabilitation project within designated BVW, Riverfront Area and Buffer Zone upon the Tuckahoe Turf Farm (referred to as Assessor's Map C7, Lot 2-4, with frontage on Southwest Road) per the plan of record titled "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA", (Sheet 1.0), prepared by SWCA Environmental Consultants, and dated October 11, 2019.

    This Rehabilitation project shall be completed prior to any work commencing on the 261 Upgrade Project and no later than June 1, 2020

    No less than **291,108** square feet of BVW which is presently anthropogenically modified and herbaceous-dominated emergent marsh and wet meadow shall be planted with indigenous woody hydrophytes per the Planting Schedule at "Offsite Mitigation Plant and Seed Installation Guidance, Line 261B Looping Project, Agawam, MA", (Sheet 3.0), prepared by SWCA Environmental Consultants, and dated October 11, 2019 within the

Areas designated on the above-referenced "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA".

This Rehabilitation shall include no less than the Reforestation of **1.5 acres** of open field on the west side of the irrigation pond with supplemental tree plantings and Restoration of **3.5 acres** of open upland field on the southern end of the property within the riparian zone of Still Brook with supplemental tree and shrub plantings within the Areas designated on the above-referenced "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA".

Upon planting, each planted shrub or sapling shall be identified with a tag which clearly indicates the planting as a restoration planting. The design and materials of such tags shall be approved by the Commission prior to use.

Prior to initiation of any activities otherwise permitted within this Order, the permittee shall provide a seed mix list composed of suitable upland forbs indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
2. shall not include seed from non-Massachusetts ecotype sources; and
3. shall not include non-indigenous subspecies, cultivars, or varieties.

27. The wetland scientist(s) approved by the Commission or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" and the Resource Area Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 310 CMR 10.55(4) as established by data collected during monitoring.

BVW monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form – Northcentral and Northeast Region" [as found. within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,* ed. J. S. Wakeley, R. W. Lichvai·, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by

Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Commission (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens.

Riverfront Area and Buffer Zone monitoring shall include at a minimum, detail the status of non-indigenous plant species control efforts, planting/seeding success, substrate stabilization, provision of characteristics conducive to the "interests" of the Act, and any recommended adjustments that will meet the intent of 310 CMR 10.60(2)(d), and 310 CMR 10.60(3); and 310 CMR 10.58(4)(d)l.a. and c. and 310 CMR 10.60(2)(e). Minimally, each report shall contain a floral inventory for each of the entire "Restoration Areas", with indigenous status, and relative abundance for each documented species (abundant, common, uncommon, trace), and adequate photo-documentation from fixed and repeatable stations.

All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Commission on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Commission within thirty (30) calendar days of the receipt of draft comments by the Commission, if any. Reports shall be submitted to Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us.

28. Based upon the data collected during sampling events, the wetland scientist(s), or the Commission upon its own discretionary initiative, shall render a conclusion within each report required by Condition #27, as to the success of each separate Compensatory Mitigation Area in terms of 310 CMR 10.55(4), 310 CMR 10.60(2)(d); 310 CMR 10.60(3); 310 CMR 10.58(4)(d)l.a. and c.; 310 CMR 10.60(2)(e) and 310 CMR 10.53(1). If, at the end of the second growing season or any time thereafter, the wetland scientist(s), or the Commission upon its own discretionary initiative, render a conclusion that a given Compensatory Mitigation Area has failed the standards specified at 310 CMR 10.55(4), said wetland scientist(s) shall prepare and submit a written **"corrective plan of action"** no later than the end of that calendar year to the Commission for approval. The approved "corrective plan of action" shall be implemented the next growing season under the supervision of a wetland scientist approved by the Commission, and shall be monitored via the requirements specified in the several Conditions of this Order.

Preservation

29. The permittee shall effectuate the legal transfer in fee simple of the portion of land referenced to in the plans of record as the "Dean Property" (Tax Parcel 15-1-15, with frontage on Suffield Street) and specifically those portions of said property identified as Conservation Area #1 (3.29 acres) and Conservation Area #2 (3.03 acres), to the Town of Agawam for the purpose of perpetual conservation. The permittee shall effectuate the recordation of a Conservation Restriction for portions of the Dean Property to be approved by the Department and described and delineated on a site plan to be labeled "Dean Property Conservation Restriction Areas, Town of Agawam, Massachusetts", prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel.

30. The permittee shall effectuate the recordation of a Conservation Restriction for portions of the Tuckahoe Turf Farm designated as Conservation Areas 1 through 5 to be approved by the Department and described and delineated on a site plan to be labeled "Tuckahoe Turf Farm Conservation Restriction Area, Town of Agawam, Massachusetts", prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel.

Notification and TOY Restrictions for Tarkill Brook Worthington Brook and two (2) unnamed tributaries

31. Activities below the upper Bank as defined under 310 CMR 10.54(2)(c) and within Land Under Waterways (LUW) as defined under 310 CMR 10.56(2)(c) associated with Tarkill Brook, Worthington Brook, and two (2) unnamed tributaries shall take place between July 1st and September 30th of any given year. Work within Land Under Waterways may continue after September 30th only if the area of proposed work is hydrologically isolated through mechanical means from surface water after June 30th but before October **1st** of that year, as confirmed and approved through Condition #7 of this Order. Any proposed modification under Condition #7 of this Order not conforming to this Condition of the Certification shall only occur after a written request has been submitted to the Commission. The request shall specify the exact position and extent of any proposed in-stream work not in conformance with the above time-of-year (TOY) window; and shall detail why such work must take place outside the specified time period and any additional erosion and sedimentation controls necessary as a result of such proposed work. The Commission reserves the right to deny any such request if a practicable alternative exists, as determined by the Commission and MA DEP.

32. Worthington Brook (SARIS ID 3417450) is designated as a Coldwater Fish Resource by the Massachusetts Division of Fisheries and Wildlife, and therefore meets the definition of "cold-water fisheries" at 314 CMR 9.02. As such, this reach is either habitat for brook

trout *(Salvelinus fontinalis)* and other coldwater fish species, or consists of habitat potentially viable for brook trout and other coldwater fish species. Therefore, this Order requires the permittee to notify the Commission in writing at least seventy-two (72) hours in advance of any proposed activities with twenty-five (25) feet of the upper Bank of this waterway. The Commission reserves the right to require additional protective measures for any work within twenty-five (25) feet of the upper Bank of this waterway, based upon actual field conditions. Any proposed deviation from this provision must be requested in writing per Condition #7 of this Order. The Commission maintains the right to deny any proposed modifications to this Condition that, in the opinion of the Commission, would present short- or long-term adverse effect to the habitat requirements of brook trout, and other cold-water fisheries.

Activities within Bank and Land under Waterways

33. Between forty (40) calendar days and twenty (20) calendar days prior to the start of any work otherwise permitted by this Order within LUW, the signatory Registered Professional Engineer (RPE) who affixed her/his stamp upon the plan(s) of record shall conduct a site inspection to determine:

    a. If the upper Bank, as defined.by reference at 310 CMR 10.54(2), or any other pertinent geomorphic feature of the subject LUW, has moved from the position shown on the plan(s) of record, such that the proposed work cannot be completed according to the plan(s) of record, and/or such that the proposed work would result in a greater aerial extent of "discharge of dredged or fill material" to Resource Areas than is permitted by this Order.

    b. Within 24 hours of this inspection, the signatory RPE shall submit a written confirmation that the upper Bank, or any other pertinent geomorphic feature, has **not** substantially moved; or

    c. The signatory RPE shall alert the Commission in writing to any movement that is substantial, and shall propose revisions to the plan(s) of record (and all necessary data, photographs, and analyses) that comply, to the greatest extent practicable, with 310 CMR 10.00 and the several Conditions of this Order. The Commission reserves the right to modify any revised plans submitted under this Condition, at its sole discretion. No work below upper Bank is authorized under this Condition until such time as the Commission issues authorization to proceed in writing.

    d. Upon authorization to proceed, and within twenty-four (24) hours of the initiation of any activity below the upper Bank, the signatory RPE shall conduct a final inspection under this Condition to insure that no high-flow events have resulted in any subsequent substantial movement of the upper Bank or other pertinent geomorphic features. Should substantial movement have occurred, the signatory RPE shall immediately notify the Commission both electronically and via

telephone, and no work is authorized to proceed until the Commission issues authorization to proceed in writing.

34. Riprap is prohibited in stream restoration.

35. Geotextile fabric is prohibited below the upper Bank of restored stream channels.

Hydrostatic Test Waters

36. All hydrostatic test waters will be discharged to holding tanks for testing prior to being transported to an appropriate off-site disposal facility immediately after testing. Any discharge outside of the holding tanks and within a MA WPA Jurisdictional Area would be considered a violation of the Order.

261 Upgrade Project – Document List

Document / Plan	**Last Revision Date**
WPA Form 3	November 14, 2019
261B Pipeline Looping Project Wetland/Waterbody Site Specific Crossing Drawings	March 6, 2019
261 Upgrade Projects Proposed Contractor/Pipe Yard Plan	March 6, 2019
Line 261B Pipeline Looping Project Proposed 12" Natural Gas Pipeline FERC Alignment Sheets	March 6, 2019
Environmental Typicals	October 8, 2018 (Rev. to Fig. No. S.E.D.-8, S.E.D.-11, S.E.D.- 12, and S.E.D.-13 dated July 2019)
FERC Upland Erosion Control, Revegetation, and Maintenance Plan	May 2013
FERC Wetland and Waterbody Construction and Mitigation Procedures	May 2013
Spill Prevention and Control Plan	December 2018

Horizontal Directional Drill Contingency Plan	June 2019
Preliminary Invasive Plant Management Plan	June 2019
Procedures Guiding the Discovery of Unanticipated Historic Properties and Human Remains: Post-Review Discoveries	December 26, 2018
Draft Unanticipated Contamination Discovery Plan	December 2018
Draft Winter Construction Plan	December 2018
Draft Fugitive Dust Control Plan	December 2018
Compensatory Wetland Mitigation Plan under the Massachusetts Wetlands Protection Act (narrative)	October 7, 2019
Compensatory Wetland Mitigation Plan, In-situ Wetland Restoration Details	August 5, 2019
Line 261B Pipeline Looping Project Offsite Mitigation Plan	October 11, 2019
Dean Property Wetland and Upland Conservation Area	August 20, 2019

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☑ No

2. The Conservation Commission hereby(check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #

eDEP Transaction #

City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on Nov. 22, 2019

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

11/14/2019
1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

S. Page Fallon

Jill Messick

Henry A. Kozloski

Magda Galiatsos

Sheryl Becker

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act

(M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

AGAWAM
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

AGAWAM
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

SUFFIELD STREET - TENNESSEE GAS ROW — Project Location
087-0644 — MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for:

Property Owner

and has been noted in the chain of title of the affected property in:

Book | Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Attachment C

Photographs

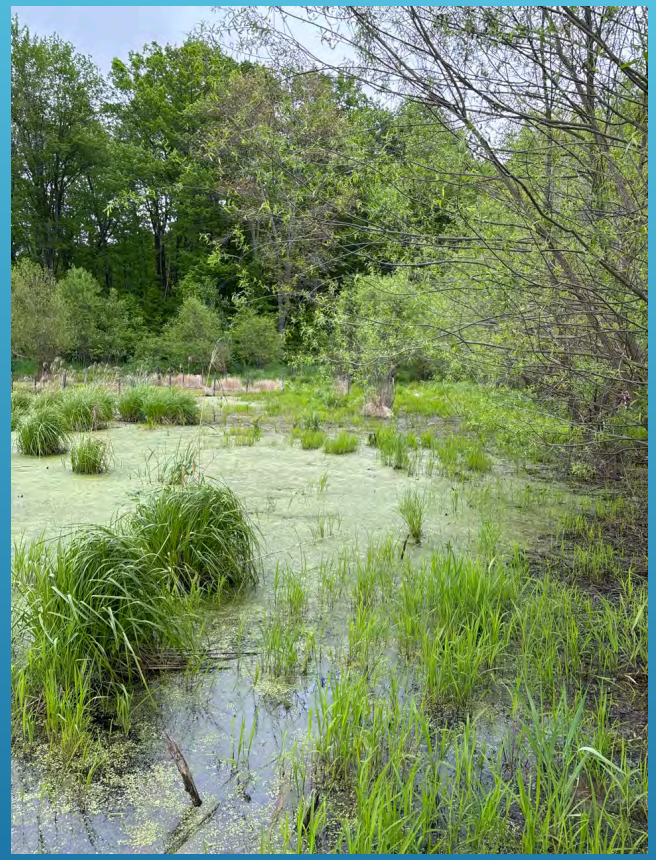
261B OFFSITE MITIGATION 2025 WETLAND MONITORING REPORT PHOTOGRAPHS

Spring Inspection: 2025



View north of the northwestern portion of RA1 at Photo Station 1.

Spring Inspection: 2025



View north from eastern portion of RA 1 and RA 2, Photo Station 2.

RA-2 Aquatic Emergent Cells

Shallow Marsh Development, August 2025









Along northern pond margins.

RA2

Spring Inspection: 2025



View west from northeast corner of RA2 at Photo Station 3.

Spring Inspection: 2025





View southeast and south from the northern portion of RA2 at Photo Station 4.

Spring Inspection: 2025





View south and southwest from western edge of pond, Photo Station 5.

Spring Inspection: 2025



View northwest from the southwestern edge of pond, Photo Station 6.

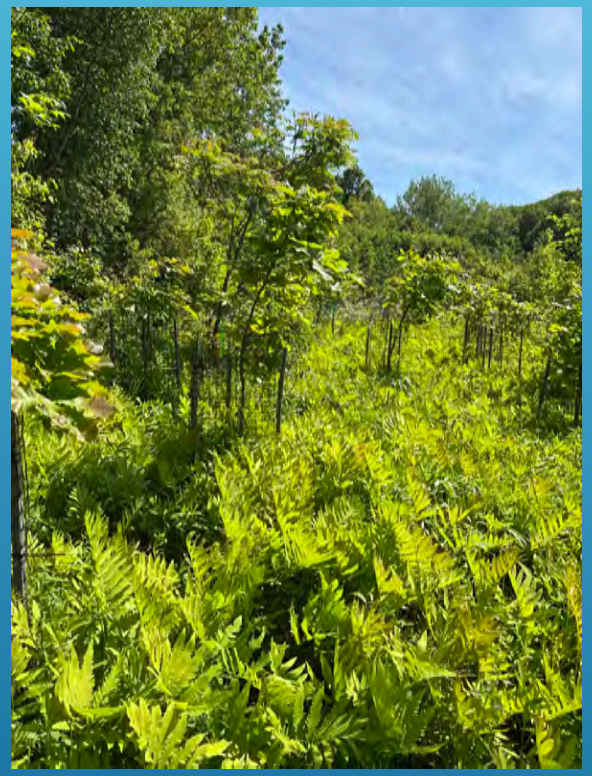
Spring Inspection: 2025





View northwest and North from the southeast corner of RA5, Photo Station13.

Spring Inspection: 2025

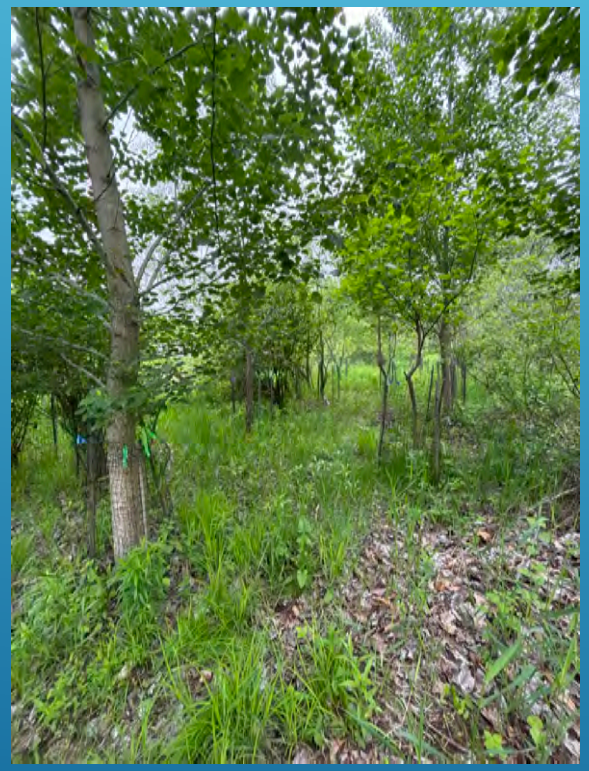




View east and southeast from the west corner of RA5, Photo Station 14.

RA5

Typical examples of plant vigor RA1, RA2 And RA5 in 2025







Phragmites Treatment Area

Spring Inspection: 2025





View northwest and north of previous *Phragmites* stand area.

Attachment D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 261B Off-site Wetland Restoration City/County: Agawam, Hampden Sampling Date: 10/18/21

Applicant/Owner: Kinder Morgan State: MA Sampling Point: RA1

Investigator(s): Tim O'Sullivan, Jeremy Lessard Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: 230C, Unadilla very fine sandy loam NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches): _____	
Water Table Present?	Yes ✓	No _____	Depth (inches): 12	
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 8	**Wetland Hydrology Present? Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: RA1

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	Yes	FAC
2. Populus deltoides	15	Yes	FAC
3.			
4.			
5.			
6.			
	30 = Total Cover		
50% of total cover:	20% of total cover:		

Sapling Stratum (Plot size: 15 ft)			
1. Salix nigra	40	Yes	OBL
2.			
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover:	20% of total cover:		

Shrub Stratum (Plot size: 15 ft)			
1. Cornus sericea	50	Yes	FACW
2. Cornus amomum	35	Yes	FACW
3.			
4.			
5.			
6.			
	85 = Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 7 ft)			
1. Symplocarpus foetidus	30	Yes	OBL
2. Urtica dioca	5	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
50% of total cover:	20% of total cover:		

Woody Vine Stratum (Plot size: 7 ft)			
1. Solanum dulcamara	15	Yes	FAC
2. Persicaria sagittate	5	No	OBL
3.			
4.			
5.			
	20 = Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: RA1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	90	10YR 5/6	10	D	M	V.F. SL	
3-22	10YR 3/3	45	10YR 5/6	5	D	M	V.F. SL	
	10YR 3/4	45	10YR 5/6	5	D	M	V.F. SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ✓ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 261B Off-site Wetland Restoration City/County: Agawam, Hampden Sampling Date: 10/18/21

Applicant/Owner: Kinder Morgan State: MA Sampling Point: RA2

Investigator(s): Tim O'Sullivan, Jeremy Lessard Section, Township, Range:

Landform (hillslope, terrace, etc.): Alluvial Flat Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): Lat: 42.047466° Long: -72.685018° Datum:

Soil Map Unit Name: 8A, Limerick Silt Loam NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:

Lentic system abutting a pond (PUBH).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ✓	No ____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes ✓	No ____	Depth (inches): to surface

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site previously inundated with water, current water level lower than previously observed.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: RA2

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15 ft)			
1. Alnus incana	20	Yes	FACW
2. Sambucus canadensis	2		FACW
3.			
4.			
5.			
6.			
	22 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5 ft)			
1. Leersia Oryzoides	80	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 1.2

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL Sampling Point: RA2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	95	7.5YR 5/8	5			V.F. SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: 261B Off-site Wetland Restoration City/County: Agawam, Hampden Sampling Date: 10/18/21

Applicant/Owner: Kinder Morgan State: MA Sampling Point: RA5

Investigator(s): Tim O'Sullivan, Jeremy Lessard Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Till plain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR or MLRA): _____ Lat: 42.047457 Long: -72.685035 Datum: _____

Soil Map Unit Name: 340B, Broadbrook gravelly silt loam NWI classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

Site previously utilized for turf farming, soil disturbed from agricultural use.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 8

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: RA5

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15 ft)			
1. Acer Rubrum	3		FAC
2. Populus deltoides	3		FAC
3. Betula allegheneinsis	6	Yes	FAC
4.			
5.			
6.			
	12 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15 ft)			
1. Alnus incana	75	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	75 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 3 ft)			
1. Phalaris arundinacea	90	Yes	FACW
2. Mimulus ringens	3		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	93 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL Sampling Point: RA5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	90	10YR 5/6	5-10			V.F. SL	
3-22	10YR 3/3	45	10YR 5/6	5-10			V.F. SL	Mixed soil after 3"
	10YR 3/4	45						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

Attachment E

2024 ACC and MassDEP Communications

Town of Agawam

Conservation Commission

36 Main Street, Agawam, Massachusetts 01001-1801

Tel. 413-726-9245 Fax 413-786-9927

May 12, 2023

Matthew A. Nowak, PWS
Project Permitting & compliance
8 Anngina Drive
Enfield, CT 06082

RE: TGP Corrective Plan of Action for Restoration Area 2 at the Tuckahoe Turf Farm Off-Site Mitigation Site

Dear Mr. Nowak:

At its duly held meeting held on May 11th, 2023 the Agawam Conservation Commission voted to allow for the change of species for the restoration area as outlined in the Corrective Action Plan dated February 2023.

If you have any questions, please contact this office.

Sincerely,

Henry A. Kozloski, Chairman
Agawam Conservation Commission

Cc: City Clerk, File

From:	McHugh, Michael (DEP)
To:	Nowak, Matthew
Cc:	OSullivan, Timothy; John Eshleman (john@wfatrees.com); Waltz, Jim; Taryn Egerton; Pamela Kerr (PKerr@agawam.ma.us)
Subject:	RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739
Date:	Wednesday, July 05, 2023 3:47:46 PM
Attachments:	image002.png image003.png

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Report Suspicious

Matt,
I have reviewed the plan and it is **approved** for implementation.

Please keep a copy of this email for your records and don't forget to incorporate these modifications into subsequent reporting.

Feel free to reach out with any additional questions.

Michael McHugh, Acting Chief
MassDEP – Division of Wetlands and Waterways
436 Dwight Street
Springfield, MA 01103
Phone: 857-772-8000

From: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Sent: Tuesday, July 4, 2023 10:12 AM
To: McHugh, Michael (DEP) <michael.mchugh@mass.gov>
Cc: OSullivan, Timothy <Tim.OSullivan@aecom.com>; John Eshleman (john@wfatrees.com) <john@wfatrees.com>; Waltz, Jim <Jim_Waltz@kindermorgan.com>; Taryn Egerton <TEgerton@agawam.ma.us>; Pamela Kerr (PKerr@agawam.ma.us) <PKerr@agawam.ma.us>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Michael,

Do you have any questions or concerns regarding the attached emergent planting plan?

Thanks,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082



From: Nowak, Matthew
Sent: Wednesday, June 14, 2023 8:09 AM
To: 'McHugh, Michael (DEP)' <michael.mchugh@state.ma.us>
Cc: OSullivan, Timothy <Tim.OSullivan@aecom.com>; John Eshleman (john@wfatrees.com) <john@wfatrees.com>; Waltz, Jim <Jim_Waltz@kindermorgan.com>; Taryn Egerton <TEgerton@agawam.ma.us>; Pamela Kerr (PKerr@agawam.ma.us) <PKerr@agawam.ma.us>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Hello Michael,

In compliance with condition #1 in your May 30, 2023 email below, Tennessee is providing the attached emergent planting plan for your review. Please feel free to contact me if you have any questions.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001

8 Anngina Drive | Enfield, CT 06082



From: McHugh, Michael (DEP) <michael.mchugh@state.ma.us>
Sent: Tuesday, May 30, 2023 9:50 AM
To: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Cc: OSullivan, Timothy <Tim.OSullivan@aecom.com>; John Eshleman (john@wfatrees.com) <john@wfatrees.com>; Waltz, Jim <Jim_Waltz@kindermorgan.com>; Taryn Egerton <TEgerton@agawam.ma.us>; Pamela Kerr (PKerr@agawam.ma.us) <PKerr@agawam.ma.us>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

You don't often get email from michael.mchugh@state.ma.us. Learn why this is important

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Matthew,

In light of the concerns about the appropriate hydrologic regime for Restoration Area Number 2, MassDEP **approves** the request to establish an area of emergent marsh (PEM), using species such as soft-stem bulrush (*Schoenoplectus tabernaemontani*), pickerel weed (*Pontederia cordata*) and broadleaf arrowhead (*Sagittaria latifolia*) or similar. The approval is subject to the following conditions:

1. A plan depicting the area where the proposed emergent planting will occur and the proposed density of the planting must be provided to the Department prior to the implementation of the planting. The plan is subject to the review and approval of the Department.
2. Subsequent monitoring reports will incorporate this amendment and address the success of the proposed PEM Area.

If you have any questions please feel free to reach out to me.

Michael McHugh, Acting Chief
MassDEP – Division of Wetlands and Waterways
436 Dwight Street
Springfield, MA 01103

Phone: 857-772-8000



From: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Sent: Thursday, May 25, 2023 10:19 AM
To: McHugh, Michael (DEP) <michael.mchugh@mass.gov>
Cc: OSullivan, Timothy <Tim.OSullivan@aecom.com>; John Eshleman (john@wfatrees.com) <john@wfatrees.com>; Waltz, Jim <Jim_Waltz@kindermorgan.com>; Taryn Egerton <TEgerton@agawam.ma.us>; Pamela Kerr (PKerr@agawam.ma.us) <PKerr@agawam.ma.us>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Michael,

The restoration planting crew (Williams Forestry & Associates) and environmental consultant (AECOM) visited Restoration Area 2 at the Tuckahoe Turf Farm yesterday (May 24, 2023). The southern area of RA-2 was observed to be flooded with approximately 12 to 18 inches of standing water, with evidence that the water levels had recently been up to approximately 10 inches deeper (see attached photos) making planting impractical. Due to the current standing water and evidence of higher water levels, we believe there is a high likelihood of mortality for shrubs, including buttonbush (*Cephalanthus occidentalis*) and *Salix* Spp., that are placed into these conditions.

Your response below notes that, "*MassDEP understands the need for adaptive management in implementing proposed plantings. Every effort should be made to ensure plantings that meet the intended goals of the restoration area, however if such plantings fail the Department will consider alternative planting proposals to ensure a successful wetland restoration area.*" Based upon our observations on site, Tennessee believes we are at the point where alternative planting proposals are appropriate.

Therefore, based upon past and present observations of hydrology, as well as the initial result of 100% mortality of plantings in the subject area, Tennessee is requesting MassDEP reconsider its direction of replanting the area with woody vegetation in the area of 100% mortality and is

requesting relief from establishing a scrub/shrub habitat (PSS) in this specific area of RA-2. As an adaptive management approach, Tennessee is requesting the opportunity to plant emergent wetland vegetation in this area, with the goal of establishing an area of emergent marsh (PEM), using species such as soft-stem bulrush (*Schoenoplectus tabernaemontani*), pickerel weed (*Pontederia cordata*) and broadleaf arrowhead (*Sagittaria latifolia*) or similar.

We would be available next week for a web-meeting or site visit to discuss options for achieving success for Restoration Area 2 at the Tuckahoe Turf Farm Off-Site Mitigation Site.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082

From: McHugh, Michael (DEP) <michael.mchugh@state.ma.us>
Sent: Monday, May 15, 2023 12:31 PM
To: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

You don't often get email from michael.mchugh@state.ma.us. Learn why this is important

[This email message was received from the Internet and came from outside of Kinder Morgan.]

WARNING: EXTERNAL EMAIL: PROCEED WITH CAUTION.

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Re: 261 Upgrade Projects
Off-Site Mitigation, Tuckahoe Turf-Farm Site
Restoration Area 2, Corrective Action Plan
South West Street, Agawam, MA
MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Having reviewed the above referenced Corrective Action Plan (CAP), MassDEP **approve**s its implementation **with the following considerations**:

1. At Table 1, Plant species observed in RA-2, page 4-2, identifies *Phalaris arundinacea* (reed canary grass) as a dominant plant, and *Phragmites australis* (common reed) as an uncommon plant, on the site. Both are listed by as invasive species. Efforts should be undertaken to control or eliminate the presence of such invasive species. Future reports should specifically discuss whether such species are expanding. Future reports should discuss whether a corrective action is necessary to control the expansion of invasive species.

2. On page 6-1 of the CAP, the Consultant states: *AECOM also recommends pulling planting locations back slightly from areas with extended hydroperiods and/or extended periods of time with saturated sediment and/or soils.*

   MassDEP does **not** approve pulling the planting locations back.

   The CAP goes on the state:
   If planting locations within RA-2 need to remain relatively unchanged to maintain a two-acre restoration area, consideration should be given to changing the species planted in the wetter areas to one more capable of surviving the conditions observed. Buttonbush would be more suitable to plant in areas with prolonged saturated and/or inundated soils than all other shrubs specified in the initial restoration plan.

   MassDEP recognizes that hydroperiods have direct effect on the survivorship of plant species and that during the design phase predicting a precise hydroperiod can be a challenge. Therefore, MassDEP understands the need for adaptive management in implementing proposed plantings. Every effort should be made to ensure plantings that meet the intended goals of the restoration area, however if such plantings fail the Department will consider alternative planting proposals to ensure a successful wetland restoration area.
   Therefore, MassDEP **approves** the planting of Buttonbush (*Cephalanthus occidentalis)* and/or native *Salix* spp .

If you have any questions, please feel free to reach out to me.

Michael McHugh, Acting Chief
MassDEP – Division of Wetlands and Waterways
436 Dwight Street
Springfield, MA 01103
Phone: 857-772-8000



From: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Sent: Monday, May 15, 2023 12:23 PM
To: McHugh, Michael (DEP) <michael.mchugh@mass.gov>
Cc: 'OSullivan, Timothy' <Tim.OSullivan@aecom.com>
Subject: FW: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

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Hello Mike,

Thanks for speaking with me today. Attached is the Corrective Action Plan for Restoration Area 2 at the Tuckahoe Turf Farm.

Please let me know if you have any additional questions or comments.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082

From: Nowak, Matthew
Sent: Wednesday, May 3, 2023 9:16 AM
To: Thomas.Gruszkos@mass.gov; mary.grover@mass.gov; PKerr@agawam.ma.us; TEgerton@agawam.ma.us; Mark Stinson (Mark.Stinson@state.ma.us) <Mark.Stinson@state.ma.us>
Cc: 'OSullivan, Timothy' <Tim.OSullivan@aecom.com>
Subject: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Hello,

Tennessee Gas Pipeline Company, L.L.C. (“Tennessee”) is providing this Corrective Action Plan for

Restoration Area 2 at the Tuckahoe Turf Farm Off-Site Mitigation Site for your review and approval.

At the end of the third growing season (2022), plant material within Restoration Area 2 had a total survivorship of approximately 74%. However, if the plants identified as "stressed" during the 2022 evaluations succumb to the effects of growing under prolonged anaerobic soil/substrate conditions, that survivorship could be reduced by as much as twenty to twenty-five percent. In an effort to comply with the 75% survivorship after five years performance standard and since planting the same species in the same areas would likely produce the same result, it is recommended that a change be made to the plant species installed and the location of the plantings should likewise be modified, as described in the attached Corrective Action Plan.

Tennessee would like to perform the corrective actions in late May. Please feel free to contact me with any questions.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082



From:	McHugh, Michael (DEP)
To:	Nowak, Matthew
Cc:	OSullivan, Timothy; John Eshleman (john@wfatrees.com); Waltz, Jim; Taryn Egerton; Pamela Kerr (PKerr@agawam.ma.us)
Subject:	RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739_2
Date:	Tuesday, May 30, 2023 9:49:47 AM
Attachments:	image002.png image003.png

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Report Suspicious

Matthew,

In light of the concerns about the appropriate hydrologic regime for Restoration Area Number 2, MassDEP **approves** the request to establish an area of emergent marsh (PEM), using species such as soft-stem bulrush (*Schoenoplectus tabernaemontani*), pickerel weed (*Pontederia cordata*) and broadleaf arrowhead (*Sagittaria latifolia*) or similar. The approval is subject to the following conditions:

1. A plan depicting the area where the proposed emergent planting will occur and the proposed density of the planting must be provided to the Department prior to the implementation of the planting. The plan is subject to the review and approval of the Department.
2. Subsequent monitoring reports will incorporate this amendment and address the success of the proposed PEM Area.

If you have any questions please feel free to reach out to me.

Michael McHugh, Acting Chief
MassDEP – Division of Wetlands and Waterways
436 Dwight Street
Springfield, MA 01103
Phone: 857-772-8000



From: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Sent: Thursday, May 25, 2023 10:19 AM
To: McHugh, Michael (DEP) <michael.mchugh@mass.gov>
Cc: OSullivan, Timothy <Tim.OSullivan@aecom.com>; John Eshleman (john@wfatrees.com) <john@wfatrees.com>; Waltz, Jim <Jim_Waltz@kindermorgan.com>; Taryn Egerton <TEgerton@agawam.ma.us>; Pamela Kerr (PKerr@agawam.ma.us) <PKerr@agawam.ma.us>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Michael,

The restoration planting crew (Williams Forestry & Associates) and environmental consultant (AECOM) visited Restoration Area 2 at the Tuckahoe Turf Farm yesterday (May 24, 2023). The southern area of RA-2 was observed to be flooded with approximately 12 to 18 inches of standing water, with evidence that the water levels had recently been up to approximately 10 inches deeper (see attached photos) making planting impractical. Due to the current standing water and evidence of higher water levels, we believe there is a high likelihood of mortality for shrubs, including buttonbush (*Cephalanthus occidentalis*) and *Salix* Spp., that are placed into these conditions.

Your response below notes that, "*MassDEP understands the need for adaptive management in implementing proposed plantings. Every effort should be made to ensure plantings that meet the intended goals of the restoration area, however if such plantings fail the Department will consider alternative planting proposals to ensure a successful wetland restoration area.*" Based upon our observations on site, Tennessee believes we are at the point where alternative planting proposals are appropriate.

Therefore, based upon past and present observations of hydrology, as well as the initial result of 100% mortality of plantings in the subject area, Tennessee is requesting MassDEP reconsider its direction of replanting the area with woody vegetation in the area of 100% mortality and is requesting relief from establishing a scrub/shrub habitat (PSS) in this specific area of RA-2. As an adaptive management approach, Tennessee is requesting the opportunity to plant emergent wetland vegetation in this area, with the goal of establishing an area of emergent marsh (PEM), using species such as soft-stem bulrush (*Schoenoplectus tabernaemontani*), pickerel weed (*Pontederia cordata*) and broadleaf arrowhead (*Sagittaria latifolia*) or similar.

We would be available next week for a web-meeting or site visit to discuss options for achieving success for Restoration Area 2 at the Tuckahoe Turf Farm Off-Site Mitigation Site.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082

From: McHugh, Michael (DEP) <michael.mchugh@state.ma.us>
Sent: Monday, May 15, 2023 12:31 PM
To: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Subject: RE: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

You don't often get email from michael.mchugh@state.ma.us. Learn why this is important

[This email message was received from the Internet and came from outside of Kinder Morgan.]

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Re: 261 Upgrade Projects
Off-Site Mitigation, Tuckahoe Turf-Farm Site
Restoration Area 2, Corrective Action Plan
South West Street, Agawam, MA
MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Having reviewed the above referenced Corrective Action Plan (CAP), MassDEP **approve**s its implementation **with the following considerations**:

1. At Table 1, Plant species observed in RA-2, page 4-2, identifies *Phalaris arundinacea* (reed canary grass) as a dominant plant, and *Phragmites australis* (common reed) as an uncommon plant, on the site. Both are listed by as invasive species. Efforts should be undertaken to control or eliminate the presence of such invasive species. Future reports should specifically discuss whether such species are expanding. Future reports should discuss whether a corrective action is necessary to control the expansion of invasive species.

2. On page 6-1 of the CAP, the Consultant states: *AECOM also recommends pulling planting locations back slightly from areas with extended hydroperiods and/or extended periods of time with saturated sediment and/or soils.*

MassDEP does **not** approve pulling the planting locations back.

The CAP goes on the state:
If planting locations within RA-2 need to remain relatively unchanged to maintain a two-acre restoration area, consideration should be given to changing the species planted in the wetter areas to one more capable of surviving the conditions observed. Buttonbush would be more suitable to plant in areas with prolonged saturated and/or inundated soils than all other shrubs specified in the initial restoration plan.

MassDEP recognizes that hydroperiods have direct effect on the survivorship of plant species and that during the design phase predicting a precise hydroperiod can be a challenge. Therefore, MassDEP understands the need for adaptive management in implementing proposed plantings. Every effort should be made to ensure plantings that meet the intended goals of the restoration area, however if such plantings fail the Department will consider alternative planting proposals to ensure a successful wetland restoration area.
Therefore, MassDEP **approves** the planting of Buttonbush (*Cephalanthus occidentalis)* and/or native *Salix* spp .

If you have any questions, please feel free to reach out to me.

Michael McHugh, Acting Chief
MassDEP – Division of Wetlands and Waterways
436 Dwight Street
Springfield, MA 01103
Phone: 857-772-8000



From: Nowak, Matthew <Matthew_Nowak@kindermorgan.com>
Sent: Monday, May 15, 2023 12:23 PM
To: McHugh, Michael (DEP) <michael.mchugh@mass.gov>
Cc: 'OSullivan, Timothy' <Tim.OSullivan@aecom.com>
Subject: FW: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

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recognize the sender and know the content is safe.

Hello Mike,

Thanks for speaking with me today. Attached is the Corrective Action Plan for Restoration Area 2 at the Tuckahoe Turf Farm.

Please let me know if you have any additional questions or comments.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082



From: Nowak, Matthew
Sent: Wednesday, May 3, 2023 9:16 AM
To: Thomas.Gruszkos@mass.gov; mary.grover@mass.gov; PKerr@agawam.ma.us; TEgerton@agawam.ma.us; Mark Stinson (Mark.Stinson@state.ma.us) <Mark.Stinson@state.ma.us>
Cc: 'OSullivan, Timothy' <Tim.OSullivan@aecom.com>
Subject: TGP 261B Upgrade Projects - MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739

Hello,

Tennessee Gas Pipeline Company, L.L.C. ("Tennessee") is providing this Corrective Action Plan for Restoration Area 2 at the Tuckahoe Turf Farm Off-Site Mitigation Site for your review and approval.

At the end of the third growing season (2022), plant material within Restoration Area 2 had a total survivorship of approximately 74%. However, if the plants identified as "stressed" during the 2022 evaluations succumb to the effects of growing under prolonged anaerobic soil/substrate conditions, that survivorship could be reduced by as much as twenty to twenty-five percent. In an effort to comply with the 75% survivorship after five years performance standard and since planting the same species in the same areas would likely produce the same result, it is recommended that a change be made to the plant species installed and the location of the plantings should likewise be modified, as described in the attached Corrective Action Plan.

Tennessee would like to perform the corrective actions in late May. Please feel free to contact me with any questions.

Best Regards,

Matt

Matthew A. Nowak, PWS
Project Permitting & Compliance
Cell 413-695-7001
8 Anngina Drive | Enfield, CT 06082



Attachment F

RA-2 Corrective Action Plan Memo

AECOM
500 Enterprise Drive, Suite 1A
Rocky Hill, CT 06067

860.203.5800 tel
877.263.5777 fax

Technical Memorandum

To:	Michael McHugh (MassDEP)	Page 1
CC:	Matthew Nowak (Tennessee Gas Pipeline Company, L.L.C.) John Eshleman (Williams Forestry and Associates)	
Subject:	261B Upgrade Projects Off-site Wetland Restoration Area Previous Tuckahoe Turf Farm Site RA-2 Proposed Modifications Agawam, MA MassDEP Wetland File Number: 087-0644, WQC Transmittal No. X281739	
From:	Timothy O'Sullivan (AECOM)	
Date:	June 2, 2023	

Introduction and Background

As required by the Massachusetts Department of Environmental Protection's (MassDEP) Water Quality Certification (WQC) and the Town of Agawam's Conservation Commission's (ACC) Order of Conditions (OOC) issued for Tennessee Gas Pipeline Company, L.L.C.'s (Tennessee's) 261 Upgrade Projects (Project), AECOM continues to provide wetland scientist (WS) monitoring and oversight of the wetland restoration activities at the Tuckahoe Turf Farm site in Agawam, MA. In total, the monitoring and oversight are applicable to five restoration areas (RAs 1, 2, 3, 4 and 5) and two additional invasive plant species eradication areas. This memorandum is specific to RA-2, located at the northern end of the site's unnamed pond.

As noted in 310 CMR 10.55 (4) 6, in a typical wetland mitigation replacement area (wetlands created in what was previously an upland area), at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons. However, RA-2 is located in an existing bordering vegetated wetland (BVW). Therefore, the "survivorship performance standards" for plant material installed in these areas was likewise set at 75% or better, after five years.

Due to significant mortality of wetland shrubs planted in the southern area of RA-2 (see figure 1), documented in Tennessee's monitoring report dated November 29, 2022, it was determined that the area did not meet the performance standard noted above. The report further stated that the shrub mortality was due to a prolonged hydroperiod, which appears to occur on an annual basis. As a result, Tennessee provided MassDEP with a corrective action plan (CAP), dated February 2023, for this portion of RA-2.

In the CAP, Tennessee's consultant stated its opinion that planting the same species in the same areas would likely produce the same result and recommended that a change be made to the plant species installed and the location of the plantings should likewise be modified. In an email from Tennessee to MassDEP, dated May 3, 2023, Tennessee formally requested a change in the proposed shrubs from the initial species to buttonbush (*Cephalanthus occidentalis*) and black willow (*Salix nigra*), which should be able to better withstand the observed hydrology of the area, and to pull the planting locations upgradient to maximize survivorship. In an email dated May 15,

2023, MassDEP responded by approving the change in the planting plan but denying Tennessee's request to change the locations of the proposed plantings, while reserving the option of adaptive management based upon site conditions, should that become necessary.

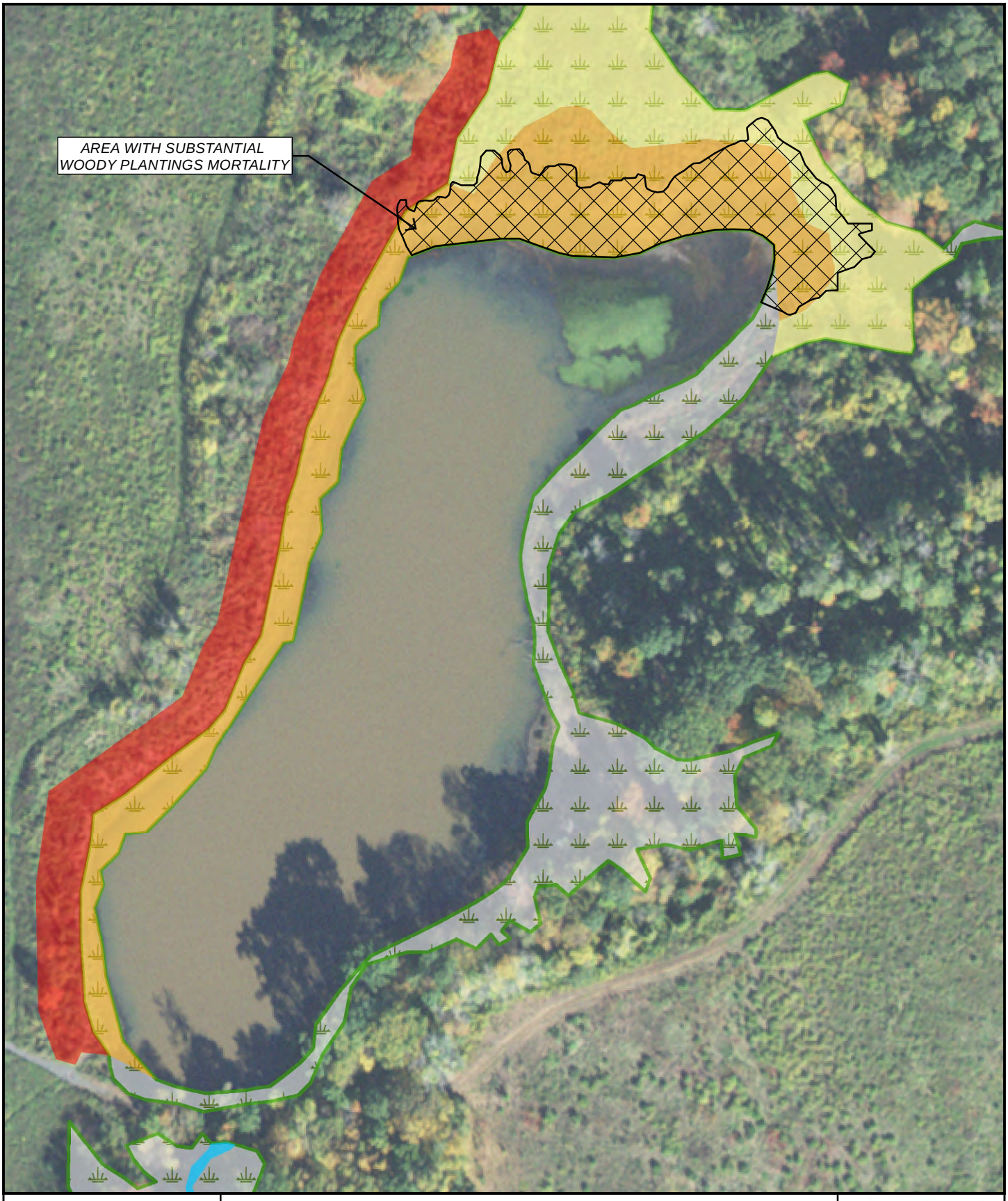
In a good faith effort to comply with direction from MassDEP, the restoration planting crew (Williams Forestry & Associates) and environmental consultant (AECOM) assessed RA-2 on May 24, 2023. The southern area of RA-2 was observed to be flooded with approximately 12 to 18 inches of standing water, with evidence that the water levels had recently been up to approximately 10 inches deeper making planting impractical. Due to the standing water and evidence of higher water levels, it was determined that there was a high likelihood of mortality for shrubs, including buttonbush and Salix Spp., that are placed into such conditions.

In an email from Tennessee to MassDEP dated May 25, 2023, Tennessee requested MassDEP reconsider its direction of replanting the area with woody vegetation in the area of 100% mortality and requested relief from establishing a scrub/shrub habitat (PSS) in this specific area of RA-2. As an adaptive management approach, Tennessee requested the opportunity to plant emergent wetland vegetation in this area, with the goal of establishing an area of emergent marsh (PEM), using species such as soft-stem bulrush (*Schoenoplectus tabernaemontani*), pickerel weed (*Pontederia cordata*) and broadleaf arrowhead (*Sagittaria latifolia*) or similar. In response, MassDEP approved this approach in an email dated May 30, 2023, with the following conditions:

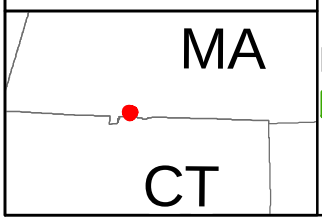
1) A plan depicting the area where the proposed emergent planting will occur and the proposed density of the planting must be provided to the Department prior to the implementation of the planting. The plan is subject to the review and approval of the Department and,
2) Subsequent monitoring reports will incorporate this amendment and address the success of the proposed PEM Area.

In compliance with condition 1 above, the proposed planting plan (Plan) is included here in Attachment A. Tennessee is requesting MassDEP review and approval of the Plan.

Attachment A



INDEX MAP



Areas within RA-2

Legend

- Area with substantial woody plantings mortality
- Wetland Area
- Stream
- Wetland Reforestation
- PSS Woody Revegetation
- Riparian Reforestation

N

0 75 150 Feet

KINDER MORGAN

Figure 1

Date: 2/16/2023

PEM Planting Plan

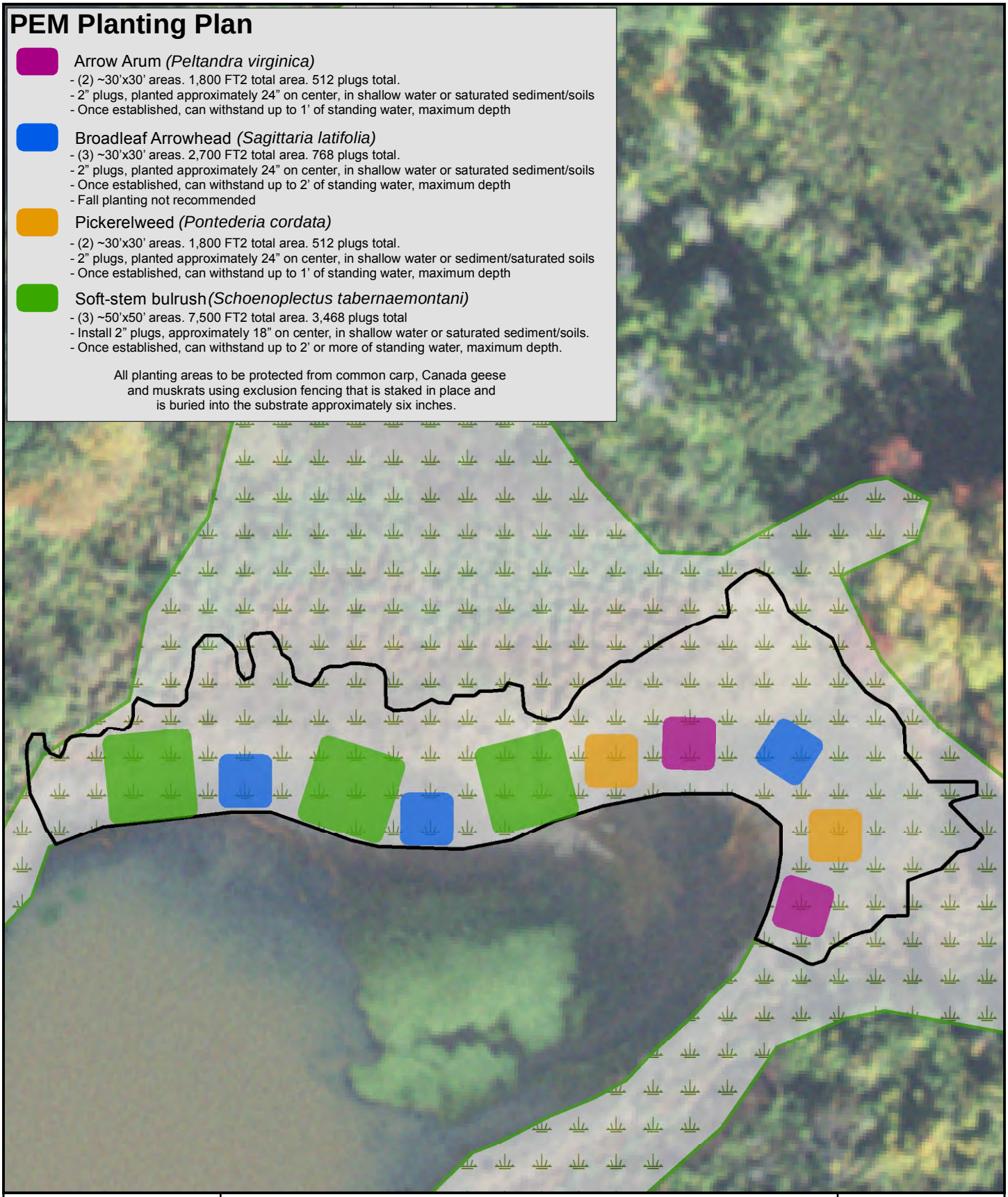
Arrow Arum *(Peltandra virginica)*
- (2) ~30'x30' areas. 1,800 FT2 total area. 512 plugs total.
- 2" plugs, planted approximately 24" on center, in shallow water or saturated sediment/soils
- Once established, can withstand up to 1' of standing water, maximum depth

Broadleaf Arrowhead *(Sagittaria latifolia)*
- (3) ~30'x30' areas. 2,700 FT2 total area. 768 plugs total.
- 2" plugs, planted approximately 24" on center, in shallow water or saturated sediment/soils
- Once established, can withstand up to 2' of standing water, maximum depth
- Fall planting not recommended

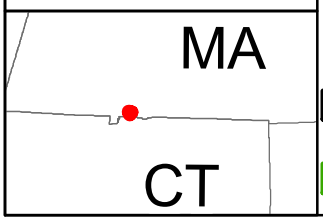
Pickerelweed *(Pontederia cordata)*
- (2) ~30'x30' areas. 1,800 FT2 total area. 512 plugs total.
- 2" plugs, planted approximately 24" on center, in shallow water or sediment/saturated soils
- Once established, can withstand up to 1' of standing water, maximum depth

Soft-stem bulrush *(Schoenoplectus tabernaemontani)*
- (3) ~50'x50' areas. 7,500 FT2 total area. 3,468 plugs total
- Install 2" plugs, approximately 18" on center, in shallow water or saturated sediment/soils.
- Once established, can withstand up to 2' or more of standing water, maximum depth.

All planting areas to be protected from common carp, Canada geese and muskrats using exclusion fencing that is staked in place and is buried into the substrate approximately six inches.



INDEX MAP



Legend

Area with substantial woody plantings mortality

Wetland Area

Areas within RA-2
PEM Planting Plan

N

0 75 Feet

KINDER MORGAN

Figure 2

WILLIAMS FORESTRY & ASSOCIATES

Date: 6/1/2023

Attachment G

Supplemental Planting Notes, Aquatic Emergent Cells

Tennessee Gas Pipeline Co., LLC
Line 261 Upgrade Project
Tuckahoe Turf Farm
Agawam, Massachusetts

August 22 and 23, 2023
Supplemental Planting at RA-1 and RA-2

10 Planting Cells Established, Numbered West to East

Planting Cell	Restoration Area	Approximate Size (ft.)	Species Installed*	Total Installed	Comments
Cell 1	RA-2	50 x 50	SCTA	1,156	Cell 1 includes 9 *Scirpus cyperinus* tussocks.
Cell 2	RA-2	30 x 30	SALA	256	
Cell 3	RA-2	50 x 50	SCTA	1,156	Cell 3 includes 5 *Scirpus cyperinus* tussocks.
Cell 4	RA-2	30 x 30	SALA	256	Cell 4 includes 1 small, dense cluster of *Schoenoplectus tabernaemontani* .
Cell 5	RA-2	50 x 50	SCTA	1,156	
Cell 6	RA-2	30 x 30	POCO	256	
Cell 7	RA-2	30 x 30	PEVI	256	
Cell 8	RA-1, RA-2	30 x 30	SALA	256	NE corner extends into RA-1. Cell 8 includes 4 *Scirpus cyperinus* tussocks.
Cell 9	RA-1, RA-2	30 x 30	POCO	256	Approx. eastern 1/3 of cell is in RA-1. Cell 9 includes 1 *Scirpus cyperinus* tussock.
Cell 10	RA-1, RA-2	30 x 30	PEVI	256	Cell is approx. 50:50 in RA-1 and RA-2. Cell 10 includes 1 planted *Alnus incana* and 11 *Scirpus cyperinus* tussocks.
			Total Installed	**5,260**	

*Legend for Species Installed (all plugs)
PEVI = *Peltandra virginica* (Arrow-arum)
POCO = *Pontederia cordata* (Pickerelweed)
SALA = *Sagittaria latifolia* (Northern or Broad-leaved Arrowhead)
SCTA = *Schoenoplectus tabernaemontani* (Softstem Bulrush)


1
2
3
4
5
6
7
8
9
10
Supplemental Herbaceous
Planting Cells (8-23-23)


RA1
RA2
1
2
3
4
5
6
7
8
9
10
RA1
RA2





Tennessee Gas Pipeline Company, L.L.C.

261B Pipeline Looping Projects, Compensatory Mitigation Areas Monitoring Report - TGPC, Agawam, MA
Tuckahoe Turf-Farm Site, South West Street, Agawam, MA, MassDEP Wetland File Number: 087-0644

Project number: 60630193

October 2025

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
			
Julia Stearns	Timothy O'Sullivan		

Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

Tennessee Gas Pipeline Company, LLC
1001 Louisiana Street
Houston, Texas 77002

Prepared by:

AECOM
500 Enterprise Drive
Rocky Hill, CT 06067
aecom.com

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2. Permit Conditions and Success Criteria 2-1
3. Methods 3-1
4. Results 4-1
4.1 Restoration Area 3 4-1
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5. Discussion 5-1
6. Conclusions 6-1

Attachments

Attachment A Compensatory Wetland Mitigation Plan, Offsite Mitigation Details
Attachment B Agawam, MA Conservation Commission Order of Conditions
Attachment C Photographs

Tables

Table 1. Vegetation observed within RA-3. 4-1
Table 2. Vegetation observed within RA-4. 4-3

1. Introduction and Background

As required by the Town of Agawam Conservation Commission (ACC) Order of Conditions (OOC) issued for the Tennessee Gas Pipeline Company, LLC (Tennessee) 261 Upgrade Project (Project), AECOM provided initial wetland scientist oversight of the Wetland Buffer Zone and Riverfront Area restoration activities at the Tuckahoe Turf Farm site in Spring 2020.

AECOM was on-site from April 27 through April 30, 2020, to oversee plantings to ensure proper planting techniques and locations, per the OOC, and began annual monitoring in early spring, 2021. Tennessee's "Compensatory Wetland Mitigation Plan, Offsite Mitigation Details" (Plan) describes the details of the restoration area plantings (**Attachment A**).

On behalf of Tennessee, AECOM is submitting this report for the fifth and final year of the restoration monitoring program, as stipulated in the OOC, issued for the Project. The following narrative provides a description of the Project and details vegetation growth that is in compliance with the conditions of the OOC. Over the five-year monitoring program AECOM conducted annual vegetation monitoring of plantings and provided oversight of additional plantings and activities deemed necessary to meet the Plan goals and standard conditions and success criteria of the OOC.

Based upon 2025 observations and monitoring data, it is AECOM's professional opinion that the Compensatory Mitigation Areas meet the conditions of 310 CMR 10.55 (4), Special Condition 27, as well as commitments made in the Notice of Intent.

1.1 Riverfront Area and Buffer Zone Enhancements

Approximately 5.0 acres of what was described as open upland field bordering the irrigation pond and the Still Brook stream system were enhanced with supplemental plantings (Attachment A). This included the following restoration areas on the Tuckahoe Turf Farm Site:

- **Restoration Area 3**: Reforestation of 1.5 acres of what was described as open field on the west side of the irrigation pond with supplemental tree and shrub plantings. The Plan requires trees and shrubs to each be planted at an average density of 240 stems per acre.
- **Restoration Area 4**: Restoration of 3.5 acres of open upland field on the southern end of the property within the riparian zone of Still Brook with supplemental tree and shrub plantings. The Plan requires trees and shrubs to each be planted at an average density of 240 stems per acre.

A tag clearly identified each initial shrub and sapling installed as a restoration planting. As required, the ACC approved the design and materials of the tags prior to use.

2. Permit Conditions and Success Criteria

The Project's off-site compensatory wetland mitigation component is subject to Special Condition numbers 26, 27 and 28 of the OOC (**Attachment B**).

Condition 26 of the ACC's OOC requires Tennessee to conduct a Rehabilitation Project within designated Bordering Vegetated Wetland, Riverfront Area, and Buffer Zone within the Tuckahoe Turf Farm (referred to as Assessors Map C7, Lot 2-4, with frontage on Southwest Road) per the plan of record titled "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA" (Sheet 1.0), prepared by SWCA Environmental Consultants (October 11, 2019).

Condition 27 of the OOC requires Tennessee's approved wetland scientist to monitor the status of the Compensatory Mitigation Areas on the plans of record and labelled "Temporary Fill/In Situ Restoration Temporal Loss" and the Resource Area Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025. With respect to Wetland Buffer Zone/Wildlife Habitat and Riverfront Area, monitoring shall include, at a minimum detail, the status of non-indigenous plant species control efforts, planting/seeding success, substrate stabilization, provision of characteristics conducive to the "interests of the Act" and any recommended adjustments that will meet the intent of 310 CMR 10.58 (4) (d) 1.a. and c., 310 CMR 10.60 (2) (d) and (e), and 310 CMR 10.60 (3). Minimally, each report shall contain a floral inventory for each of the entire "Restoration Areas", with indigenous status, and relative abundance for each documented species (abundant, common, uncommon, trace), and adequate photo-documentation from fixed and repeatable stations.

Condition 28 of the OOC indicates that based upon the data collected during sampling events, the wetland scientist(s), or the Commission upon its own discretionary initiative, shall render a conclusion within each report required by Condition 27, as to the success of each separate Compensatory Mitigation Area in terms of 310 CMR 10.53 (1), 310 CMR 10.55 (4), 310 CMR 10.58 (4) (d) 1.a.and c.; 310 CMR 10.60 (2) (d) and (e); and 310 CMR 10.60 (3).

3. Methods

Upland Riverfront Area and Wetland Buffer Zone

AECOM conducted two rounds of inspections for Restoration Areas (RA) RA-3 and RA-4 in 2025. The first vegetation monitoring was conducted in June and the second round occurred in August of 2025. The monitoring included assessment and documentation of the health, vigor, and estimated height of planted trees and shrubs. A comprehensive list of vegetation was compiled for each RA. As with the previous years of monitoring, photographs were taken from the fixed photograph stations established in 2020 and are shown in **Attachment C**.

4. Results

Thorn and vine thickets formed by invasive species, e.g., Asiatic bittersweet and multiflora rose, and aggressive native species (e.g., arrow-leaved tearthumb and fox grape) smothered many planted shrubs and trees within RA-3 and RA-4, to the extent that some plantings could not be located easily during the first four growing seasons. To control the aggressive growth, vegetation management was implemented. Vegetation control techniques in these areas included physical removal of invasive/aggressive growth and/or spot herbicide application. Plantings were subsequently easier to locate and assess in 2024 and 2025 and long-term survivorship of affected plantings appears positive. Photographs showing representative conditions within RA-3 and RA-4 are included in **Attachment C**.

4.1 Restoration Area 3

In 2025, 364 trees were assessed within RA-3. The original plantings included 360 trees, however additional trees and shrubs were planted in previous years to compensate for mortality that had occurred, resulting in more plantings than originally called for in the Plan. Of the 364 trees evaluated, a total of 318 (~88%) of the trees were assessed as optimal in health and vigor, and most trees demonstrated positive growth in subsequent years after planting. An additional 26 trees were assessed as stressed, and the remaining 20 were dead. Therefore, after the five growing seasons the overall tree survivorship, including currently stressed individuals, is approximately 96%, based on the approved Plan number of 360 trees.

In 2025, a total of 376 shrubs were assessed within RA-3, 16 more than were originally planted. Of these 306 shrubs (~85%) were assessed as optimal in health and vigor and demonstrated growth during the first five growing seasons. Forty-one (41) shrubs were assessed as stressed, and the remaining 29 were dead. Therefore, after the first five growing seasons and including currently stressed individuals, the overall shrub survivorship is approximately 96%, based on the approved plan of 360.

With a combined survivorship of approximately 96 percent after five growing seasons, it is AECOM's opinion, that RA-3 has exceeded the 75% survivorship performance standard and is compliant with the requirements of the intent of 310 CMR 10.60 (2) (e) and (d); 310 CMR 10.60 (3) and 310 CMR 10.53 (1).

AECOM also evaluated the overall plant community within RA-3, and Table 1 includes the following information for the observed vegetation: type, scientific name, common name, wetland indicator status, nativity status, and on-site prevalence (common, uncommon, etc.).

Table 1. Vegetation observed within RA-3.

Type	Scientific Name	Common Name	Indicator	Status	Presence
Trees	*Acer rubrum**	Red Maple	FAC	Native	Common
	*Acer saccharum**	Sugar Maple	FACU	Native	Common
	*Betula populifolia**	Gray Birch	FAC	Native	Common
	*Populus deltoides**	Cottonwood	FAC	Native	Dominant
	*Quercus alba**	White Oak	FACU	Native	Uncommon
	*Quercus rubra**	Red Oak	FACU	Native	Common
	*Pinus strobus**	White Pine	FACU	Native	Common
Shrubs	*Amelanchier canadensis**	Shadbush	FAC	Native	Common
	*Cornus amomum**	Silky Dogwood	FACW	Native	Common
	*Cornus racemosa**	Gray Dogwood	FAC	Native	Common
	Elaeagnus umbellata	Autumn Olive	--	Invasive	Uncommon
	Lonicera morrowii	Morrow's Honeysuckle	FACU	Invasive	Common
	*Rhus typhina**	Staghorn Sumac	--	Native	Common

Type	Scientific Name	Common Name	Indicator	Status	Presence
	Rhamnus cathartica	European Buckthorn	FAC	Invasive	Common
	Rosa multiflora	Multiflora Rose	FACU	Invasive	Common
Herbs	*Phleum pretense*	Common Timothy	FACU	Introduced	Common
	Persicaria sagittata	Arrow-leaved Tearthumb	OBL	Native	Uncommon
	Plantago major	Common Plantain	FACU	Introduced	Uncommon
	Daucus carota	Queen Anne's Lace	UPL	Introduced	Common
	Elymus canadensis	Canada Wild Rye	FACU	Native	Common
	Echinochloa crus-galli	Barnyard Grass	FAC	Invasive	Uncommon
	Bidens frondosa	Beggar Ticks	FACW	Native	Common
	Persicaria maculosa	Lady's Thumb	FAC	Native	Common
	Persicaria pensylvanica	Pinkweed	FACW	Native	Common
	Solidago canadensis	Canada Goldenrod	FACU	Native	Common
	Trifolium pratense	Red Clover	FACU	Introduced	Common
	Artemisia vulgaris	Mugwort	UPL	Introduced, noxious	Uncommon
	Symphyotrichum lanceolatum	Panicled Aster	FACW	Native	Common
	Solanum dulcamara	Climbing Nightshade	FAC	Invasive	Uncommon
Vines	*Clematis virginiana*	Virginia Virgin's-bower	FAC	Native	Rare
	Celastrus orbiculatus	Asiatic Bittersweet	FACU	Invasive	Common
	Rubus allegheniensis	Common Blackberry	FACU	Native	Common
	Vitis labrusca	Fox Grape	FACU	Native	Common

* Indicates species planted as part of restoration activities

4.2 Restoration Area 4

RA-4 was initially planted with 840 trees and 840 shrubs, for a total of 1,680 plantings. During the 2025 monitoring, 786 trees and 918 shrubs, for a total of 1,704 plants, were located and assessed at RA-4. Given adequate survivorship, the mix of shrubs and trees installed in RA-4 is sufficient to support the development of a forested habitat, as intended.

In 2025, 786 trees were assessed within RA-4. A total of 539 (~69%) of the trees were assessed as optimal in health and vigor, and most demonstrated positive growth during the first five growing seasons. An additional 212 trees were assessed as stressed, and the remaining 35 were dead. Therefore, after the fifth growing season, the overall tree survivorship is approximately 96%. Based on the originally approved number of trees (840), 89% survivorship was observed in 2025.

In 2025, 918 shrubs were assessed within RA-4. A total of 554 (~60%) of the shrubs were assessed as optimal in health and vigor, with most demonstrating positive growth during the first five growing seasons. An additional 301 shrubs were assessed as stressed, and the remaining 63 were dead. Therefore, after five growing seasons, the overall shrub survivorship is approximately 93%. Based on the originally approved number of shrubs (840), 100% survivorship was observed in 2025.

After five growing seasons, 1,606 of the 1,680 planted trees and shrubs have survived, resulting in an overall survivorship of approximately 96 percent. Therefore, it is AECOM's opinion, that RA-4 has significantly exceeded the 75% survivorship performance standard and is compliant with the requirements of the intent of 310 CMR 10.60 (2) (e) and (d); 310 CMR 10.60 (3) and 310 CMR 10.53 (1).

AECOM also evaluated the overall plant community within RA-4, and Table 2 includes the following information for the observed vegetation: type, scientific name, common name, wetland indicator status, nativity status, and on-site prevalence (common, uncommon, etc.).

Table 2. Vegetation observed within RA-4.

Type	Scientific Name	Common Name	Indicator	Status	Presence
Trees	*Acer rubrum**	Red Maple	FAC	Native	Common
	*Acer saccharum**	Sugar Maple	FACU	Native	Common
	Betula lenta	Sweet Birch	FACU	Native	Uncommon
	*Betula populifolia**	Gray Birch	FAC	Native	Common
	Carya cordiformis	Bitternut Hickory	FAC	Native	Uncommon
	*Populus deltoides**	Eastern Cottonwood	FAC	Native	Common
	*Quercus alba**	White Oak	FACU	Native	Common
	*Quercus rubra**	Red Oak	FACU	Native	Uncommon
	Robinia pseudoacacia	Black Locust	FACU	Invasive	Common
	*Pinus strobus**	White Pine	FACU	Native	Common
Shrubs	*Amelanchier canadensis**	Shadbush	FAC	Native	Dominant
	*Cornus amomum**	Silky Dogwood	FACW	Native	Uncommon
	*Cornus racemosa**	Gray Dogwood	FAC	Native	Common
	Elaeagnus umbellata	Autumn Olive	--	Invasive	Common
	Lonicera morrowii	Morrow's Honeysuckle	FACU	Invasive	Common
	*Rhus typhina**	Staghorn Sumac	--	Native	Common
	Frangula alnus	Glossy Buckthorn	FAC	Invasive	Uncommon
	Rosa multiflora	Multiflora Rose	FACU	Invasive	Common
Herbs	*Phleum pretense*	Common Timothy	FACU	Introduced	Common
	Scirpus hattorianus	Mosquito Bulrush	OBL	Native	Uncommon
	Eupatorium perfoliatum	Common Boneset	OBL	Native	Uncommon
	Plantago major	Common Plantain	FACU	Introduced	Common
	Solidago canadensis	Canada Goldenrod	FACU	Native	Common
	Symphyotrichum lanceolatum	Panicled Aster	FACW	Native	Common
	Elymus canadensis	Canada Wild Rye	FACU	Native	Common
	Daucus carota	Queen Anne's Lace	UPL	Introduced	Common
	Trifolium pratense	Red Clover	FACU	Introduced	Dominant
	Glechoma hederacea	Ground Ivy	FACU	Introduced	Uncommon
	Potentilla simplex	Common Cinquefoil	FACU	Native	Uncommon
	Fragaria virginiana	Common Strawberry	FACU	Native	Rare
	Artemisia vulgaris	Mugwort	UPL	Introduced	Common
Vines	*Rubus allegheniensis*	Common Blackberry	FACU	Native	Dominant
	Apios americana	Groundnut	FACW	Native	Common
	Amphicarpaea bracteata	American Hog-Peanut	FAC	Native	Common
	Vitis labrusca	Fox Grape	FACU	Native	Common
	Celastrus orbiculatus	Asiatic Bittersweet	FACU	Invasive	Dominant

* Indicates species planted as part of restoration activities

5. Discussion

Due to hostile vegetative conditions which have persisted within much of RA-3, created by invasive plants and aggressive native species, a vegetation management plan was designed to control the situation and facilitate achieving the long-term plant survival goal of 75% or greater after five years. Over the course of the project monitoring, implementation of hand cutting and herbicide treatments to affected plantings and adjacent areas has allowed for easier access and evaluation of the plantings, allowed for better growth of the plantings in the near term and increased the chances of achieving the long-term survival, beyond the required performance standards. While some invasive plants were observed in RA-4, this restoration area has not been subject to the same level of invasive and aggressive plant growth, as compared to RA-3.

With the goal of remaining compliant with the stated performance standard of 75% survivorship of plant material after 5 years, Tennessee's contractor (Williams Forestry & Associates) has periodically replaced most dead woody plantings on an annual basis. AECOM's assessments have included these replacement woody plantings in the monitoring and reporting, including the calculations of percent survivorship.

Based on the 2025 assessment, the overall survivorship of RA-3 was estimated to be 93% and that of RA-4 was estimated at 96%. Therefore, after five growing seasons, RA-3 and RA-4 have significantly exceeded the 75% survivorship performance standard and are compliant with the requirements of 310 CMR 10.60 (2) (e) and (d); 310 CMR 10.60 (3) and 310 CMR 10.53 (1).

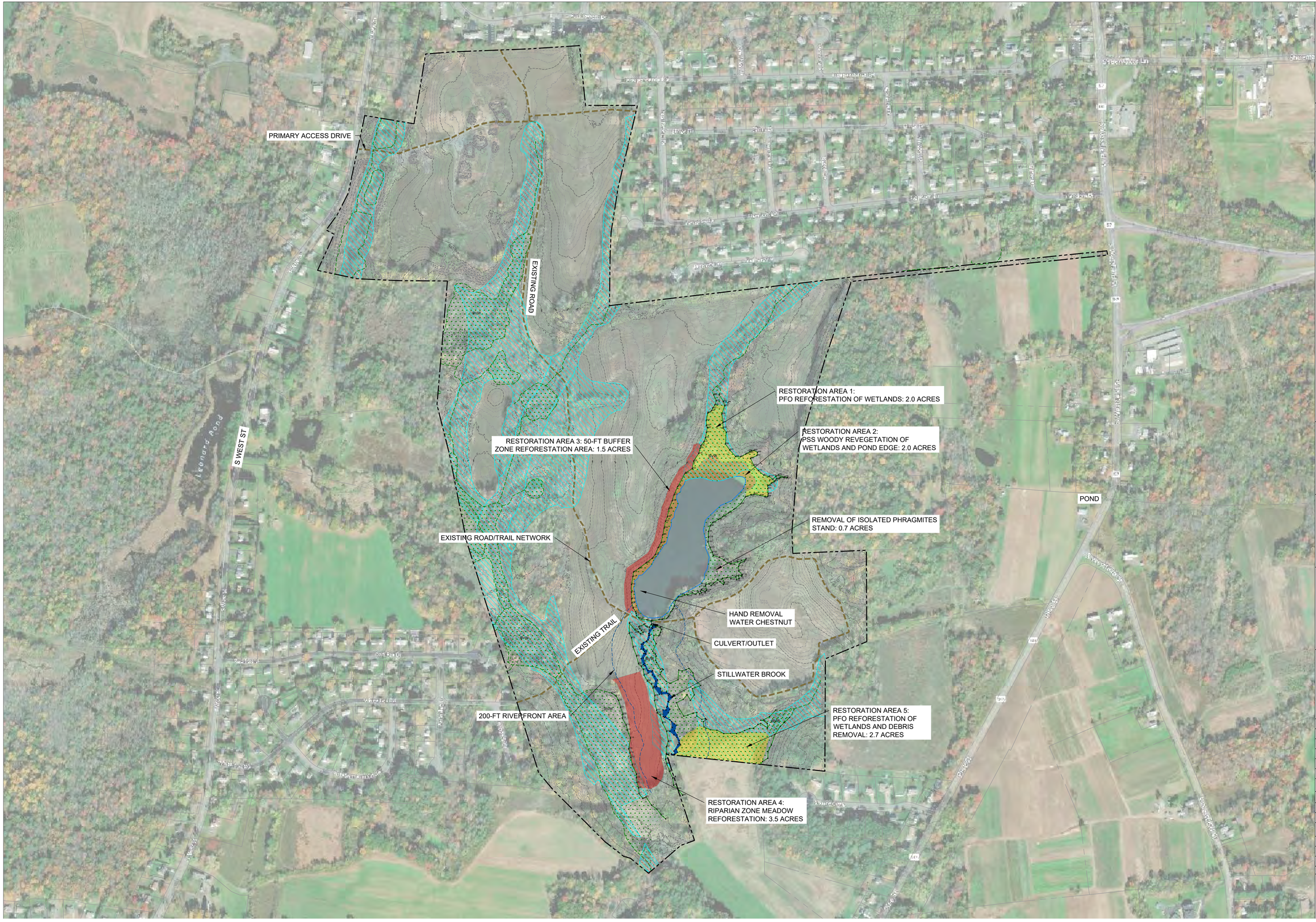
6. Conclusions

Within RA-3, the combined survivorship of all planted trees and shrubs was estimated at approximately 93%. Within RA-4, the combined survivorship of all planted trees and shrubs was estimated at approximately 96%. Therefore, after five growing seasons, RA-3 and RA-4 significantly exceed the 75% survivorship performance standard and are compliant with the requirements of 310 CMR 10.60 (2) (e) and (d); 310 CMR 10.60 (3) and 310 CMR 10.53 (1). Based on the results of the 2025 (final) monitoring year, the restoration areas substantially exceed the performance standard of 75% survivorship of trees and shrubs after five years.

Based upon 2025 observations and monitoring data, it is AECOM's professional opinion that the compensatory mitigation areas also meet the conditions of 310 CMR 10.55 (4), and all applicable conditions within the ACC's OOC, as well as commitments made in the Notice of Intent.

Attachment A

Compensatory Wetland Mitigation Plan, Offsite Mitigation Details


PRIMARY ACCESS DRIVE
EXISTING ROAD
RESTORATION AREA 1:
PFO REFORESTATION OF WETLANDS: 2.0 ACRES
RESTORATION AREA 2:
PSS WOODY REVEGETATION OF
WETLANDS AND POND EDGE: 2.0 ACRES
RESTORATION AREA 3: 50-FT BUFFER
ZONE REFORESTATION AREA: 1.5 ACRES
REMOVAL OF ISOLATED PHRAGMITES
STAND: 0.7 ACRES
EXISTING ROAD/TRAIL NETWORK
HAND REMOVAL
WATER CHESTNUT
EXISTING TRAIL
CULVERT/OUTLET
STILLWATER BROOK
200-FT RIVERFRONT AREA
RESTORATION AREA 5:
PFO REFORESTATION OF
WETLANDS AND DEBRIS
REMOVAL: 2.7 ACRES
RESTORATION AREA 4:
RIPARIAN ZONE MEADOW
REFORESTATION: 3.5 ACRES
POND
S WEST ST
Leonard Pond
Powers Rd
Stillwater Ln
Meadow Ln
Pheasant Run
Deer Run Dr
Forest Dr
Hillcrest Rd
Meadowbrook Rd
Sunset Hill Rd
Old Stage Rd
Old Stage Rd E
Old Stage Rd W
Shaker Rd
Shaker Ln
Shaker Rd
Shaker Rd
Shaker Rd

PLANT RESTORATION SCHEDULE

Wetland Restoration Areas

Cover Type	Abbrev.	Scientific Name	Common Name	Size	Restoration Area 1	Restoration Area 2	Restoration Area 5
				Total Enhancement Area (sf)	87,454	86,760	116,894
	Ar	Acer rubrum	Red Maple	4-6'	96		129
	Ba	Betula alleghaniensis	Yellow Birch	4-6'	96		129
	Pd	Populus deltoides	Cottonwood	4-6'	96		129
	Qb	Quercus bicolor	Swamp White Oak	4-6'	96		129
	Sn	Salix nigra	Black Willow	4-6'	96		129
Shrubs	Ai	Alnus incana	Speckled Alder	3-4'	96	96	
	Ca	Cornus amomum	Silky Dogwood	3-4'	96	96	
	Cs	Cornus sericea	Red Osier Dogwood	3-4'	96	96	
	Sc	Sambucus canadensis	Common Elderberry	3-4'	96	96	
	Vd	Viburnum dentatum	Northern Arrowwood	3-4'	96	96	
Herbaceous		New England Moist Seed Mix (Lbs)		35lbs/acre		X	X
Herbaceous		New England Wet Seed Mix (Lbs)		18lbs/acre	X		

Upland Restoration Areas					Restoration Area 3	Restoration Area 4
				Total Enhancement Area (sf)	65,716	151,826
Trees	Ar	Acer rubrum	Red Maple	4-6'	52	120
	As	Acer saccharum	Sugar Maple	4-6'	52	120
	Bp	Betula populifolia	Gray Birch	4-6'	52	120
	Pd	Populus deltoides	Cottonwood	4-6'	52	120
	Ps	Pinus strobus	White Pine	4-6'	52	120
	Qa	Quercus alba	White Oak	4-6'	52	120
	Qr	Quercus rubra	Red Oak	4-6'	52	120
Shrubs	Ac	Amelanchier canadensis	Shadblow	3-4'	91	209
	Ca	Cornus amomum	Silky dogwood	3-4'	91	209
	Cr	Cornus racemosa	Gray Dogwood	3-4'	91	209
	Rt	Rhus typhina	Staghorn Sumac	3-4'	91	209
Herbaceous		New England Semi-Shade Grass and Forbs Mix (Lbs)		30lbs/acre	X	
Herbaceous		New England Erosion Control/Restoration Mix for Dry Sites (Lbs		35lbs/acre		X

Tree quantities specified are based off the USDA New England Forest: Baseline for New England Forest Health Monitoring report.
Trees shall be installed not less than 10 feet on center.
Shrubs shall be planted in clusters of 2 or 3, and shall be installed not less than 3 feet on center.
Areas within planting areas not 100% vegetated with existing herbaceous plants will be seeded with the appropriate seed mix at the manufacturers specified rate to cover the bare area.
A wetland scientist or landscape architect shall provide supervision of the plant layout.
Plant substitutions may be necessary due to commercial availability. Substitutions shall be approved by the supervising wetland scientist or landscape architect.

New England Wetmix (Wetland Seed Mix)

Botanical Name	Common Name	Indicator
Carex vulpinoidea	Fox Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Carex lurida	Lurid Sedge	OBL
Carex lupulina	Hop Sedge	OBL
Poa palustris	Fowl Bluegrass	FACW
Bidens frondosa	Beggar Ticks	FACW
Scirpus atrovirens	Green Bulrush	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Carex crinita	Fringed Sedge	OBL
Vernonia noveboracensis	New York Ironweed	FACW+
Juncus effusus	Soft Rush	FACW+
Aster lateriflorus (Symphyotrichum lateriflorum)	Starved/Calico Aster	FACW
Iris versicolor	Blue Flag	OBL
Glyceria grandis	American Mannagrass	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL

Apply: 18 lbs/acre

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York Ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens frondosa	Beggar Ticks	FACW
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia)	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+

Apply: 35 lbs/acre

New England Erosion Control/Restoration Mix for Dry Sites

Botanical Name	Common Name	Indicator
Elymus canadensis	Canada Wild Rye	FACU+
Festuca rubra	Red Fescue	FACU
Lolium multiflorum	Annual Ryegrass	
Lolium perenne	Perrenial Ryegrass	
Schizachyrium scoparium	Little Bluestem	FACU
Panicum virgatum	Switch Grass	FAC
Sorghastrum nutans	Indian Grass	UPL

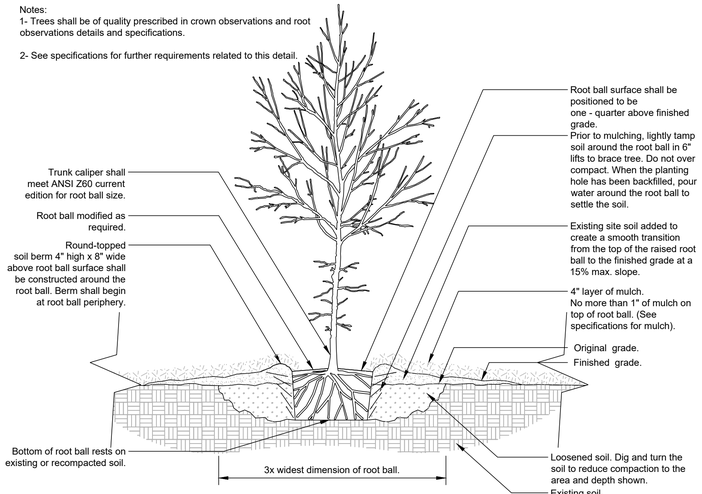
Apply: 35 lbs/acre

New England Semi-Shade Grass and Forbs Mix

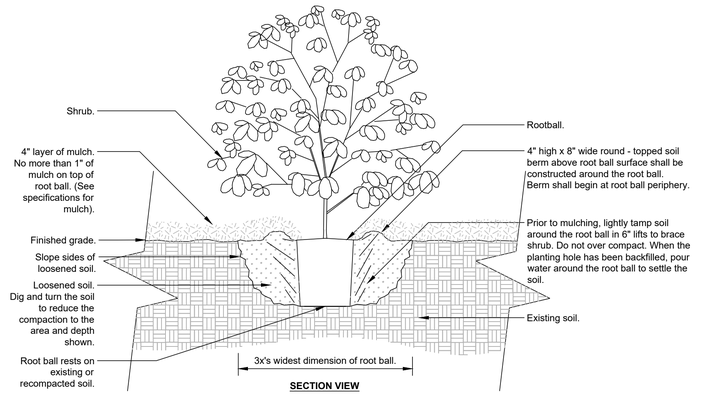
Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Elymus canadensis	Canada Wild Rye	FACU+
Festuca rubra	Red Fescue	FACU
Chamaecrista fasciculata	Partridge Pea	FACU
Liatris spicata	Spiked Gayfeather/Marsh Blazing Star	FAC+
Onoclea sensibilis	Sensitive Fern	FACW
Aster prenanthoides (Symphyotrichum prenanthoide)	Zigzag Aster	FAC
Eupatorium fistulosum (Eutrochium fistulosum)	Hollow-Stem Joe Pye Weed	FACW
Eupatorium perfoliatum	Boneset	FACW
Juncus tenuis	Path Rush	FAC

Apply: 30 lbs/acre

Source: Seed mixes referenced herein are provided by New England Wetland Plants, Inc.

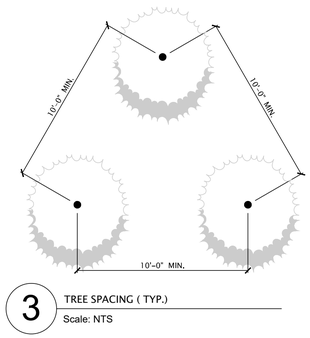


1 TREE PLANTING DETAIL
Scale: NTS

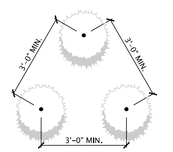


Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

2 SHRUB PLANTING DETAIL
Scale: NTS



3 TREE SPACING (TYP.)
Scale: NTS



4 SCRUB SPACING (TYP.)
Scale: NTS

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Project Title:
LINE 261B LOOPING PROJECT
AGAWAM, MA

Sheet Title:
OFFSITE MITIGATION POND PLANTING DETAILS, SCHEDULE AND SEEDING MIXES

Date:	8/20/2019
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Checked by:	MM
File #	45687.00

REVISIONS

Date:	By:	Note:
10/11/19	TS	PROPERTY LINE REVISION

Sheet No:
2.0

WOODY PLANT INSTALLATION GUIDANCE

Site Preparation

The Planting hole must be dug no deeper than the container as measured from the trunk flare to the bottom of the ball. Planting holes dug deeper than the container often result in the settling of the plant above the trunk flare and structural roots which can result in the rootball being planted too deep. Research shows that the fibrous or absorbing roots of most woody plants are usually found within the top 6 to 12 inches of soil, and since root development often extends beyond the canopy or dripline, it is recommended that the planting area be loosened and aerated at least 3 to 5 times the diameter of the container.

Planting Hole Preparation

One of the most common errors in tree planting is that the rootball is either planted too deep or too high, both of which can cause serious problems. To properly plant container plant material, start by locating the point at which the trunk flare begins. Measuring from the trunk flare to the bottom of the ball will give the correct planting hole depth.

Alternatively, if the trunk flare is not well developed, the rootball can be probed for structural roots using a surveyor's chaining pin or similar tool. Generally, the uppermost structural roots in the rootball should be planted within 1-3 inches of the soil surface, measured 2-5 inches from the trunk.

The Integrity of the rootball should be maintained until it is secure in the hole. In the event that some of the soil falls away from the roots, proceed with the planting, taking care to ensure that the roots do not dry out from sun or wind. The planting hole size should be approximately 3 to 5 times the width of the container and have sloping sides.

Setting the Plant

Carefully set the plant in the hole so that the trunk flare is at, or 1 to 2 inches above, the existing grade. Once the plant is properly placed, remove the container and reset the rootball in the prepared hole.

Backfilling the Planting Hole

According to research, backfilling with soil dug from the planting hole is preferable to mixing the soil with large amounts of organic soil amendments such as peat moss, compost, etc. The addition of an organic soil amendment may be called for if the existing soil is of poor quality, such as excessively sandy or heavy clay soils or those consisting of undesirable fill material. Alternatively, quality topsoil, similar in texture to the existing soil, may be brought in and used for backfilling.

While backfilling the hole, it has been customary to tamp the soil to avoid leaving large air pockets. However, this practice often results in the soil being packed so firmly as to drive out all the fine air spaces needed for a well-aerated soil. An alternative to tamping the soil would be to water the soil halfway through the backfill process and allow it to drain. When the water has drained away, resume backfilling and water again thoroughly. If the practice of tamping the soil is chosen, it should be done lightly so as to not compact the soil in the planting hole.

To complete the backfilling, smooth the surface soil and check to ensure that the trunk flare is completely exposed (The structural roots should be within the top 3 inches of soil as measured 4 inches from the trunk).

Fertilizing

Fertilization should be avoided unless it is determined in the field that nutrient availability is insufficient for establishment. Fertilization is not likely to be effective during the first growing season, as long as there is no nutrient deficiency. Avoid placing water-soluble {quick release) nitrogen fertilizer directly in the planting hole as this may cause injury to roots. If needed, a slow release or organic form of nitrogen could be mixed into the planting area or be applied on the soil surface around the tree basin.

Staking

While there are many opinions on the method and value of staking trees at planting time, most experts agree that staking is not necessary for all trees. Trunk strength, size of the canopy, wind direction and site traffic problems should all be considered before staking a tree. Research has shown that staked trees may develop a smaller root system and decreased trunk taper. Based on the prescribed installation sizes staking should not be necessary on this project.

Mulching

Mulching is a cultural practice that can be of benefit in the landscape when done correctly. Mulching will reduce weeds, moderate soil temperatures, conserve soil moisture in the root zone, and add an aesthetic quality to the landscape. However, improper mulching can impair plant health and may lead to the decline of the plant material.

Pruning

After transplanting, prune only broken or damaged branches. Top pruning to compensate for root loss is no longer recommended. It is important to leave as much foliage on the tree as possible because carbohydrates and other products produced by photosynthesis in the leaves are necessary for root system regeneration and development.

Tree Wrapping

The bark on a tree or shrub is as important as skin to an animal. It acts as a barrier to exclude insects and disease organisms from the vascular system, which lies directly under the bark. Some bark injuries may occur because of damage from the sun {sunscald) or temperature extremes {frost cracks). For many years, it has been a common practice to use tree wrap on newly planted or thin-barked trees in an effort to reduce sun or temperature damage to the bark.

Research has found that some tree wraps may not provide the protection that was originally intended. In experiments using plastic tree guards on dogwoods, large numbers of dogwood borers were found under the guards while few were found in trees without guards. In addition, some tree wraps were found to retain excess moisture beneath the wrap. This may encourage fungal or bacterial growth, especially if there were pre-existing wounds in the trunk.

If tree wrap is to be used, it is recommended that appropriate material be selected, checked frequently, and the wrap be removed during periods of active growth.

SEEDING GUIDANCE

Seed Methodology

The following methodology provides sequencing for establishing the seed mixes prescribed on the accompanying details sheet. This process should begin following final grading. This methodology does not specify a temporary cover crop. A cover crop may be needed to stabilize the site depending on weather conditions and construction timing relative to the seasons and the ideal time frame for establishing the seeded areas. The best time to seed for this project is in the spring when the soils are at a normal moisture content level (moist, not saturated) and no later than June 30. Weather forecasts should be monitored as occasional watering may be necessary if a dry spring season occurs. The seeding sequence should begin no longer than 48 hours after final grading. Site stabilization techniques should be utilized in this 48-hour time period.

Soil Scarification/ Seed Bed Preparation

Seed bed preparation is the process of scarifying and loosening the soil surface in order to create a loose, friable, soil surface. The soil surface should be a uniform planar surface that is flat and without excessive ridges, furrows, ruts or mounds and low spots where water can collect. Soil scarification should only when weather, soil conditions, and construction phasing allows for no longer than 48 hours between scarification (the beginning of the seeding process) and covering the seed with weed free straw mulch (not hay). The soil should be scarified to maximum depth of 3 inches (see below). During this process, areas where coarse gravel dominates the soil surface should be identified and amended with fine sandy-soil common borrow generated from on-site earthwork. The importation of topsoil should be a last resort and only used as an amendment for “localized” spots that lack the characteristics of a soil seed bed.

Seed Application

A well-prepared seed bed provides a loose friable soil surface for which the seed can be sown into. Seed application is a two-part process: 1) seed application at proper rates per acre and 2) sow the seed into the soil ¼ to ½” depth maximum. Appropriate seed rates for each prescribed seed mix are specified on the accompanying details sheet.

Seeding by Hand: Check the seed label prior to opening the bulk bag to confirm the correct seed is being applied to the specified location. The bulk bags of seed should be agitated by hand on site to redistribute the seeds in the matrix before spreading. In bare areas a weed free straw mulch may be used to cover the soil surface following the seed application.

Sowing the Seed: Once the seed is spread the seed must be sown into the soil to the depth above in order to increase chances of germination by keeping soil moisture close to the seed. The seed can be sown by a number of ways including “tracked” in with a low PSI rubber tire or tracked machine, using a York landscape rake or similar, or the traditional means of using a metal leaf rake.

Reseeding

Areas to be reseeded shall follow the same seeding sequence outlined above. It is expected that some seeded areas may not germinate, but that over time the planted areas shall fill in through seed proliferation and growth habits. Areas large enough to be identified through monitoring as being dominated by weeds or other invasive species that have out competed the specified seed mix or areas deemed unstable due to low plant growth shall be reseeded accordingly.

Plant Succession Notes

It is possible that over time some seeded areas might become dominated by native plant species existing in the soil seed bank. One example of this is the likelihood that various types of native ferns could emerge in shaded areas. No species of ferns are in the prescribed seed mix, but are highly desirable species that can exist and thrive in the identified planting areas adding to landscape diversity. Native species such as ferns that emerge due to being in the soil seed bank should remain. Thorough and regular monitoring during the maturation of the establishment areas is a key component to balancing areas to be reseeded and areas where successional plant growth of natives should be allowed to thrive.

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DRAFT

DEP Review/Approval:
DEP File No. 087-0644
WQC Transmittal No. X281739

Project Title:
LINE 261B LOOPING PROJECT
AGAWAM, MA

Sheet Title:
OFFSITE MITIGATION PLANT AND SEED INSTALLATION GUIDANCE

Date:	8/20/2019
Scale:	As Shown
Drawn by:	TS
Checked by:	MM
File #	45687.00

REVISIONS

Date:	By:	Note:
10/11/19	TS	PROPERTY LINE REVISION

Sheet No:
3.0

Attachment B

Agawam, MA Conservation Commission Order of Conditions



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
SPECIAL CONDITIONS

Tennessee Gas Pipeline Line 261 Upgrade Projects - #87-0644

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the permittee shall be responsible for maintaining a copy of this Order at the site. The permittee shall be responsible for compliance with the conditions of this Order.

4. Prior to the start of any activity on the site other than the installation of the erosion controls and flagging, the permittee shall request a pre-construction meeting with the Conservation Commission and/or its representative, and the contractors responsible for the work to review the Conditions of this Order and ensure that they are understood. This meeting shall take place at a regularly scheduled Conservation Commission meeting.

5. The Agawam Conservation Commission requires permittee or owner to cover the costs associated with hiring a third party consultant to work for the Commission to monitor work on the site under M.G.L. Ch. 44 section 53g. Monitoring shall include bimonthly compliance inspections. Inspections must also be scheduled by the permittee to review the initial installation of ECDs, the installation of stream crossings, the HDD stockpiling, the installation of dewatering structures, and post-construction mitigation and restoration.

6. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

7. The project engineer/designer shall be held responsible and accountable for the true and accurate implementation and construction of his/her design or plan. Should any accidental deviation from the approved plan occur, the engineer/designer shall notify the Commission immediately to determine if a new Notice of Intent is required. If any changes to the approved plan are anticipated, the engineer/designer shall likewise notify the Commission in writing of any proposed changes in construction methodology or design necessary to complete this project. Based upon submittals under this Condition, the Commission will determine whether any proposed changes will require an "Amendment" to this Order or if a new Notice of Intent is required. In any case the Commission may deny any deviation, accidental or intended, from the approved plan.

8. The permittee will comply with its Spill Prevention and Control Plan (SPCP).

9. Resource Area (Areas Subject to Protection under M.G.L. c. 131, § 40. as stated under 310 CMR 10.02(1) and Buffer Zone (as defined under 310 CMR 10.04 Buffer Zone) boundaries shall be demarcated with clearly visible signs and such signs shall be maintained throughout the construction phase.

10. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

11. This Order shall apply to all successors or assignees in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this Order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this Order is recorded.

12. The petitioner shall have recorded in the Hampden County Registry of Deeds an "Order of Conditions Form" provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

13. The contractor is responsible for maintaining a stockpile of erosion controls on-site, which is equivalent to 25% of the total approved erosion controls within Resource Areas and Buffer Zones for the project.

14. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

15. The Conservation Commission shall be copied on all submittals to the MA DEP relating to this project.

16. Prior to the initiation of any activity otherwise permitted by this Order, the permittee shall prepare a detailed dewatering plan for all proposed discharges and dredging within Resource Areas at the Site, and specific to each such dewatering location/crossing. This dewatering plan shall minimally include identification of techniques for bypass of water around each area of discharge; and separately, identification of techniques for treatment of residual water ("seepage water") within each area of discharge. All such plans shall completely segregate bypass water from residual water.

Construction Monitoring

17. An Environmental Inspector (EI) shall be present with crews when any activity is taking place within MA WPA jurisdiction (Resource Areas and Buffer Zones). If work is taking place within more than one jurisdictional location additional EIs are required to ensure appropriate oversight. The permittee shall nominate EIs and provide credentials to the Commission for their review and approval.

18. EI's shall submit electronic (email) weekly inspection reports with color photographs to the Conservation Commission. Reports shall be submitted to Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us.

19. The Commission shall be immediately notified by the EI in the event that there is an inadvertent return during the HDD process. Notification shall be provided to Pamela Kerr, Assistant Planner/Conservation Officer via phone (413) 726-9737 and email to PKerr@agawam.ma.us.

20. Prior to the start of work, the permittee shall nominate one or more compliance monitors in writing, who shall be accepted in writing by the Commission. Nominated compliance monitors shall have adequate and relevant education, training, and/or experience necessary to understand and perform the duties described herein, and the Commission reserves the right to accept nominees based upon its review of such education, training, and/or experience, as documented in resumes submitted to the Commission. The approved compliance monitor(s) shall personally observe all "construction activity" at all times within all MA WPA Resource Areas and Buffer Zones permitted by this Order and subject to it (said compliance monitor can be the same person identified at Condition #17 and Condition # 21 of this Order). For purposes of this Order, "construction activities" are all activities (as defined at 310 CMR 10.04 Activity) within Resource Areas and Buffer Zones which entail the initial placement and/or extraction of fill or materials and the initial excavation or dredging of substrate:

    a. including the placement and the extraction of the proposed construction mats and temporary storage of spoils;

    b. the initial placement of cofferdams, flume pipes, and any other devices or material into standing water within Resource Areas;

    c. the initial placement of fill, and scarification and excavation of soil into Bordering Vegetated Wetlands;

    d. the extraction of temporary fill from any Resource Area; and

    e. The removal and placement of any material or substance from or into a Resource Area for purposes of compensatory mitigation which is required in this Order.

The compliance monitor(s) are not required to be present for any work:

f. taking place within the area dewatered by the proposed temporary cofferdams and either pumps or flume pipes;

g. taking place upon the surface of construction mats or temporary fills after their initial placement; or

h. taking place in areas that are not jurisdictional Resource Areas under the MA WPA regulations 310 CMR 10.00.

In addition to the above, the compliance monitor(s) shall conduct a thorough inspection of the site within 24 hours of any rainfall which equals or exceeds 0.5 inches within 24 hours (as measured from the nearest applicable station on the NOAA "Daily Summaries Map", see https://gis.ncdc.noaa.gov/maps/clim/summaries/daily) or at least once every calendar week during active construction in the absence of a threshold rainfall event as outlined above.

While performing these duties the compliance monitor(s) shall confirm that all relevant Conditions of this Order are being complied with at all times whilst they are present.

While on site, the compliance monitor(s) shall sufficiently document any and all observed noncompliance with any of the Conditions of this Order. The compliance monitor(s) shall submit such electronic documentation to: Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us. This electronic documentation shall be in the form of a concise written report which adequately describes the noncompliant activities and/or conditions and cites the Condition(s) which have been violated, and shall always be accompanied by the submittal of digital photographs, which shall clearly and adequately show the nature and extent of noncompliant activities and/or conditions and support the written report. This electronic documentation shall be submitted as such noncompliance is occurring and/or is first noted by the compliance monitor(s). If, in unusual circumstances, this is not physically possible, then the compliance monitor(s) shall submit electronic documentation within no more than four (4) hours of the initial observance of the noncompliant activity and/or condition. Within this same time period, the compliance monitor(s) shall also report the noncompliant activities and/or conditions via telephone to Pamela Kerr, Assistant Planner/Conservation Officer (413) 726-9737. Failure to comply with this Condition will constitute a violation of this Order and could result in enforcement actions taken by the Commission. Failure of any compliance monitor to fulfill these duties in compliance with this Condition is grounds for a potential enforcement action against the permittee. The permittee, its employees, agents, successors, and assigns shall not impede the compliance monitor(s) in the performance of their duties under this Order. Any change in staffing of the compliance monitor(s) must be approved by the Commission per Condition #7 of this Order.

In-situ Resource Area Restoration

21. Prior to the start of construction, the permittee shall nominate a wetland scientist(s) in writing, who shall be accepted in writing by the Commission. Nominated wetland scientist(s) shall have at least five (5) years of experience in developing "Compensatory Mitigation Area" plans for Bordering Vegetated Wetland ("BVW") alteration per 310 CMR 10.55(4)(b)l. through 7., inclusive, and at least five (5) years of experience developing "restoration/mitigation" plans for Riverfront Area alteration per 310 CMR 10.58(4)(d)l. a. and c. and 310 CMR 10.60(2)(e). The Commission maintains the right to approve or deny the nominee based upon the individual's level of experience as it relates to the successful construction and completion of BVW "Compensatory Mitigation Areas" and Riverfont Area and Buffer Zone "Restoration and Enhancements". Any change in staffing of the wetland scientist(s) must be approved by the Commission per Condition #7 of this Order.

22. By no later than November 30, 2020 the permittee shall restore all Resource Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/No Temporal Loss" and "Temporary Fill/Permanent Conversion/Off-site Compensation" prepared by SWCA Environmental Consultants, and dated August 5, 2019 and other sections of the plans of record as modified by the WQC Transmittal Number X281739 and this Condition as follows:

    Prior to initiation of any activities otherwise permitted within this Order, the permittee shall prepare and submit a clearer format for Table 3-2 of the "In-Situ Wetland Restoration Planting Table for 261 Upgrade Projects" and Table 3-3 of the "In-Situ Riverfront Area Restoration Planting Table for 261 Upgrade Projects; and,

    Prior to initiation of any activities otherwise permitted within this Order, the permittee shall provide a seed mix list composed of hydrophytes indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

    1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
    2. shall not include seed from non-Massachusetts ecotype sources; and
    3. shall not include non-indigenous subspecies, cultivars, or varieties.

23. By no later than June 1, 2021, or such later date as may be approved by the Commission in writing, the wetland scientist(s) shall complete monitoring of the status of each Resource Area in which temporary earthen fills, trenching, and construction mats have been removed and the topography reestablished per this Order via a field inspection. Based upon this field inspection, the wetland scientist(s) shall report the condition of *in-situ* restoration within the footprint of each Resource Area from whence earthen fills or construction mats have been removed and trenches have been closed via the submittal of a "Letter of Certification" to the Commission, which shall be sent to the Commission on or before July 1, 2021. Based upon the results of the field inspection the wetland scientist(s) or their designees shall adequately certify, through signature and inclusion of professional stamps, if any, that there is no noticeable adverse impact to the hydrophytic plant community, soil characteristics and microtopography, and/or surface and near surface hydrology from the placement and removal of earthen fills and construction mats nor the replacement of overburden in trenches within Resource Areas.

24. If the approved wetland scientist(s) or their designee determines that they cannot certify that there is no noticeable adverse impact to specific Resource Area per Condition #23, said wetland scientist(s) or their designee shall contact the Commission within two (2) business days of said discovery. Any such written notification must include a "corrective plan of action", which shall be implemented by the permittee according to a schedule and conditions established in writing by the Commission. The Commission maintains the right to take enforcement action for any such noncompliance, in addition to its right to require adherence to the several Conditions of this Order.

25. See Special Condition #27 for monitoring requirements for Resource Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss"

Off-site Resource Area Mitigation

26. The Permittee shall conduct a Rehabilitation project within designated BVW, Riverfront Area and Buffer Zone upon the Tuckahoe Turf Farm (referred to as Assessor's Map C7, Lot 2-4, with frontage on Southwest Road) per the plan of record titled "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA", (Sheet 1.0), prepared by SWCA Environmental Consultants, and dated October 11, 2019.

    This Rehabilitation project shall be completed prior to any work commencing on the 261 Upgrade Project and no later than June 1, 2020

    No less than **291,108** square feet of BVW which is presently anthropogenically modified and herbaceous-dominated emergent marsh and wet meadow shall be planted with indigenous woody hydrophytes per the Planting Schedule at "Offsite Mitigation Plant and Seed Installation Guidance, Line 261B Looping Project, Agawam, MA", (Sheet 3.0), prepared by SWCA Environmental Consultants, and dated October 11, 2019 within the

Areas designated on the above-referenced "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA".

This Rehabilitation shall include no less than the Reforestation of **1.5 acres** of open field on the west side of the irrigation pond with supplemental tree plantings and Restoration of **3.5 acres** of open upland field on the southern end of the property within the riparian zone of Still Brook with supplemental tree and shrub plantings within the Areas designated on the above-referenced "Offsite Mitigation Plan, Line 261B Looping Project, Agawam, MA".

Upon planting, each planted shrub or sapling shall be identified with a tag which clearly indicates the planting as a restoration planting. The design and materials of such tags shall be approved by the Commission prior to use.

Prior to initiation of any activities otherwise permitted within this Order, the permittee shall provide a seed mix list composed of suitable upland forbs indigenous to Hampden County, Massachusetts and developed specifically for application in vegetated wetlands. The vendor shall be specifically identified, and that vendor shall certify in writing that:

1. All listed species are identified by scientific name (use *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011);
2. shall not include seed from non-Massachusetts ecotype sources; and
3. shall not include non-indigenous subspecies, cultivars, or varieties.

27. The wetland scientist(s) approved by the Commission or their approved designee shall monitor the status of the Compensatory Mitigation Areas shown on the plans of record and labeled "Temporary Fill/In-Situ Restoration/Temporal Loss" and the Resource Area Rehabilitation at the Tuckahoe Turf Farm in calendar years 2021 through and including 2025, and then until such time as these Compensatory Mitigation Areas function in accordance with 310 CMR 10.55(4) as established by data collected during monitoring.

BVW monitoring shall include, at a minimum, the collection of all data required in pages 1 and 2 of "Wetland Determination Data Form – Northcentral and Northeast Region" [as found. within US Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,* ed. J. S. Wakeley, R. W. Lichvai·, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0)]. All vascular plants within each separate (shown as a distinct polygon on plans of record) Compensatory Mitigation Area shall be identified to the species level. Scientific nomenclature shall follow *The Vascular Plants of Massachusetts: A County Checklist-First Revision,* by

Melissa Dow Cullina, Bryan Connolly, Bruce Sorrie and Paul Somers (Massachusetts Natural Heritage & Endangered Species Program, Massachusetts Division of Fish and Wildlife, 2011), or an equivalent acceptable to the Commission (as established in writing). At least one (1) "Wetland Determination Data Form" shall be completed for one (1) distinct "Observation Plot" within each Compensatory Mitigation Area. Sampling shall take place at least once in each growing season in the years specified in this Condition. During each sampling event digital color photographs shall be taken of each of the Observation Plots within the Compensatory Mitigation Areas. Additionally, an inventory of all tagged planted woody hydrophytes shall be performed documenting the number of dead or failing specimens.

Riverfront Area and Buffer Zone monitoring shall include at a minimum, detail the status of non-indigenous plant species control efforts, planting/seeding success, substrate stabilization, provision of characteristics conducive to the "interests" of the Act, and any recommended adjustments that will meet the intent of 310 CMR 10.60(2)(d), and 310 CMR 10.60(3); and 310 CMR 10.58(4)(d)l.a. and c. and 310 CMR 10.60(2)(e). Minimally, each report shall contain a floral inventory for each of the entire "Restoration Areas", with indigenous status, and relative abundance for each documented species (abundant, common, uncommon, trace), and adequate photo-documentation from fixed and repeatable stations.

All data collected during each of the years specified in this Condition shall be submitted in a written report entitled "Compensatory Mitigation Areas Monitoring Report-TGPC, Agawam, Massachusetts". A draft copy shall be submitted to the Commission on or before November 30th of each year specified by this Condition. A final copy shall be sent to the Commission within thirty (30) calendar days of the receipt of draft comments by the Commission, if any. Reports shall be submitted to Pamela Kerr, Assistant Planner/Conservation Officer PKerr@agawam.ma.us.

28. Based upon the data collected during sampling events, the wetland scientist(s), or the Commission upon its own discretionary initiative, shall render a conclusion within each report required by Condition #27, as to the success of each separate Compensatory Mitigation Area in terms of 310 CMR 10.55(4), 310 CMR 10.60(2)(d); 310 CMR 10.60(3); 310 CMR 10.58(4)(d)l.a. and c.; 310 CMR 10.60(2)(e) and 310 CMR 10.53(1). If, at the end of the second growing season or any time thereafter, the wetland scientist(s), or the Commission upon its own discretionary initiative, render a conclusion that a given Compensatory Mitigation Area has failed the standards specified at 310 CMR 10.55(4), said wetland scientist(s) shall prepare and submit a written **"corrective plan of action"** no later than the end of that calendar year to the Commission for approval. The approved "corrective plan of action" shall be implemented the next growing season under the supervision of a wetland scientist approved by the Commission, and shall be monitored via the requirements specified in the several Conditions of this Order.

Preservation

29. The permittee shall effectuate the legal transfer in fee simple of the portion of land referenced to in the plans of record as the "Dean Property" (Tax Parcel 15-1-15, with frontage on Suffield Street) and specifically those portions of said property identified as Conservation Area #1 (3.29 acres) and Conservation Area #2 (3.03 acres), to the Town of Agawam for the purpose of perpetual conservation. The permittee shall effectuate the recordation of a Conservation Restriction for portions of the Dean Property to be approved by the Department and described and delineated on a site plan to be labeled "Dean Property Conservation Restriction Areas, Town of Agawam, Massachusetts", prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel.

30. The permittee shall effectuate the recordation of a Conservation Restriction for portions of the Tuckahoe Turf Farm designated as Conservation Areas 1 through 5 to be approved by the Department and described and delineated on a site plan to be labeled "Tuckahoe Turf Farm Conservation Restriction Area, Town of Agawam, Massachusetts", prepared in accordance with MGL c. 194, §§ 31 through and including 33, signed by the Secretary of the Executive Office of Energy and Environmental Affairs, and duly recorded against the deed for said parcel.

Notification and TOY Restrictions for Tarkill Brook Worthington Brook and two (2) unnamed tributaries

31. Activities below the upper Bank as defined under 310 CMR 10.54(2)(c) and within Land Under Waterways (LUW) as defined under 310 CMR 10.56(2)(c) associated with Tarkill Brook, Worthington Brook, and two (2) unnamed tributaries shall take place between July 1st and September 30th of any given year. Work within Land Under Waterways may continue after September 30th only if the area of proposed work is hydrologically isolated through mechanical means from surface water after June 30th but before October **1st** of that year, as confirmed and approved through Condition #7 of this Order. Any proposed modification under Condition #7 of this Order not conforming to this Condition of the Certification shall only occur after a written request has been submitted to the Commission. The request shall specify the exact position and extent of any proposed in-stream work not in conformance with the above time-of-year (TOY) window; and shall detail why such work must take place outside the specified time period and any additional erosion and sedimentation controls necessary as a result of such proposed work. The Commission reserves the right to deny any such request if a practicable alternative exists, as determined by the Commission and MA DEP.

32. Worthington Brook (SARIS ID 3417450) is designated as a Coldwater Fish Resource by the Massachusetts Division of Fisheries and Wildlife, and therefore meets the definition of "cold-water fisheries" at 314 CMR 9.02. As such, this reach is either habitat for brook

trout *(Salvelinus fontinalis)* and other coldwater fish species, or consists of habitat potentially viable for brook trout and other coldwater fish species. Therefore, this Order requires the permittee to notify the Commission in writing at least seventy-two (72) hours in advance of any proposed activities with twenty-five (25) feet of the upper Bank of this waterway. The Commission reserves the right to require additional protective measures for any work within twenty-five (25) feet of the upper Bank of this waterway, based upon actual field conditions. Any proposed deviation from this provision must be requested in writing per Condition #7 of this Order. The Commission maintains the right to deny any proposed modifications to this Condition that, in the opinion of the Commission, would present short- or long-term adverse effect to the habitat requirements of brook trout, and other cold-water fisheries.

Activities within Bank and Land under Waterways

33. Between forty (40) calendar days and twenty (20) calendar days prior to the start of any work otherwise permitted by this Order within LUW, the signatory Registered Professional Engineer (RPE) who affixed her/his stamp upon the plan(s) of record shall conduct a site inspection to determine:

    a. If the upper Bank, as defined.by reference at 310 CMR 10.54(2), or any other pertinent geomorphic feature of the subject LUW, has moved from the position shown on the plan(s) of record, such that the proposed work cannot be completed according to the plan(s) of record, and/or such that the proposed work would result in a greater aerial extent of "discharge of dredged or fill material" to Resource Areas than is permitted by this Order.

    b. Within 24 hours of this inspection, the signatory RPE shall submit a written confirmation that the upper Bank, or any other pertinent geomorphic feature, has **not** substantially moved; or

    c. The signatory RPE shall alert the Commission in writing to any movement that is substantial, and shall propose revisions to the plan(s) of record (and all necessary data, photographs, and analyses) that comply, to the greatest extent practicable, with 310 CMR 10.00 and the several Conditions of this Order. The Commission reserves the right to modify any revised plans submitted under this Condition, at its sole discretion. No work below upper Bank is authorized under this Condition until such time as the Commission issues authorization to proceed in writing.

    d. Upon authorization to proceed, and within twenty-four (24) hours of the initiation of any activity below the upper Bank, the signatory RPE shall conduct a final inspection under this Condition to insure that no high-flow events have resulted in any subsequent substantial movement of the upper Bank or other pertinent geomorphic features. Should substantial movement have occurred, the signatory RPE shall immediately notify the Commission both electronically and via

telephone, and no work is authorized to proceed until the Commission issues authorization to proceed in writing.

34. Riprap is prohibited in stream restoration.

35. Geotextile fabric is prohibited below the upper Bank of restored stream channels.

Hydrostatic Test Waters

36. All hydrostatic test waters will be discharged to holding tanks for testing prior to being transported to an appropriate off-site disposal facility immediately after testing. Any discharge outside of the holding tanks and within a MA WPA Jurisdictional Area would be considered a violation of the Order.

261 Upgrade Project – Document List

Document / Plan	**Last Revision Date**
WPA Form 3	November 14, 2019
261B Pipeline Looping Project Wetland/Waterbody Site Specific Crossing Drawings	March 6, 2019
261 Upgrade Projects Proposed Contractor/Pipe Yard Plan	March 6, 2019
Line 261B Pipeline Looping Project Proposed 12" Natural Gas Pipeline FERC Alignment Sheets	March 6, 2019
Environmental Typicals	October 8, 2018 (Rev. to Fig. No. S.E.D.-8, S.E.D.-11, S.E.D.- 12, and S.E.D.-13 dated July 2019)
FERC Upland Erosion Control, Revegetation, and Maintenance Plan	May 2013
FERC Wetland and Waterbody Construction and Mitigation Procedures	May 2013
Spill Prevention and Control Plan	December 2018

Horizontal Directional Drill Contingency Plan	June 2019
Preliminary Invasive Plant Management Plan	June 2019
Procedures Guiding the Discovery of Unanticipated Historic Properties and Human Remains: Post-Review Discoveries	December 26, 2018
Draft Unanticipated Contamination Discovery Plan	December 2018
Draft Winter Construction Plan	December 2018
Draft Fugitive Dust Control Plan	December 2018
Compensatory Wetland Mitigation Plan under the Massachusetts Wetlands Protection Act (narrative)	October 7, 2019
Compensatory Wetland Mitigation Plan, In-situ Wetland Restoration Details	August 5, 2019
Line 261B Pipeline Looping Project Offsite Mitigation Plan	October 11, 2019
Dean Property Wetland and Upland Conservation Area	August 20, 2019

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☑ No

2. The Conservation Commission hereby(check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #

eDEP Transaction #

City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on Nov. 22, 2019

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

11/14/2019
1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

S. Page Fallon

Jill Messick

Henry A. Kozloski

Magda Galiatsos

Sheryl Becker

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

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(M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

AGAWAM
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

AGAWAM
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

SUFFIELD STREET - TENNESSEE GAS ROW	087-0644
Project Location	MassDEP File Number

Has been recorded at the Registry of Deeds of:

County	Book	Page

for:

Property Owner

and has been noted in the chain of title of the affected property in:

Book	Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Attachment C

Photographs

261B OFFSITE MITIGATION 2025 RIVERFRONT AREA AND WETLAND BUFFER MONITORING REPORT PHOTOGRAPHS

RA3

Spring Inspection:2025



View north from the northern portion of RA3, Photo Station 5.

Spring Inspection: 2025





View south at midpoint of RA3, Photo Station 8.

Spring Inspection: 2025



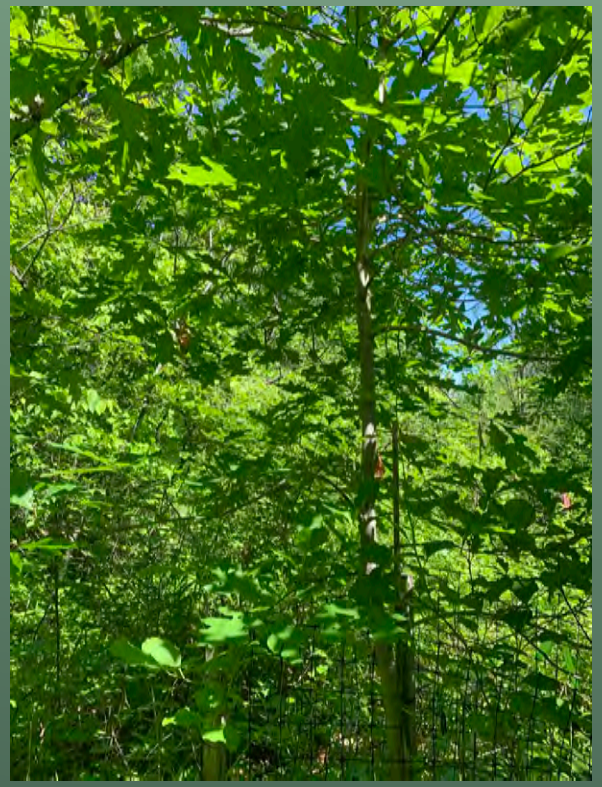
View north from the southern end of RA3, Photo Station 9.

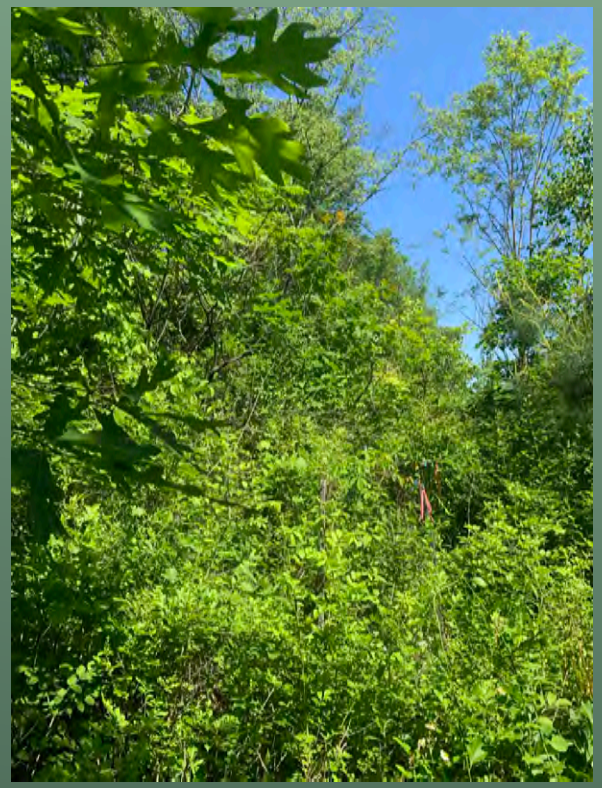
Spring Inspection: 2025



View northwest from southeast corner of RA4, Photo Station 10.

Spring Inspection: 2025





View north and northeast from southwest corner of RA4, Photo Station 11.

Spring Inspection: 2025





View southeast and south from northwest corner of RA4, Photo Station 12.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 8A – Request for Certificate of Compliance

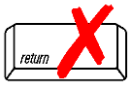
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: 087-0644
Provided by DEP

A. Project Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





1. This request is being made by:

Matthew A. Nowak - Tennessee Gas Pipeline Company, L.L.C.
Name

8 Anngina Drive
Mailing Address

Enfield | CT | 06082
City/Town | State | Zip Code

413-695-7001
Phone Number

2. This request is in reference to work regulated by a final Order of Conditions issued to:

Tennessee Gas Pipeline Company, L.L.C.
Applicant

11/14/2019 | 087-0644
Dated | DEP File Number

Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

3. The project site is located at:

Suffield Street - Tennessee Gas Right-of-Way | Agawam
Street Address | City/Town

Multiple | Multiple
Assessors Map/Plat Number | Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

Property Owner (if different)

Hampden | 22985 | 412
County | Book | Page

Certificate (if registered land)

5. This request is for certification that (check one):

☒ the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.

☐ the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

☐ the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

☐ Yes — If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

☒ No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html).

Taryn Egerton

From: emily@stockmanassociates.com
Sent: Thursday, March 6, 2025 11:13 AM
To: Taryn Egerton
Subject: TGP 261 Upgrade Project-November 18, 2024 Site Visit DEP File # 087-0644

Hi Taryn,

The following email summarizes the site visit for the TGP 261 Upgrade Project held on Monday November 18, 2024.

1) Emily Stockman (Stockman Associates LLC) was on site to perform a yearly post-construction site inspection. Also present during the site visit was Matt Nowak (Kinder Morgan).
2) Observed streams throughout the project site were stable with good water quality (no turbidity).
3) Only a few Wetland, Waterway, and Riverfront Area signs were observed (Special Condition #9). Refreshing and maintaining signs during the post-construction monitoring period is recommended.
4) MA DEP File Number signs were not observed. Maintaining MA DEP File Number signs during the post-construction monitoring period is recommended.
5) The pipe yard is vegetated and stable.
6) Erosion control wattles are still in place proximal to Waterbody MA8. The area is vegetated, and the removal of the erosion control wattles is recommended.
7) Signs for Wetland D were missing. This wetland abuts the southerly gravel access/parking within the compressor station. Signs should be replaced to ensure that all parties are aware of Wetland D. No mowing should occur within the protected Wetland D.
8) Erosion control wattles were observed along a slope seep within the compressor station east of Wetland A. Mr. Nowak reported that erosion controls are being maintained to provide stability.
9) The IR site is stable and vegetated.
10) In-situ restoration areas were reviewed. Herbaceous cover has been established within the majority of areas and most plantings remain fenced and labeled. Some fatalities were observed. In addition to the required restoration plantings, numerous woody volunteer species were observed within Wetlands S and N. Invasive plant species (Phragmites and Multiflora Rose) were observed within Wetland M. The Conservation Area sign proximal to stream MA4/Wetland GA has shifted and was leaning. Glossy Buckthorn and Purple Loosestrife was observed. Wooden planks were observed within Wetland E associated with crossing the braided Waterbody MA3. Evidence of ATV use (rutting) was observed within Wetland E. Invasive Purple Loosestrife was observed within Wetland E. Wetland K was only partially reviewed due to site conditions and access issues. Previous access off Suffield Street was marked with no trespassing signs.
11) Off-site mitigation areas within the Tuckahoe property were reviewed. Plantings remain fenced and labeled. Populations of invasive Multiflora Rose and Oriental Bittersweet were observed within Restoration Area 4. The field surrounding Restoration Area 4 also contains substantial populations of Multiflora Rose and Oriental Bittersweet. The Commission should consider who will maintain mowing of the adjacent field and Restoration Area 4 after the issuance of a CoC. Monumentation may be needed to ensure that restoration plantings are not inadvertently cut during future management/mowing.
12) New work associated with a separate project proximal to Restoration Area 3 seemed to be complete. During 2023, a restoration planting appeared to have been cut during the

installation of limit of work erosion controls for the separate project. A replacement planting was not observed during 2024.

13) The areas of the corrective plan of action for Restoration Area 2 were observed. Sections of fencing appeared to have been removed. Due to limited access (deep, mucky, saturated soils and inundation) a close examination of the new plantings was not feasible. Restoration Area 2 was primarily blanketed with dense Rice Cutgrass. Some of the planting cells were inundated. Discussion with Mr. Nowak regarding possible changes in water level associated with the nearby, separate dam project and possible effect on Restoration Area 2. Annual monitoring by AECOM indicates that the 10 planting cells are dominated by Rice Cutgrass with the highest approximate percent coverage of planted plugs at 60% (cell 10) and the lowest at 0% (cell 7). The majority of the cells are reported to contain less than 50% approximate coverage of planted material.
14) Evidence of vegetation management was not observed around plantings within Restoration Area 5. The majority of the observed plantings were taller than the surrounding Reed Canary Grass and did not appear to be hampered.
15) Requisite annual monitoring has been performed by AECOM and Tetra Tech. The November 2024 monitoring reports were provided to Stockman Associates on March 5, 2025.

Please feel free to contact me with any questions.
Best,
Emily

Emily Stockman, MS, PWS
Senior Scientist/Principal

Stockman Associates

PO Box 9
Adams, MA 01220
413.743.1372 office
413.329.7053 cell

Notice of Intent

for

Still Brook Pond
100 Pine Street
Agawam, MA, 01030

DATE:
December 29th, 2025

ADDRESSED TO:
Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

PREPARED BY:
Goddard Consulting LLC
1442 North Main Street
Palmer, MA 01069

In coordination with

SŌLitude Lake Management
590 Lake St,
Shrewsbury, MA 01545

PREPARED FOR:
Jennifer Bonfiglio
Town of Agawam
36 Main Street
Agawam, MA 01001

GODDARD CONSULTING
Strategic Ecological Consulting

December 29th, 2025

Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

Re: Notice of Intent
Still Brook Pond
38 Tuckahoe Drive
Agawam, MA 01030

Dear Agawam Conservation Commission,

On behalf of the Town of Agawam (the Applicant), Goddard Consulting, LLC (Goddard) in collaboration with SŌLitude Lake Management is hereby submitting this Notice of Intent (NOI) application for an Ecological Limited Restoration Project on Still Brook Pond at 38 Tuckahoe Drive, Agawam, MA (Parcel ID: C7_2_4). The overall goal of this project is to develop and implement a comprehensive pond management plan that includes ongoing monitoring, herbicide and algaecide application as needed, and aeration to improve water quality and habitat conditions. The project would involve the application of herbicide across the extent of the pond with the goal of managing plant assemblages, which are currently dominated by nuisance submersed, emergent, and floating-leaf vegetation and filamentous algal species. The proposed project has been filed as an Ecological Restoration Limited Project under 310 CMR 10.53(4) and will protect the interests of the Wetlands Protection Act by controlling nuisance species, improving fish habitat, improving water quality, and slowing pond eutrophication

Wetland resources affected by the proposed work include Land under Water Bodies and Waterways.

This NOI application is a filing under the MA Wetlands Protection Act (WPA). Enclosed are the WPA Form 3 and additional supporting documentation for the project for your review and approval.

Sincerely,
Goddard Consulting, LLC & SŌLitude Lake Management

Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS
Senior Ecologist / Palmer Office Manager

Owen Kramer, CESSWI
Lead Wetland Scientist

CC: MassDEP Western Regional Office, 436 Dwight Street, Springfield, MA 01103

GODDARD CONSULTING
Strategic Ecological Consulting

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GODDARD CONSULTING
Strategic Ecological Consulting

LIST OF ATTACHMENTS

Attachment A: **WPA Form 3 – Notice of Intent & Fee Transmittal Form**
Appendix A: Ecological Restoration Limited Project Checklists

Attachment B: **Abutters Information**
100-foot Abutters Map, Goddard Consulting, LLC, 11/18/2025
Environmental Monitor Publication

Attachment C: **Locus Maps & Figures**
USGS Map of the Locus Site, Goddard Consulting, LLC, 11/18/2025
Orthophoto of the Locus Site, Goddard Consulting, LLC, 11/18/2025
NRCS Map of the Locus Site, Goddard Consulting, LLC, 11/18/2025
FEMA Flood Hazard Map, Goddard Consulting, LLC, 11/18/2025
Figure 1: Still Brook Pond Survey, SOLitude Lake Management, 07/18/2025

Attachment D: **Safety Datasheets**
Diquat Treatment
Endothall Treatment
Fluridone Treatment
Imazamox Treatment
Flumioxazin Treatment
Glyphosate Treatment

1.0 INTRODUCTION

On behalf of the Town of Agawam (the Applicant), Goddard Consulting, LLC (Goddard) is hereby submitting this Notice of Intent (NOI) application for an Ecological Restoration Limited Pond Management Project on Still Brook Pond at 38 Tuckahoe Drive, Agawam, MA. SŌLitude Lake Management surveyed Still Brook Pond in July 2025 and determined an active herbicide management plan was necessary.

The pond has a history of problematic growth of purple loosestrife (*Lythrum salicaria*), naiad (*Najas minor*), cattails (*Typha spp.*), duckweed (*Lemna minor*), bladderwort (*Utricularia spp*), coontail (*Ceratophyllum demersum*) and various filamentous algal species. These plants have the ability to proliferate to nuisance densities, as has been observed in Still Brook Pond. Vegetation densities of this magnitude can overcrowd beneficial native plants and deprive them of sunlight, while also reducing dissolved oxygen and essential nutrients for other species. Over time, these conditions can lead to monocultures and a significant loss of native biodiversity.

Still Brook Pond has never undergone any true management efforts. This current proposal describes management of the pond with the implementation of selective and targeted herbicide treatments. To remediate the pond to ecologically balanced conditions, herbicides including diquat, endothall, fluridone, imazamox, flumioxazin, and glyphosate will be used as treatments. All of these products won't be applied at the same time, and some may not be used at all depending on the present conditions. Application will be used to address nuisance species across the pond. The goal is to have a balance of native species with vegetation densities to remain over 30% wherever suitable throughout the pond to ensure habitat integrity. In addition to chemical treatments, an aeration system has already been installed to improve dissolved oxygen levels, reduce internal nutrient loading, and limit algal growth. The system promotes a more balanced aquatic ecosystem by supporting fish and invertebrate populations and helping to prevent stratification and stagnation. Retroactive approval is being requested to authorize the installation and continued operation of this existing aeration system. Regular inspections will take place after the application to confirm the success of treatment. Treatment will be done within the water body and may indirectly contact Land Under Waterways and Waterbodies (LUWB/WW).

This report describes existing conditions, resource areas present on site, the proposed work, and project compliance with the Massachusetts Wetlands Protection Act. Goddard requests that the Agawam Conservation Commission issue an Order of Conditions by virtue of the demonstration of this project's compliance, described in the sections below. A 5-year approval is requested for the implementation and monitoring of the aquatic management program at Still Brook Pond.

2.0 EXISTING CONDITIONS

Still Brook Pond is located on the parcel at 38 Tuckahoe Drive (Parcel ID: C7_2_4), with public access provided through Still Brook Park at 100 Pine Street in Agawam, MA. The park consists primarily of hardwood forest, and the pond's shoreline is bordered by wooded deciduous swamps and upland forest. The park, the pond, and its shores are utilized for recreational activities including canoeing, kayaking, fishing, hiking, and picnicking. Access to the pond has recently been increased with new paved roads, parking spots, and a launch point. Still Brook Pond itself is approximately 10.1 acres (439,956 SF) and lies within the Connecticut River Watershed. The pond sits on land formerly operated as the Tuckahoe Turf Farm, where historic use of fertilizers and soil amendments may have contributed to elevated nutrient levels that now support excessive aquatic vegetation growth. The property was later purchased by the Town of Agawam and incorporated into Still Brook Park, which is designed to serve the community. The pond is currently equipped with an aeration system to help improve water quality and circulation. The pond receives inflow from channels at its northern end and drains through an outlet at its southern end, which ultimately discharges into Still Brook.

2.1 OVERVIEW

Still Brook Pond has experienced the growth of submersed, emergent, and floating-leaf vegetation and filamentous algal species for many years. As discussed above, these species have the ability to proliferate throughout the pond in a short amount of time and are doing so in Still Brook Pond. Such proliferation by nuisance species can deprive other beneficial aquatic vegetation of sunlight, dissolved oxygen, and essential nutrients, ultimately creating near-monocultures and reducing overall ecosystem health.

Nuisance vegetation species have a history of rapid proliferation and subsequent overgrowth in Still Brook Pond, extending throughout the entire water body and proliferating around the perimeter of the pond. These species, in lieu of proper management and treatment, given the anthropogenically impounded nature of Still Brook Pond, will grow to become a monoculture covering a significant portion of an area and hinder diversity of aquatic vegetation within the pond. Management of these species is essential to maintaining wildlife habitat, fisheries, and the recreational value of the pond. If left wholly unmanaged, or if the only management available is not cost-effective enough to be employed, these species can overrun an area, causing deteriorated water quality conditions and the subsequent issues that come with them, including severe eutrophication and ultimately habitat degradation, while also precluding effective recreational use of a water body.

A pond survey conducted by SŌLitude Lake Management in July 2025 documented the dominant vegetation types and their distributions throughout Still Brook Pond. Dominant submersed vegetation included coontail, bladderwort, filamentous algae, and naiad, while emergent vegetation was characterized by dense stands of purple loosestrife and cattails. Duckweed was identified as the primary floating vegetation. All of these will be targeted for management. In its current condition, vegetation in the southern portion of the pond is present at densities that impede access from the launch point and restrict proper drainage. A map of plant distribution is provided in Attachment C.

The pond is relatively shallow around most of its edges, with extensive areas only 1 to 2 feet deep. These shallow margins make it more susceptible to eutrophication, as emergent wetland vegetation can readily encroach into open-water areas and trap sediment. The pond reaches a maximum depth of approximately 6 feet.

The Applicant is seeking an OOC to ensure the ability to actively manage the pond for recreation and wildlife habitat integrity under all current laws and local regulations. Management will include selective and targeted herbicide treatments to control nuisance species while maintaining approximately 30% aquatic vegetation cover in the managed areas. An aeration system has already been installed to improve water circulation, increase dissolved oxygen levels, and help prevent stratification and algal blooms; retroactive permitting is requested to authorize its installation and continued use. Without these management measures, problematic vegetation would continue to expand, further degrading the aquatic environment and reducing the pond's ecological and recreational value. These methods are in compliance with the Massachusetts DCR's 2004 *Generic Environmental Impact Report on Eutrophication and Aquatic Plant Management in Massachusetts* (GEIR) and *The Massachusetts Guide to Lake Management* (MassGLM).

According to WPA 310 CMR 10.05, "An applicant who proposes work solely within Land under Water Bodies or Waterways, or solely within a Lot with an area greater than 50 acres, is required to provide notification only to Abutters whose Lot is within one hundred feet from the Project Site." The proposed work is entirely within the pond, which is part of a parcel of approximately 266 acres. The Agawam Assessor's Office could only provide abutter information within 100 feet of the parcel boundary, rather than from the pond's edge. Based on this information, Goddard determined that notifying abutters was not required based on the regulations. A figure showing the 100-foot buffer around the pond is attached in Attachment B.

2.2 RESOURCE AREAS ON-SITE

2.2.1 LAND UNDER WATER BODIES AND WATERWAYS

Under the Wetlands Protection Act, Land under Water Bodies and Waterways is defined as "the bottom of, or land under, the surface of the ocean or any estuary, creek, river, stream, pond, or lake." No significant changes or alterations to this resource area will happen as a result of the treatment. This resource area is expected to be enhanced through the removal of excessive nuisance species, and subsequent improvement of water quality and habitat, as well as lessening eutrophic conditions. In the short term, during and immediately after treatment, there will likely be a small short term impact to the Land under Water Bodies underneath the pond surface, as, in order to treat and restore the pond, there is some necessity to use minimal drawdown and appropriate treatments within the surface and littoral zone of the pond, which will cause temporary impacts to this resource.

2.2.2 BANK

Under the Wetlands Protection Act, Bank is defined as "the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland." No significant changes or alterations to this resource area will happen as a result of the treatment. Bank will not be impacted as a boat will be used to help administer treatment away from the bank, meaning no staging or setup impacts will occur. The boat will be launched from the pond's existing launch point.

2.2.3 HABITAT AREA

The pond is not located within an Area of Critical Environmental Concern (ACEC), nor is the pond located within NHESP Priority Habitat of Rare Species or Estimated Habitats of Rare Wildlife.

2.2.4 WATER QUALITY

Still Brook Pond is not an Outstanding Resource Water (ORW) area nor is it considered a Great Pond. The pond is also not listed in the 314 CMR 4.06 Table 12 (Surface Water Quality Standards (11/12/21)) and thus, per 314 CMR 4.06(5), as "Other Waters" it can be presumed to be a Class B Water representing its recreational, habitat, and aesthetic value. All proposed treatments are suitable for such waters per Massachusetts and USAEPA guidelines and regulations, and, once an Order of Conditions has been issued by the Agawam Conservation Commission, the licensed applicator will complete the filing for a State Pesticide Use Permit (WM04) with the Massachusetts Department of Environmental Protection (MA-DEP).

3.0 PROPOSED PROJECT

3.1 GENERAL OVERVIEW

The applicant proposes to manage Still Brook Pond utilizing a variety of herbicides as needed based on monitoring to help control the problematic nuisance vegetation on the pond. This Notice of Intent is requesting approval for use of diquat, endothall, fluridone, imazamox, flumioxazin, and glyphosate. These products will not all be used at once, and some may not be used at all depending on the present conditions and management approach. The proposed treatments specifically affect the target species to be controlled and have a negligible effect on the non-target species and wildlife when applied in accordance with the label directions. All treatments will be applied at or below suggested doses according to the product label. All doses are based on plant types and densities as well as the volume of the pond, so that the minimum suitable concentration for efficacy of treatment material is introduced into the waterbody. The herbicides will be applied within the limit of work and below the mean annual low water line of the pond. In

addition to herbicide treatments, the use of a previously installed aeration system is proposed to promote better water circulation and higher dissolved oxygen level and reduce algal blooms. By enhancing these water quality conditions, aeration will support healthier aquatic habitats, improve water clarity, and increase the overall effectiveness of the pond management plan. Combined, these treatments are proposed for the purpose of ecological restoration to restore and maintain the aquatic habitat and water quality of the pond and allow continued useThese treatments are proposed for the purpose of ecological restoration to restore and maintain the aquatic habitat and water quality of the pond and allow for enhanced and to allow for continued communal recreational use.

Management and treatment of the vegetation will be paired with pre- and post- treatment surveys to assess and confirm appropriate management conditions, physical and chemical properties of the lake, treatment areas, and timing, as well as determine the effectiveness of treatment. The information and summaries from these pre- and post-treatment surveys will be supplied to the Agawam Conservation Commission and paired with treatment area maps and information on the herbicide used.

Still Brook Pond had experienced extensive growth of nuisance submersed, emergent, and floating-leaf vegetation and filamentous algal species for many years prior to this proposed treatment. Since the pond has received no previous management efforts, aquatic vegetation densities in the pond have been increasing, and continued treatment is required to avoid degradation of habitat in the future. If left untreated, nuisance vegetation will proliferate to problematic densities. When this vegetation dies in the fall, cyanobacteria may flourish and feed on the decaying plants, leading to a potentially anoxic and/or toxic event. Goddard anticipates that the management program proposed in this document will be successful in reduction and maintenance of nuisance species within the pond, while maintaining a dynamic composition and healthy beneficial distribution of suitable aquatic vegetation throughout the remainder of the pond.

3.2 POND MANAGEMENT

As stated above, once an Order of Conditions has been issued by the Agawam Conservation Commission, the licensed applicator will complete the filing for a State Pesticide Use Permit (WM04) with the Massachusetts Department of Environmental Protection (MA-DEP).

The applicant's goal is to maintain Still Brook Pond as a passive recreational resource and as viable habitat for fish and wildlife. To achieve this goal, proactive and ongoing management of nuisance vegetation is essential.

The following management schedule is proposed under this Notice of Intent. The phases outlined below provide a general framework and may be adjusted as needed based on field conditions, weather, and applicator availability.

Activity	Month	Target Species	Possible Products Utilized
Monitoring	April - September		
Floating-leaf vegetation herbicide treatment	August-September	- duckweed	- Diquat - Fluridone - Flumioxazin
Submersed vegetation herbicide treatment	August-September	- bladderwort - coontail - naiad - filamentous algae	- Diquat - Endothall - Fluridone - Flumioxazin
Emergent vegetation herbicide treatment	August-September	- cattails - purple loosestrife	- Glyphosate - Imazamox
Pond Aeration	Year-round as needed		

Future Management

Due to the nature of managing nuisance species, annual long-term management is required for the continued control of these species and subsequent restoration of the pond.

Annual pre-treatment surveys will be undertaken in the following years around Spring and early-Summer. If there is regrowth of the target species, it will be handled with appropriate management practice.

3.3 ECOLOGICAL RESTORATION PROJECT

This project has been filed as an Ecological Restoration Project in accordance with 310 CMR 10.53(4). As per 310 CMR 10.04, "Ecological Restoration Limited Project means an Ecological Restoration Project that meets the eligibility criteria set forth in 310 CMR 10.24(8) or 10.53(4)." 310 CMR 10.53(4)(e)(5) states that, "An Ecological Restoration Project that is not listed in 310 CMR 10.54(4)(e)2. Through 4., that will improve the natural capacity of a Resource Area(s) to protect the interests identified in M.G.L. c. 131, § 40, may be permitted as an Ecological Restoration Limited Project provided that the project meets the eligibility criteria set forth in 310 CMR 10.54(4)(a) through (d). Such projects include, but are not limited to, the restoration, enhancement, or management of Rare Species habitat, the restoration of hydrologic and habitat connectivity, the removal of aquatic nuisance vegetation to retard pond and lake eutrophication, the thinning or planting of vegetation to improve habitat value, riparian corridor re-naturalization, river floodplain reconnection, in-stream habitat enhancement, fill removal and regarding, flow restoration, and the installation of fish passage structures."

This project clearly fits under this definition, as it seeks to remove aquatic nuisance vegetation to slow pond eutrophication and includes thinning vegetation to improve habitat value. It aims to restore and maintain habitat which is anthropogenically impounded and thus, modified.

3.4 RARE SPECIES HABITAT & FEMA FLOOD DESIGNATIONS

The entirety of Still Brook Pond and the property parcel is not mapped within priority habitat on the most recent habitat map of State-listed Rare Wildlife published by Natural Heritage and Endangered Species Program. The site is not located in an Area of Critical Environmental Concern (ACEC), but parts of the parcel are located within a regulated FEMA flood zone.

3.4.1 TREATMENTS

Diquat (Tribune - EPA # 100-1390 or equivalent)

Tribune (diquat) is an effective herbicide for partial-pond treatments due to its rapid mode of action and short herbicide concentration-exposure-time requirements. Even though diquat is considered to be a contact-herbicide, longer term control may be seen as plants' root crowns will not be allowed to develop.

The USEPA/MA registered herbicide diquat dibromide (Tribune) will be applied to the area at or below the permissible label dose. Tribune is applied to more than 500 lakes and ponds annually, throughout the northeast, to control nuisance submerged aquatic plants. Diquat can be applied to control milfoil, naiad, bladderwort, and other nuisance submersed plants at the application rate of 1.0-2.0 gal/acre, if necessary. Temporary water use restrictions for diquat are now: 1) No drinking or cooking for 3 days. 2) No irrigation of turf for 3 days and of food crops for 5 days, and 3) No livestock watering for 1 day. There are no restrictions on swimming, boating, or fishing, but prudent herbicide/algaecide management, suggest that we close the pond on the day of treatment. The shoreline of the pond will be posted with signs warning of these temporary water use restrictions, prior to treatment.

Diquat is translocated to some extent within the plant. Its rapid action tends to disrupt the leaf cuticle of plants and acts by interfering with photosynthesis. Upon contact with the soil, it is adsorbed immediately and thereby biologically inactivated. Residual levels of diquat in treated water decline rapidly and their reduction is due to the uptake by the targeted vegetation and adsorption to suspended soil particles in the water or on the bottom mud. Photochemical degradation accounts for some loss under conditions of high sunlight and clear waters.

Endothall (Aquathol-K – EPA #70506-176 003 or equivalent)

Endothall is an aquatic contact herbicide that is primarily used for the control of submersed weeds. It prevents certain plants from producing the proteins they need to survive including bladderwort, pondweed, coontail, and more. Endothall is available as two formulations in granular or liquid form. These include dipotassium salt and monoamine salt. Formulations that contain monoamine salt are more toxic to fish and should not be used in areas where fisheries resources are important while formulations containing dipotassium salt exhibit lower organism toxicity and are more appropriate for use in fisheries areas.

Both the potassium and monoamine salt formulations of endothall have a similar environmental fate and exhibit a relatively short persistence time in aquatic environments. Low concentrations of endothall persist in water for up to several weeks, and complete degradation by microbial action occurs after 30-60 days. The half-life is five to ten days on average. Endothall is not expected to bioaccumulate or be absorbed into suspended solids or sediment. Each product label must be followed to adhere to post-treatment water use as these procedures vary among the different formulations. For all endothall products there is a drinking water standard of 0.1 ppm and they cannot be applied within 600 feet of a potable water source.

Fluridone (Sonar – EPA # 67690-4 or equivalent):

Fluridone is a systemic herbicide that can be utilized for multi-year control on several invasive aquatic vegetation species. It comes in two formulations, as an aqueous suspension and a slow-release pellet. The treatment acts to inhibit carotene synthesis, and results in plants being damaged through direct sunlight. Fluridone works through a waterbody quickly, though it takes several weeks to several months for the inhibiting process within the vegetation, followed by plant die-off from sunlight exposure. However, this slower rate reduces the risks of oxygen depletion. This herbicide is also beneficial for its use on selective major invasive species at lower doses, and its minimal direct risks to fauna. Fluridone is considered to have a low toxicity to invertebrates, fish, mammals, other aquatic wildlife, and humans.

Fluridone, when applied at recommended dosages, is generally viewed as having one of the most environmentally friendly toxicology profiles of all products currently on the market. The US EPA has approved a limit of 150 ppb to be allowed in water used for drinking. Ideally, fluridone treatments are initiated early in the growing season when target vegetation is low or starting emergence. Presently, liquid and granular formations of this herbicide are available and included under this management plan. For aqueous applications, this chemical will be placed into an onboard mixing tank, mixed with pond water and evenly distributed throughout the surface of the treatment area via boat. This herbicide will be injected under the water surface through trailing hoses, minimizing the chance of chemical drift and assuring accurate placement of over the target species. For granular applications, the herbicide will be placed into a herd spreader mounted to the bow of the treatment vessel and evenly distributed over the surface of the treatment area.

Imazamox (Clearcast – EPA # 241-437 or equivalent)

Imazamox is a post-emergent, selective, systemic herbicide. It moves throughout plant tissue after absorption, killing the plant. It is used to control a broad range of grasses and broadleaf weeds. Belonging to the imidazolinone chemical family, it works by inhibiting the acetolactate synthase enzyme (ALS), which is essential for plant growth. Imazamox

is commonly sold as a soluble concentrate or pre-mixed. It is effective at relatively low application rates, but overuse can lead to ALS-resistant weed populations.

Flumioxazin (Clipper – EPA # 71368-114 or equivalent)

Flumioxazin is a broad-spectrum, contact herbicide that disrupts chlorophyll production in plants. Treated vegetation typically responds quickly, resulting in rapid die-off and decomposition. The herbicide's half-life varies with water pH: in low-pH conditions, it ranges from approximately four to five days, while in high-pH waters it is one day or less. Flumioxazin has a low potential for leaching and does not persist in the environment.

The product is available in granular form (Clipper™) for the control of submerged aquatic plants and may also be applied as a foliar treatment to manage emergent and floating-leaf species. In addition, flumioxazin is effective against certain filamentous algae. Its use does not restrict swimming, consumption of fish from treated water bodies, or use of treated water for pets or livestock; however, a five-day restriction applies to irrigation following treatment.

Glyphosate (AquaPro - EPA # 62719-324-67690, Rodeo – EPA # 62719-324 or equivalent):

Glyphosate is a broad spectrum, systemic herbicide. It works by preventing plants from synthesizing protein and producing new tissue. Its aquatic formulation is effective against most emergent and floating plant species, and at recommended doses it is relatively non-toxic to aquatic fauna. Invertebrates do not appear to suffer any direct impacts from glyphosate treatments. Glyphosate quickly degrades into non-toxic components in aquatic environments. Direct contact with the plant's leaves can kill the entire plant, and it only requires a few hours of contact. Glyphosate does have potential to kill non-target species if it comes into direct contact with their leaves.

Pond Aeration:

Still Brook Pond is currently equipped with an aeriation system. Aeration systems function by introducing oxygen into the water column and promoting circulation, which helps prevent thermal stratification, reduces nutrient accumulation, and limits the growth of algae and nuisance vegetation. By maintaining higher oxygen levels throughout the pond, aeration supports fish, invertebrates, and other aquatic organisms while improving overall water quality. Over time, consistent aeration can help reduce conditions that favor excessive plant and algae growth, potentially decreasing reliance on herbicide treatments in the future. These systems are widely used in ponds and lakes across the state and pose no risk to human health or non-target wildlife when properly installed and maintained. The aeration system is operated at the discretion of the town or pond management team, year-round as needed based on water quality and vegetation conditions but would not be used when the conditions are frozen.

3.4.2 RISKS – MONITORING & PREVENTION

All potential treatments have some degree of temporary risk to water quality and fish safety. Risks associated with herbicide application within the ponds include oxygen depletion, water quality degradation, noxious odors, fish kills, and potentially impacting non-targeted species. However, when treatment is done properly by a qualified herbicide applicator, risks are significantly minimized. In addition, regular monitoring of the site will be conducted through evaluating the following characteristics of the pond to prevent the following problems from occurring.

3.4.3 IMPACTS TO RESOURCE AREAS

LUWW Impacts (Temporary)	Bank Impact	Riverfront Area Impact
439,956 SF of Pond Surface Area	0	0

Impacts to the resource areas on & around the pond include LUWW. Impacts to the LUWW will be temporary, and there are not expected to be any impacts to Bank, or any surrounding Riverfront Area cast off the streams flowing out of the pond. Impacts to LUWW will include the targeting, and removal, of the problematic species within the pond.

4.0 REGULATORY COMPLIANCE WITH WETLANDS PROTECTION ACT

Work within resource areas protected by the Wetlands Protection Act is being proposed. The project has been designed to meet the Wetlands Protection Act's general performance standards for work within resource areas and to minimize impacts to the extent practicable. Table 1 below outlines impacts to the resource area on site. Explanation on how the project meets the performance standards of each resource follows.

4.1 LAND UNDER WATER BODIES AND WATERWAYS

§ 10.56	**Land Under Water Bodies and Waterways**	
Performance Standards		**Compliance**
10.56 (4)(a)(1)	*Any proposed work within Land under Water Bodies and Waterways shall not impair the following:* *The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks.*	Treatment involved will not affect the carrying capacity of the pond.
10.56 (4)(a)(2)	*Ground and surface water quality.*	Ground water quality is not expected to be impacted from work. Surface water quality has the potential to be adversely impacted during treatment, but by following the procedures listed above in the Treatments section, water quality will not be impaired beyond the extreme short term and will be maintained or improve as positive overall in the longer term.
10.56 (4)(a)(3)	*The capacity of said land to provide breeding habitat, escape cover and food for fisheries.*	Vegetation management through treatment is expected to improve the habitat and cover quality of the pond, as the current dense coverages are at nuisance levels that obstruct fish movement. Biodiversity will also be improved.
10.56 (4)(a)(4)	*The capacity of said land to provide important wildlife habitat functions. A project or projects on a single lot,*	As listed above, treatment is expected to improve the quality of the pond's wildlife habitat functions

	for which Notice(s) of intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures established under 310 CMR 10.60.	by improving biodiversity, removing nuisance weeds that can obstruct dissolved oxygen levels, and clear up the pond so fish have improved visibility and less obstructions.

5.0 ALTERNATIVE ANALYSIS

Since some work is proposed within the Wetlands Protection Zone, the applicant has provided the following analysis of alternatives for pond treatment. Alternatives were analyzed for potential viability and practicality given the site's environmental constraints.

5.1 ALTERNATIVE A: NO MANAGEMENT

Performing zero management to the pond was considered as an alternative to the application of herbicides across the pond. Due to the dense growth of nuisance vegetation in the pond, no management is not recommended, as the continued lack of management limits biodiversity of the ponds and can deplete dissolved oxygen. No management of this impounded waterbody also threatens its functions as a body of water for recreational uses to the community.

5.2 ALTERNATIVE B: SEDIMENT EXCAVATION/DREDGING

Dredging nutrient rich sediment along the pond bottom is sometimes used as a method to control excessive weed growth. Conventional and hydraulic dredging requires an extensive and expensive project compared to herbicide treatment. Access and staging areas can also be a limiting factor to this management, combined with severe negative impacts to aquatic organisms with no guarantee of complete nuisance species removal. Permitting for dredging is also significantly more costly and time consuming, so dredging may not be required at this time.

5.3 ALTERNATIVE C: HAND REMOVAL/MECHANICAL REMOVAL

Hand or mechanical removal is not ideal due to the expensive costs with a possibility of control of the vegetation only being short-lived. Hand removal also requires multiple volunteers or a large budget for labor over several days, potentially multiple times in a single season for years on end. Additionally, for a pond of this size, it may be infeasible due to the amount of work required to reach suitable efficacy. Another option considered for submerged vegetation removal is DASH, or Diver Assisted Suction Harvesting, the process of a diver hand removing and delivering the removed plant through a suction hose for bulk removal. This, however, is difficult and time consuming. This method is also much more expensive compared to herbicide applications.

5.4 ALTERNATIVE D: BOTTOM WEED BARRIERS

Physical controls, such as the use of bottom weed barriers can be effective for small dense patches of nuisance vegetation but are not cost effective or feasible for large areas. Weed barriers are expensive to install and maintain at ~$1.75/ft2 (material & installation). This is extremely expensive for a pond the size of Still Brook

Pond relative to the return on investment. Semi-annual maintenance to retrieve, clean and re-deploy the barriers would be expensive and time consuming. Additionally, covering expansive areas of the pond bottom would very likely also have detrimental impacts on native plants, invertebrates and other types of wildlife.

5.5 ALTERNATIVE E: BIOLOGICAL

There are no proven biological controls available or approved by the State of Massachusetts for the control of the nuisance aquatic plant species present in the pond.

5.6 ALTERNATIVE F: POND MANAGEMENT VIA HERBICIDE TREATMENT AND AERATION

While no approach is perfect, the preferred alternative, which is holistic pond management including monitoring, supplemental aeration, and subsequent treatment as needed with a carefully chosen suite of herbicide and algaecide treatments to be applied when and where appropriate, represents the best balance of cost, efficacy, safety, and reliability in the eyes of the applicant. The risks outlined in section 3.4 are preventable with qualified personnel and regular, consistent monitoring of the pond's water quality and vegetation. The proposed plan stands out as the most conventional tried and tested method, with a long track record of success in comparable ponds which are valuable both for their ecological benefits and public recreation and use.

6.0 CONCLUSION

In summary, Goddard Consulting and SŌLitude Lake Management believe that the proposed treatment will not have any adverse impacts on the interests identified in the Wetlands Protection Act in the long term. Still Brook Pond is expected to be enhanced through the removal of excessive nuisance species and subsequent improvement of water quality and habitat. The proposed project meets all regulatory compliance standards under the Wetlands Protection Act; therefore, Goddard Consulting respectfully requests that the Agawam Conservation Commission issue an Order of Conditions approving the proposed project.

Please feel free to contact us if you have any questions about this Notice of Intent submission.

Sincerely,

Goddard Consulting, LLC & SŌLitude Lake Management



Steven Riberdy, MS, PWS, CWB, CE, CERP, PSS
Principal Ecologist / Director of Operations



Owen Kramer, CESSWI
Lead Wetland Scientist

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment A: WPA Form 3 – Notice of Intent & Fee Transmittal Form

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date: 11/24/25

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date: 11/24/2025

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

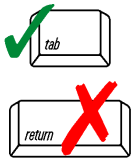
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Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

38 Tuckahoe Drive — a. Street Address
Agawam — b. City/Town
01030 — c. Zip Code

Latitude and Longitude:
42.050650 — d. Latitude
-72.686757 — e. Longitude

C7_2 — f. Assessors Map/Plat Number
C7_2_4 — g. Parcel /Lot Number

2. Applicant:

Jennifer — a. First Name
Bonfiglio — b. Last Name
Town of Agawam — c. Organization
36 Main Street — d. Street Address
Agawam — e. City/Town
MA — f. State
01001 — g. Zip Code
413-726-9742 — h. Phone Number
i. Fax Number
jbonfiglio@agawam.ma.us — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Owen — a. First Name
Kramer — b. Last Name
Goddard Consulting, LLC. — c. Company
1442 North Main Street — d. Street Address
Palmer — e. City/Town
MA — f. State
01609 — g. Zip Code
508-393-3784 — h. Phone Number
i. Fax Number
owen@goddardconsultingllc.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid
b. State Fee Paid
c. City/Town Fee Paid

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A. General Information (continued)

6. General Project Description:

The proposed project is seeking approval to implement pond management plan for Still Brook Pond. The focus of this management will be reducing and controlling nuisance aquatic vegetation using USEPA/MA registered aquatic herbicides.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☒ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

310 CMR 10.53(4)(e)(5) Control of non-native vegetation and improving habitat for native species

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Hampden	
a. County	b. Certificate # (if registered land)
8444	320
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ■ Land Under Waterbodies and Waterways	439,956 (temporary) 1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ■ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ■ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☐ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.
** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
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C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Bourne to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

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C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☐ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☐ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☐ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

■ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☐ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☐ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☐ List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☐ Attach NOI Wetland Fee Transmittal Form

9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ■ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Eligibility Checklist

Provided by MassDEP:

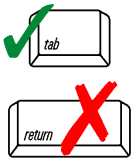
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This Ecological Restoration Limited Project Eligibility Checklist guides the applicant in determining if their project is eligible to file as an Inland or Coastal Ecological Restoration Limited Project (310 CMR 10.53(4) or 310 CMR 10.24(8) respectively). These criteria must be met when submitting the Ecological Restoration Limited Project Notice of Intent to ensure that the restoration and improvement of the natural capacity of a Resource Area(s) to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Regulatory Features of All Coastal and Inland Ecological Restoration Limited Projects

(a) May result in the temporary or permanent loss of/or conversion of Resource Area: An Ecological Restoration Limited Project that meets the requirements of 310 CMR 10.24(8) may result in the temporary or permanent loss of Resource Areas and/or the conversion of one Resource Area to another when such loss is necessary to the achievement of the project's ecological restoration goals.

(b) Exemption from wildlife habitat evaluation: A NOI for an Ecological Restoration Limited Project that meets the minimum requirements for Ecological Restoration Projects and for a MassDEP Combined Application outlined in 310 CMR 10.12(1) and (2) is exempt from providing a wildlife habitat evaluation (310 CMR 10.60).

Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

(c) The following are considerations for applicants filing an Ecological Restoration Limited Project NOI and for the issuing authority approving a project as an Ecological Restoration Limited Project:

☒ The condition of existing and historic Resource Areas proposed for restoration.

☒ Evidence of the extent and severity of the impairment(s) that reduce the capacity of the Resource Areas to protect and sustain the interests identified in M.G.L. c. 131, § 40.

☒ The magnitude and significance of the benefits of the Ecological Restoration Project in improving the capacity of the affected Resource Areas to protect and sustain the other interests identified in M.G.L. c. 131, § 40.

☒ The magnitude and significance of the impacts of the Ecological Restoration Project on existing Resource Areas that may be modified, converted and/or lost and the interests for which said Resource Areas are presumed significant in 310 CMR 10.00, and the extent to which the project will:

a. avoid adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that can be avoided without impeding the achievement of the project's ecological restoration goals.

b. minimize adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that are necessary to the achievement of the project's ecological restoration goals.

c. utilize best management practices such as erosion and siltation controls and proper construction sequencing to avoid and minimize adverse construction impacts to resource areas and the interests identified in M.G.L. c. 131, § 40.

WPA Form 3 – Notice of Intent Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8))

Complete this Eligibility Criteria Checklist ***before*** filling out a Notice of Intent Application to determine if your project qualifies as a Coastal Ecological Restoration Limited Project. (310 CMR 10.24(8)) Sign the Eligibility Certification at the end of Appendix A, and attach the checklist with supporting documentation and the Eligibility Certification to your Notice of Intent Application.

General Eligibility Criteria for All Coastal Ecological Restoration Limited Projects

Notwithstanding the requirements of 310 CMR 10.25 through 10.35, 310 CMR 10.54 through 10.58, and the Wildlife Habitat evaluations in 310 CMR 10.60, the Issuing Authority may issue an Order of Conditions permitting an Ecological Restoration Project listed in 310 CMR 10.24(8)(e) as an Ecological Restoration Limited Project and impose such conditions as will contribute to the interests identified in the WPA M.G.L. provided that the project meets all the requirements in 310 CMR 10.24 (8).

☐ The project is an Ecological Restoration Project as defined in 310 CMR 10.04 and is a project type listed below [310 CMR 10.24(8)(e)].

☐ Tidal Restoration.

☐ Shellfish Habitat Restoration.

☐ Other Ecological Restoration Limited Project Type.

☐ The project will further at least one of the WPA (M.G.L. c. 131, § 40) interests identified below.

- ☐ Protection of public or private water supply.
- ☐ Protection of ground water supply.
- ☐ Flood control.
- ☐ Storm damage prevention.
- ☐ Prevention of pollution.
- ☐ Protection of land containing shellfish.
- ☐ Protection of fisheries.
- ☐ Protection of wildlife habitat.

☐ If the project will impact an area located within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands, a NHESP preliminary written determination is attached to the NOI submittal that the project will not have any adverse long-term and short-term effects on specified habitat sites of Rare Species or the project will be carried out in accordance with an approved NHESP habitat management plan.

Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

General Eligibility Criteria for All Coastal Ecological Restoration Limited Projects (cont.)

☐ If the project is located in a Coastal Dune or Barrier Beach, the project avoids and minimizes armoring of the Coastal Dune or Barrier Beach to the maximum extent practicable.

☐ The project complies with all applicable provisions of 310 CMR 10.24(1) through (6) and 310 CMR 10.24(9) and (10).

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

These additional criteria must be met to qualify as an Ecological Restoration Limited Project to ensure that the restoration and improvement of the natural capacity of a Resource Area to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

☐ This Ecological Restoration Limited Project application meets the eligibility criteria for Ecological Restoration Limited Project [310 CMR 10.24(8)(a) through (d) and as proposed, furthers at least one of the WPA interests is for the project type identified below.

☐ **Tidal Restoration Projects**

☐ A project to restore tidal flow that will not significantly increase flooding or storm damage impacts to the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure.

☐ **Shellfish Habitat Restoration Projects**

☐ The project has received a Special Projects Permit from the Division of Marine Fisheries or, if a municipality, has received a shellfish propagation permit.

☐ The project is made of cultch (e.g., shellfish shells from oyster, surf or ocean clam) or is a structure manufactured specifically for shellfish enhancement (e.g., reef blocks, reef balls, racks, floats, rafts, suspended gear).

☐ **Other Ecological Restoration Projects** that meet the criteria set forth in 310 CMR 10.24(8)(a) through (d).

☐ Restoration, enhancement, or management of Rare Species habitat.

☐ Restoration of hydrologic and habitat connectivity.

☐ Removal of aquatic nuisance vegetation to impede eutrophication.

☐ Thinning or planting of vegetation to improve habitat value.

☐ Fill removal and re-grading.

☐ Riparian corridor re-naturalization.

☐ River floodplain re-connection.

Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

- ☐ In-stream habitat enhancement.
- ☐ Remediation of historic tidal wetland ditching.
- ☐ Eelgrass restoration.
- ☐ Invasive species management.
- ☐ Installation of fish passage structures.
- ☐ Other. Describe:

☐ This project involves the construction, repair, replacement or expansion of public or private infrastructure (310 CMR 10.24(9).

- ☐ The NOI attachment labeled _____ is an operation and maintenance plan to ensure that the infrastructure will continue to function as designed.
- ☐ The operation and maintenance plan will be implemented as a continuing condition in the Order of Conditions and the Certificate of Compliance.
- ☐ This project proposes to replace an existing stream crossing (310 CMR 10.24(10). The crossing complies with the Massachusetts Stream Crossing Standards to the maximum extent practicable with details provided in the NOI. The crossing type:
  - ☐ Replaces an existing non-tidal crossing that is part of an Anadromous/Catadromous Fish Run (310 CMR 10.35)
  - ☐ Replaces an existing tidal crossing that restricts tidal flow. The tidal restriction will be eliminated to the maximum extent practicable.
- ☐ At a minimum, in evaluating the potential to comply with the standards to the maximum extent practicable the following criteria have been consider site constraints in meeting the standard, undesirable effects or risk in meeting the standard, and the environmental benefit of meeting the standard compared to the cost, by evaluating the following:
  - ☐ The potential for downstream flooding;
  - ☐ Upstream and downstream habitat (in-stream habitat, wetlands);
  - ☐ Potential for erosion and head-cutting;
  - ☐ Stream stability;
  - ☐ Habitat fragmentation caused by the crossing;
  - ☐ The amount of stream mileage made accessible by the improvements;
  - ☐ Storm flow conveyance;

Eligibility Criteria - Coastal Ecological Restoration Limited Projects (310 CMR 10.24(8)) (Cont.)

Additional Eligibility Criteria for Specific Coastal Ecological Restoration Limited Project Types

- ☐ Engineering design constraints specific to the crossing;
- ☐ Hydrologic constraints specific to the crossing;
- ☐ Impacts to wetlands that would occur by improving the crossing;
- ☐ Potential to affect property and infrastructure; and
- ☐ Cost of replacement.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4))

Complete this Eligibility Criteria Checklist ***before*** filling out a Notice of Intent Application to determine if your project qualifies as an Inland Ecological Restoration Limited Project. (310 CMR 10.53(4)) Sign the Eligibility Certification at the end of Appendix A, and attach the checklist with supporting documentation and the Eligibility Certification to your Notice of Intent Application.

General Eligibility Criteria for All Inland Ecological Restoration Limited Projects

Notwithstanding the requirements of any other provision of 310 CMR 10.25 through 10.35, 310 CMR 10.54 through 10.58, and 310 CMR 10.60, the Issuing Authority may issue an Order of Conditions permitting an Ecological Restoration Project listed in 310 CMR 10.53(4)(e) as an Ecological Restoration Limited Project and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40, provided that:

☒ The project is an Ecological Restoration Project as defined in 310 CMR 10.04 and is a project type listed below [310 CMR 10.53(4)(e)].

- ☐ Dam Removal
- ☐ Freshwater Stream Crossing Repair and Replacement
- ☐ Stream Daylighting
- ☐ Tidal Restoration
- ☐ Rare Species Habitat Restoration
- ☐ Restoring Fish Passageways
- ☒ Other (describe project type): Removal of excessive nuisance aquatic vegetation in pond.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

General Eligibility Criteria for All Inland Ecological Restoration Limited Projects

☒ The project will further at least one of the WPA (M.G.L. c. 131, § 40) interests identified below.

- ☐ Protection of public or private water supply
- ☐ Protection of ground water supply
- ☐ Flood control
- ☐ Storm damage prevention
- ☐ Prevention of pollution
- ☐ Protection of land containing shellfish
- ☒ Protection of fisheries
- ☒ Protection of wildlife habitat

☐ If the project will impact an area located within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands, a NHESP preliminary written determination is attached to the NOI submittal that the project will have no adverse long-term and short-term effects on specified habitat sites of Rare Species or the project will be carried out in accordance with an approved NHESP habitat management plan.

☐ The project will be carried out in accordance with any time of year restrictions or other conditions recommended by the Division of Marine Fisheries for coastal waters and the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3).

☐ If the project involves the dredging of 100 cubic yards of sediment or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification has been applied for or obtained.

☒ The project complies with all applicable provisions of 310 CMR 10.53(1), (2), (7), and (8).

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

Additional Eligibility Criteria for Specific Inland Ecological Restoration Limited Project Types

These additional criteria must be met to qualify as an Ecological Restoration Limited Project to ensure that the restoration and improvement of the natural capacity of a Resource Area to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

☒ This project application meets the eligibility criteria for Ecological Restoration Limited Project in accordance with [310 CMR 10.53(4)(a) through (d) and as proposed, furthers at least one of the WPA interests is for the project type identified below:

☐ **Dam Removal**

☐ Project is consistent with MassDEP's 2007 Dam Removal Guidance.

☐ **Freshwater Stream Crossing Repair and Replacement**. The project as proposed and the NOI describes how:

☐ Meeting the eligibility criteria set forth in 310 CMR 10.13 would result in significant stream instability or flooding hazard that cannot otherwise be mitigated, and site constraints make it impossible to meet said criteria.

☐ The project design ensures that the stability of the bank is NOT impaired.

☐ To the maximum extent practicable, the project provides for the restoration of the stream upstream and downstream of the structure as needed to restore stream continuity and eliminate barriers to aquatic organism movement.

☐ The project complies with the requirements of 310 CMR 10.53(7) and (8).

☐ **Stream Daylighting Projects**

☐ The project meets the eligibility criteria for Ecological Restoration Limited Project [310 CMR 10.53(4)(a) through (d)] and as proposed the NOI describes how the proposed project meets to the maximum extent practicable, consistent with the project's ecological restoration goals, all the performance standards for Bank and Land Under Water Bodies and Waterways.

☐ The project meets the requirements of 310 CMR 10.12(1) and (2) and a wildlife habitat evaluation is not included in the NOI.

☐ **Tidal Restoration Project**

☐ Restores tidal flow.

☐ the project, including any proposed flood mitigation measures, will not significantly increase flooding or storm damage to the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

☒ **Other Ecological Restoration Projects** that meet the criteria set forth in 310 CMR 10.53 (4) (a) through (d).

- ☐ Restoration, enhancement, or management of Rare Species habitat.
- ☐ Restoration of hydrologic and habitat connectivity.
- ☒ Removal of aquatic nuisance vegetation to impede eutrophication.
- ☒ Thinning or planting of vegetation to improve habitat value.
- ☐ Riparian corridor re-naturalization.
- ☐ River floodplain re-connection.
- ☐ In-stream habitat enhancement.
- ☐ Fill removal and re-grading.
- ☐ Flow restoration.
- ☐ Installation of fish passage structures.
- ☐ Invasive species management.
- ☐ Other. Describe: _____

☐ This project involves the construction, repair, replacement or expansion of public or private infrastructure. (310 CMR 10.53(7))

- ☐ The NOI attachment labeled _____ is an operation and maintenance plan to ensure that the infrastructure will continue to function as designed.
- ☐ The operation and maintenance plan will be implemented as a continuing condition in the Order of Conditions and the Certificate of Compliance.

☐ This project replaces an existing stream crossing (310 CMR 10.53(8)). The crossing type:

- ☐ Replaces an existing non-tidal crossing designed to comply with the Massachusetts Stream Crossing Standards to the maximum extent practicable with details provided in the NOI.
- ☐ Replaces an existing tidal crossing that restricts tidal flow. The tidal restriction will be eliminated to the maximum extent practicable.

Eligibility Criteria - Inland Ecological Restoration Limited Project (310 CMR 10.53(4)) (cont.)

☐ At a minimum, in evaluating the potential to comply with the standards to the maximum extent practicable the following criteria have been consider site constraints in meeting the standard, undesirable effects or risk in meeting the standard, and the environmental benefit of meeting the standard compared to the cost, by evaluating the following:

- ☐ The potential for downstream flooding;
- ☐ Upstream and downstream habitat (in-stream habitat, wetlands);
- ☐ Potential for erosion and head-cutting;
- ☐ Stream stability;
- ☐ Habitat fragmentation caused by the crossing;
- ☐ The amount of stream mileage made accessible by the improvements;
- ☐ Storm flow conveyance;
- ☐ Engineering design constraints specific to the crossing;
- ☐ Hydrologic constraints specific to the crossing;
- ☐ Impacts to wetlands that would occur by improving the crossing;
- ☐ Potential to affect property and infrastructure; and
- ☐ Cost of replacement.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Required Actions (310 CMR 10.11)

Complete the Required Actions before submitting a Notice of Intent Application for an Ecological Restoration Project and submit a completed copy of this Checklist with the Notice of Intent.

☒ **Massachusetts Environmental Policy Act (MEPA) / Environmental Monitor**
https://www.mass.gov/service-details/the-environmental-monitor

For Ecological Restoration Limited Projects, there are no changes to MEPA requirements.

☒ Submit written notification at least 14 days prior to the filing of a Notice of Intent (NOI) to the Environmental Monitor for publication. A copy of the written notification is attached and provides at minimum:

☒ A brief description of the proposed project.

☒ The anticipated NOI submission date to the conservation commission.

☒ The name and address of the conservation commission that will review the NOI.

☒ Specific details as to where copies of the NOI may be examined or acquired and where to obtain the date, time, and location of the public hearing.

☐ **Massachusetts Endangered Species Act (MESA) /Wetlands Protection Act Review**

☐ Preliminary Massachusetts Endangered Species Act Review from the Natural Heritage and Endangered Species Program (NHESP) has been met and the written determination is attached.

☐ Supplemental Information for Endangered Species Review has been submitted.

1. ☐ Percentage/acreage of property to be altered:

   a. Within Wetland Resource Area _____ Percentage/acreage

   b. Outside Wetland Resource Area _____ Percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

3. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work.

4. ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

5. ☐ Photographs representative of the site

6. ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review)

Required Actions (310 CMR 10.11) (cont.)

Make check payable to "Commonwealth of Massachusetts - NHESP" and mail to NHESP:

Natural Heritage & Endangered Species Program
MA Division of Fisheries & Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

7. Projects altering 10 or more acres of land, also submit:

   a. ☐ Vegetation cover type map of site

   b. ☐ Project plans showing Priority & Estimated Habitat boundaries

OR Check One of the Following:

1. ☐ Project is exempt from MESA review.

Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/ma-endangered-species-act-mesa-overview; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59 – see C4 below)

2. ☐ Separate MESA review ongoing.

a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. ☐ Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

☐ **Estimated Habitat Map of State-Listed Rare Wetlands Wildlife**

If a portion of the proposed project is located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP), complete the portion below. To view habitat maps, see the **Massachusetts Natural Heritage Atlas** or view the maps electronically at: https://www.mass.gov/guides/masswildlife-publications#-massachusetts-natural-heritage-atlas-

☐ A preliminary written determination from Natural Heritage and Endangered Species Program (NHESP) must be obtained indicating that:

☐ Project will NOT have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP.

☐ Project will have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP. A copy of NHESP's written preliminary determination in accordance with 310 CMR 10.11(2) is attached. This specifies:

☐ Date of the map: _____

Required Actions (310 CMR 10.11) (cont.)

☐ If the Rare Species identified is/are likely to continue to be located on or near the project, and if so, whether the Resource Area to be altered is in fact part of the habitat of the Rare Species.

☐ That if the project alters Resource Area(s) within the habitat of a Rare Species:

☐ The Rare Species is identified;

☐ NHESP's recommended changes or conditions necessary to ensure that the project will have no short or long term adverse effect on the habitat of the local population of the Rare Species is provided; or

☐ An approved NHESP habitat management plan is attached with this Notice of Intent.

Send the request for a preliminary determination to:
Natural Heritage & Endangered Species Program
MA Division of Fisheries & Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

☐ **Division of Marine Fisheries**

☐ If the project will occur within a coastal waterbody with a restricted Time of Year, [see Appendix B of the Division of Marine Fisheries (DMF) Technical Report TR 47 "Marine Fisheries Time of Year Restrictions (TOYs) for Coastal Alteration Projects" dated April 2011 https://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/MA/TR-47.pdf].

☐ Obtain a DMF written determination stating:

☐ The proposed work does NOT require a TOY restriction.

☐ The proposed work requires a TOY restriction. Specific recommended TOY restriction and recommended conditions on the proposed work is attached.

☐ If the project may affect a diadromous fish run [re: Division of Marine Fisheries (DMF) Technical Reports TR 15 through 18, dated 2004: https://www.mass.gov/service-details/marine-fisheries-technical-reports]

☐ Obtain a DMF written determination stating:

☐ The design specifications and operational plan for the project are compatible with the passage requirements of the fish run.

☐ The design specifications and operational plan for the project are not compatible with the passage requirements of the fish run.

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Agawam
City/Town

Required Actions (310 CMR 10.11) (cont.)

Send the request for a written or electronic determination to:

South Shore – Bourne to Rhode Island border, and the Cape & Islands:
Division of Marine Fisheries –
South Coast Field Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore – Plymouth to New Hampshire border:
Division of Marine Fisheries –
North Shore Field Station
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

☐ **Division of Fisheries and Wildlife –** https://www.mass.gov/orgs/division-of-fisheries-and-wildlife

☐ Projects that involve silt-generating, in-water work that will impact a non-tidal perennial river or stream and the in-water work will not occur between May 1 and August 30.

☐ Obtain a written determination from the Division of Fisheries and Wildlife (DFW) as to whether the proposed work requires a TOY restriction.

☐ The proposed work does NOT require a TOY restriction.

☐ The proposed work requires a TOY restriction. The DFW determination with TOY restriction and other conditions is attached.

☐ **MassDEP Water Quality Certification**

☐ Project involves dredging of 100 cubic yards or more in a Resource Area or dredging of any amount in an Outstanding Resource Water (ORW). A copy and proof of the MassDEP Water Quality Certification pursuant to 314 CMR 9.00 is attached to the NOI.

☐ This project is a Combined Permit Application for 401 Dredging and Restoration (BRP WW 26).

☐ **MassDEP Wetlands Restriction Order**

Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

☐ Yes ☐ No

☐ **Department of Conservation and Recreation**

Office of Dam Safety

☐ For Dam Removal Projects, obtain a written determination from the Department of Conservation and Recreation Office of Dam Safety that the dam is not subject to the jurisdiction of the Office under 302 CMR 10.00, a written determination that the dam removal does not require a permit under 302 CMR 10.00 or a permit authorizing the dam removal in accordance with 302 CMR 10.00 has been issued.

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Required Actions (310 CMR 10.11) (cont.)

Areas of Critical Environmental Concern (ACECs)

Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations).

Name of ACEC

Minimum Required Documents (310 CMR 10.12)

Complete the Required Documents Checklist below and provide supporting materials before submitting a Notice of Intent Application for an Ecological Restoration Project.

☒ This Notice of Intent meets all applicable requirements outlined in for Ecological Restoration Projects in 310 CMR 10.12. Use the checklist below to ensure that all documentation is included with the NOI.

At a minimum, a Notice of Intent for an Ecological Restoration Project shall include the following:

☒ Description of the project's ecological restoration goals;

☒ The location of the Ecological Restoration Project;

☐ Description of the construction sequence for completing the project;

☐ A map of the Areas Subject to Protection Under M.G.L. c. 131, § 40, that will be temporarily or permanently altered by the project or include habitat for Rare Species, Habitat of Potential Regional and Statewide Importance, eel grass beds, or Shellfish Suitability Areas.

☐ The method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.) is attached with documentation methodology.

☒ List the titles and dates for all plans and other materials submitted with this NOI.

Project narratives & figures
a. Plan Title

Goddard Consulting, LLC.
b. Prepared by

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

11/18/2025
g. Date

☐ If there is more than one property owner, attach a list of these property owners not listed on this form.

☒ Attach NOI Wetland Fee Transmittal Form.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Minimum Required Documents (310 CMR 10.12)

- ☐ An evaluation of any flood impacts that may affect the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure as well as any proposed flood impact mitigation measures;
- ☐ A plan for invasive species prevention and control;
- ☐ The Natural Heritage and Endangered Species Program written determination in accordance with 310 CMR 10.11(2), if needed;
- ☐ Any Time of Year restrictions and/or other conditions recommended by the Division of Marine Fisheries or the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3), (4), (5), if needed;
- ☒ Proof that notice was published in the Environmental Monitor as required by 310 CMR 10.11(1;
- ☒ A certification by the applicant under the penalties of perjury that the project meets the eligibility criteria set forth in 310 CMR 10.13;
- ☐ If the Ecological Restoration Project involves the construction, repair, replacement or expansion of infrastructure, an operation and maintenance plan to ensure that the infrastructure will continue to function as designed;
- ☐ If the project involves dredging of 100 cubic yards or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification issued by the Department pursuant to 314 CMR 9.00;
- ☐ If the Ecological Restoration Project involves work on a stream crossing, information sufficient to make the showing required by 310 CMR 10.24(10) for work in a coastal resource area and 310 CMR 10.53(8) for work in an inland resource area; and
- ☐ If the Ecological Restoration Project involves work on a stream crossing, baseline photo-points that capture longitudinal views of the crossing inlet, the crossing outlet and the upstream and downstream channel beds during low flow conditions. The latitude and longitude coordinates of the photo-points shall be included in the baseline data.
- ☐ This project is subject to provisions of the MassDEP Stormwater Management Standards. A copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) is attached.
- ☐ Provide information as the whether the project has the potential to impact private water supply wells including agricultural or aquacultural wells or surface water withdrawal points.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent
Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Agawam
City/Town

Certification that the Ecological Restoration Project Meets the Eligibility Criteria

I hereby certify under penalties of perjury that the Ecological Restoration Project Notice of Intent application does not meet the Eligibility criteria for an Ecological Restoration Order of Conditions set forth in 310 CMR 10.13, but does meet the Eligibility Criteria for a Ecological Restoration Limited Project set forth in 10.24(8) or 10.53(4) whichever is applicable. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Owen Kramer

Signature of Applicant or Authorized Agent

Owen Kramer

Printed Name of Applicant or Authorized Agent

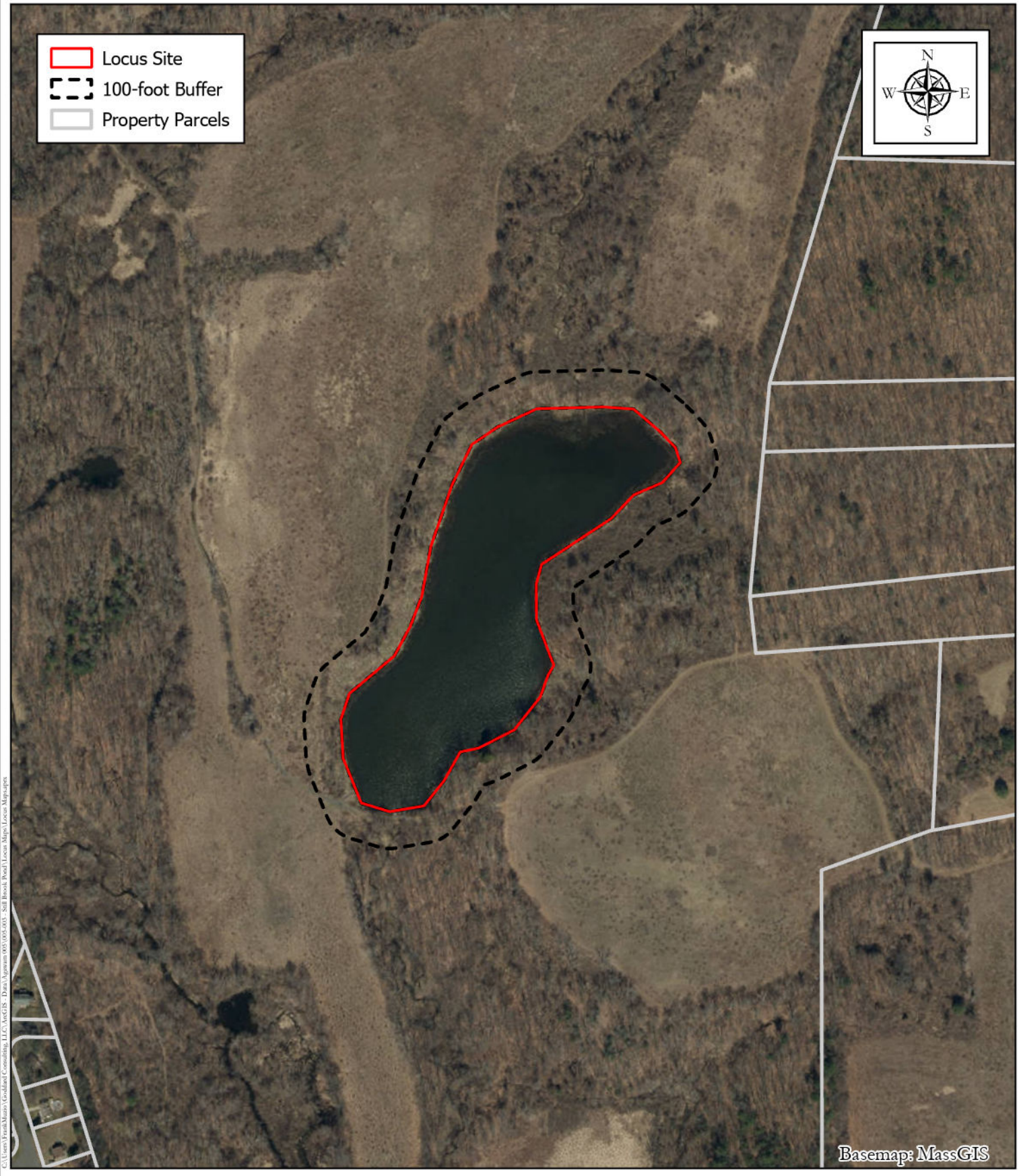
11/24/2025

Date

The certification must be signed by the applicant; however, it may be signed by a duly authorized agent (named in Item 2) if this form is accompanied by a statement by the applicant designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment B: Abutter Information



GODDARD CONSULTING
Strategic Ecological Consulting

Abutters Map (100-foot Buffer)

Still Brook Pond
Agawam, MA 01030

0 175 350 Feet 1" = 350'

72.6860089°W, 42.0513857°N

Parcel ID: C7_2_4

Date: 11/18/2025

To: The Environmental Monitor
From: Goddard Consulting, LLC
Date: 11/24/2025
Re: Notification of filing a Notice of Intent (NOI) for Still Brook Pond - Agawam, MA
Anticipated Date of Submission: 12/08/2025

The proposed project is seeking approval to implement an aquatic plant management program at Still Brook Pond in Agawam, MA. The focus of this management will be to reduce, control, and proactively manage nuisance aquatic vegetation using herbicide treatment. This project aims to protect the interests of the Wetlands Protection Act by slowing eutrophication and improving habitat value.

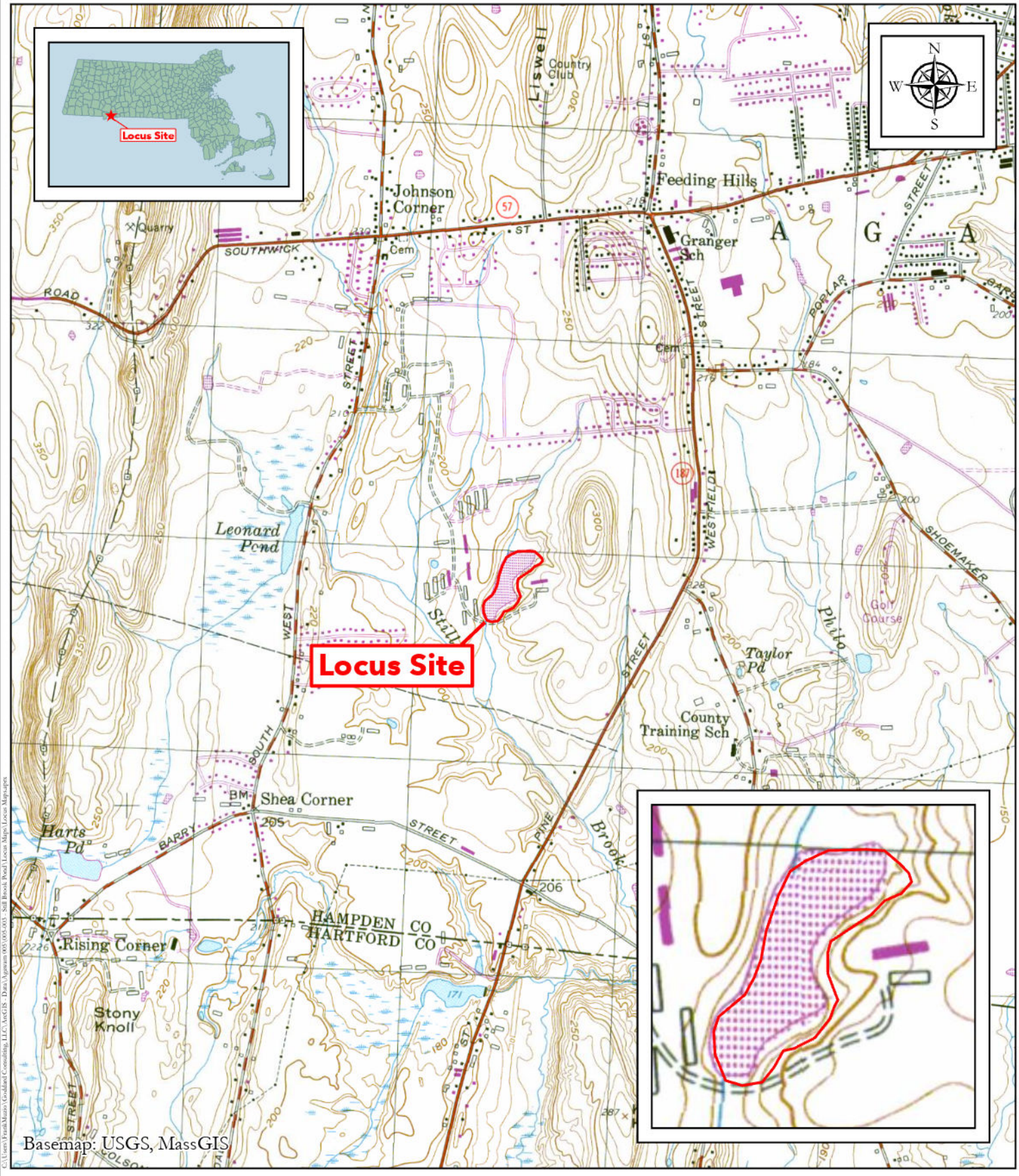
Reviewing Conservation Commissions
Agawam Conservation Commission
Town Hall
36 Main Street
Agawam, MA 01001

Copies of the Notice of Intent may be examined or acquired by contacting the applicant's representative, Goddard Consulting, LLC, at (508) 393-3784.

Please see the Agawam Conservation Commission website for the meeting schedule to confirm exact dates and agendas.

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment C: Locus Maps & Figures



GODDARD CONSULTING
Strategic Ecological Consulting

USGS of Locus Site

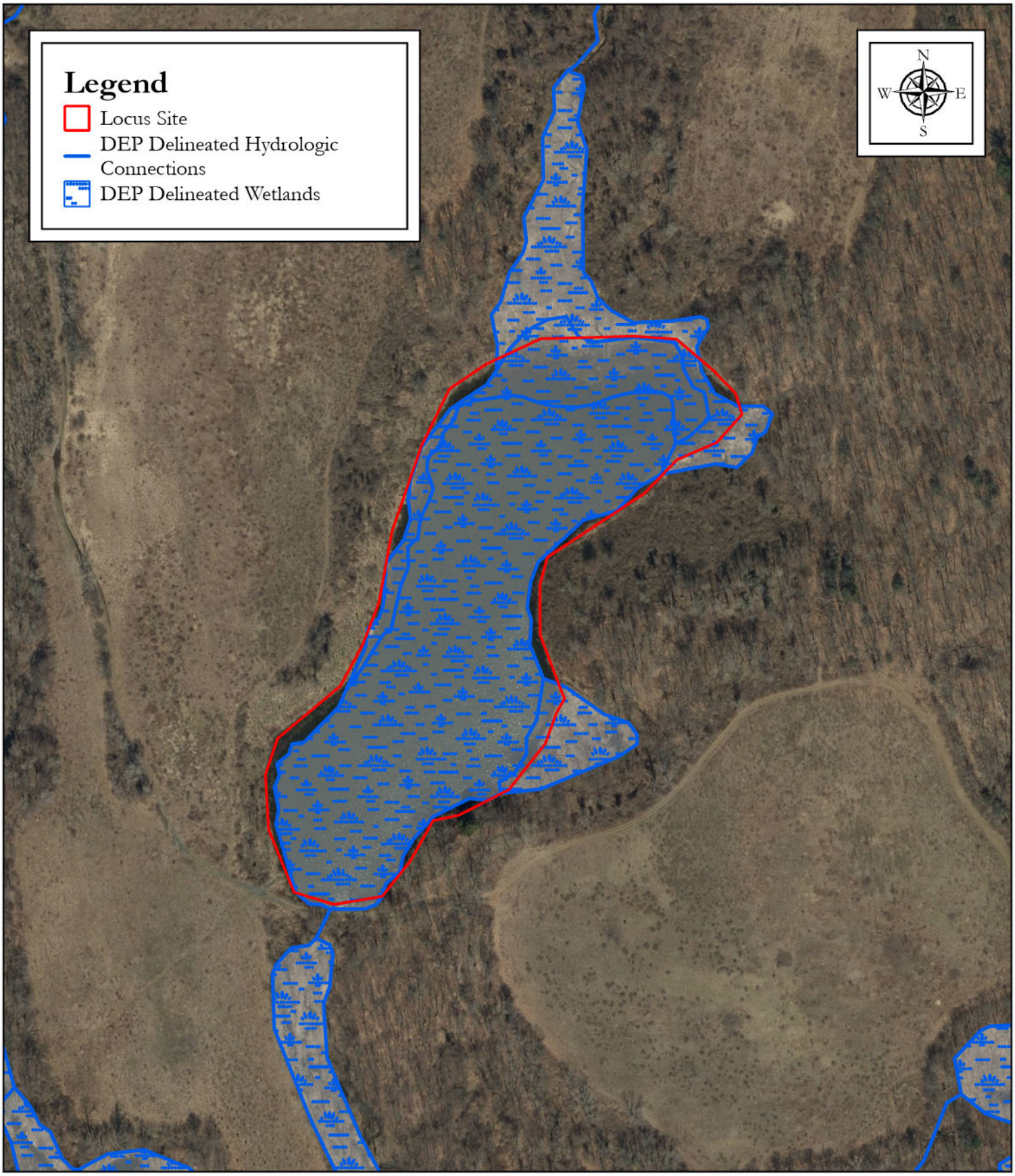
0 1,000 2,000 Feet 1" = 2,000'

72.6860196°W, 42.0512271°N

Date: 11/18/2025

Still Brook Pond
Agawam, MA 01030

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

Orthophoto of Locus Site

0 125 250 Feet

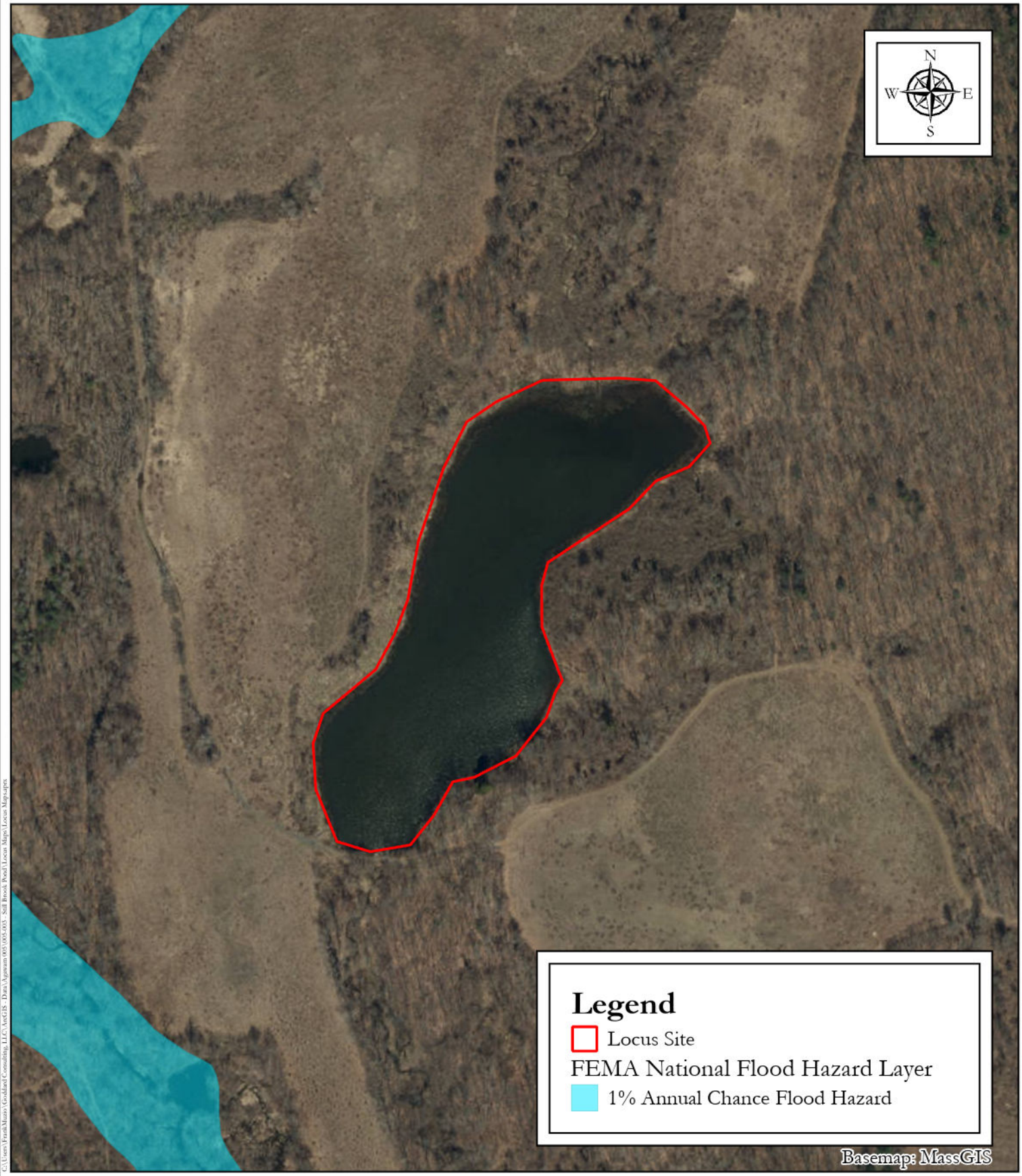
1" = 250'

72.6860089°W, 42.0513857°N

Still Brook Pond
Agawam, MA 01030

Date: 11/18/2025

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

FEMA Flood Map of Locus Site

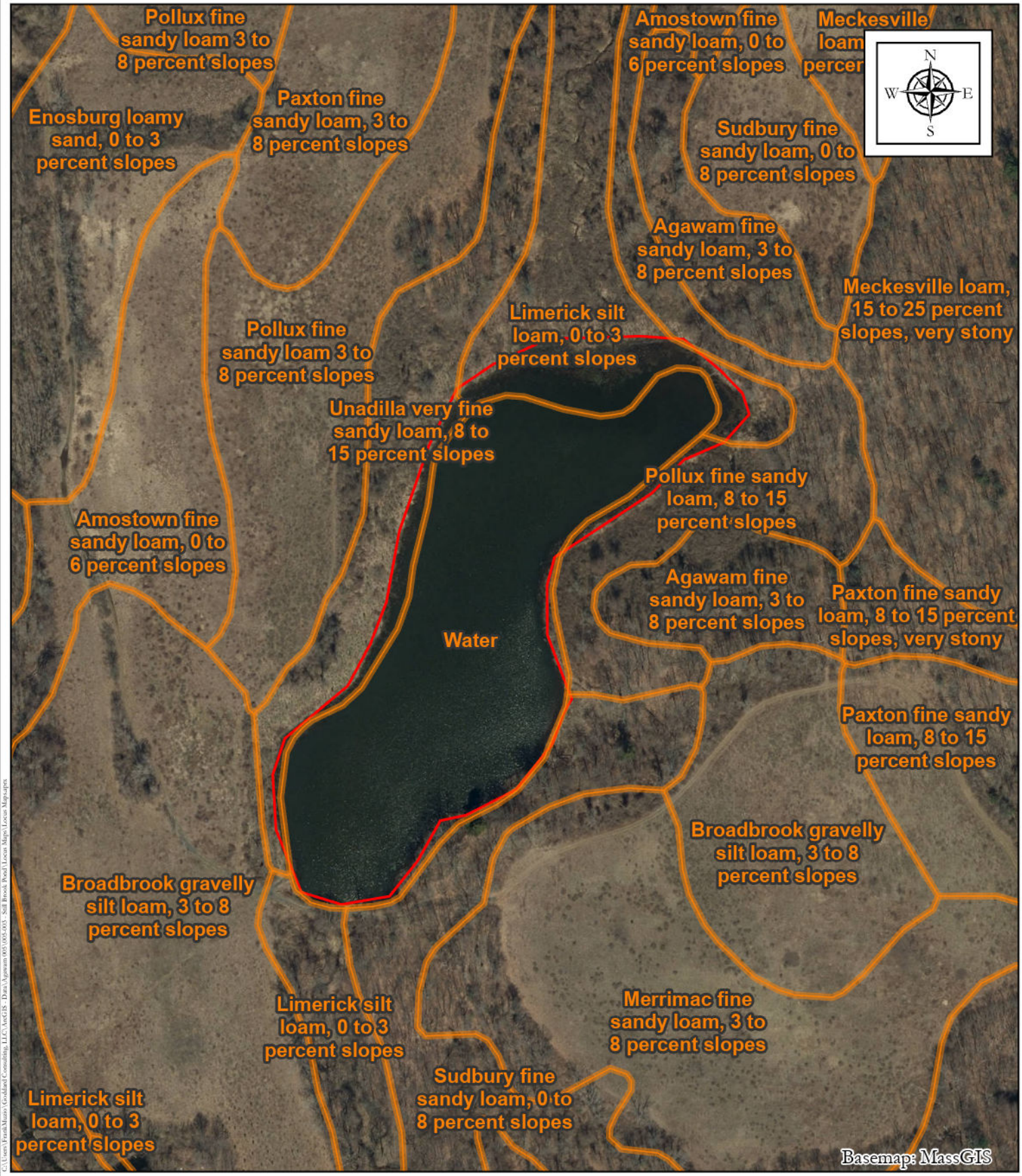
0 150 300 Feet 1" = 300'

72.6860089°W, 42.0513857°N

Still Brook Pond
Agawam, MA 01030

Date: 11/18/2025

Parcel ID: C7_2_4



GODDARD CONSULTING
Strategic Ecological Consulting

NRCS Soil Survey of Locus Site

0 125 250 Feet 1" = 250'

72.6860089°W, 42.0513857°N

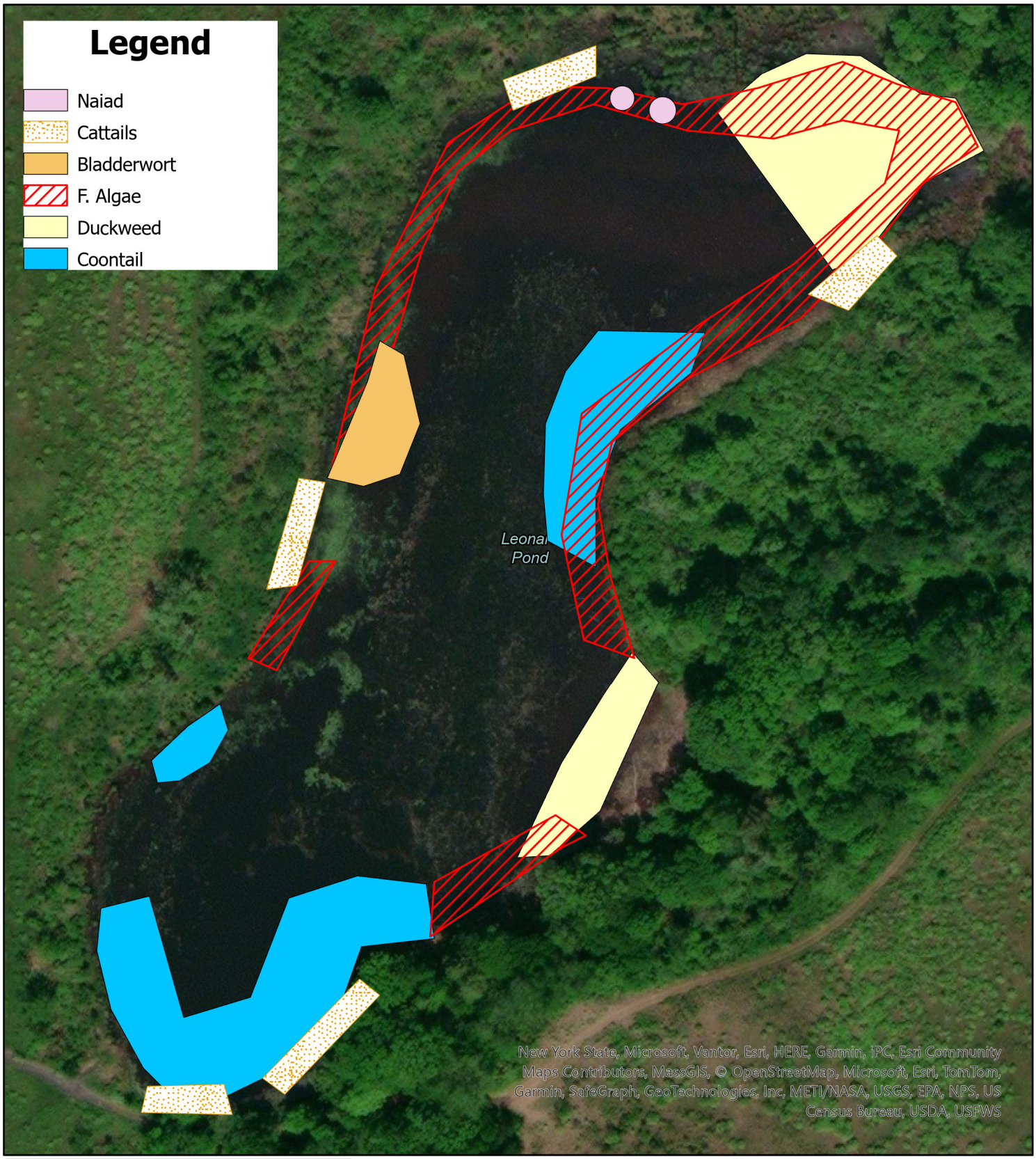
Date: 11/18/2025

Still Brook Pond
Agawam, MA 01030

Parcel ID: C7_2_4

Figure 1: Still Brook Pond Survey (07/18/2025)

SOLITUDE LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



STILL BROOK POND
AGAWAM, MA
HAMPDEN COUNTY

STILL BROOK POND
0 125 250 Feet
N
1:1,600

Map Date: 11/11/2025
Prepared by: TAP
Office: SHREWSBURY, MA

GODDARD CONSULTING
Strategic Ecological Consulting

Attachment D: Safety Datasheets

Diquat Treatment
https://www.cdms.net/ldat/mp9UM003.pdf

Endothall Treatment
http://www.cleanlake.com/images/Aquathol_K_SDS_2022_.pdf

Fluridone Treatment
https://www.sepro.com/Documents/Sonar-AS_SDS.pdf

Imazamox Treatment
https://file.medchemexpress.com/batch_PDF/HY-100427/Imazamox-SDS-MedChemExpress.pdf

Flumioxazin Treatment
https://assets.greenbook.net/18-40-26-28-05-2019-Ms_384_RedEagle_Flumioxazin_51__WDG.pdf

Glyphosphate Treatment
https://cms2.revize.com/revize/claytownship/AquaPro_MSDS.pdf

GODDARD CONSULTING
Strategic Ecological Consulting

January 21st, 2026

Agawam Conservation Commission
36 Main Street
Agawam, MA 01001

CC: MassDEP Western Regional Office
436 Dwight Street
Springfield, MA 01103

Re: Response to DEP Comments
Still Brook Pond - 100 Pine Street, Agawam, MA (DEP FILE# 087-0710)

Dear Agawam Conservation Commission,

Goddard Consulting, LLC (Goddard) is submitting this amendment to the Notice of Intent (NOI) on behalf of the applicant, the Town of Agawam, for the proposed pond management plan at Still Brook Pond (Parcel ID: C7_2_4).

Mass Department of Environmental Protection Comments:
Goddard offers the following responses to the comments below. Responses are in bold:

1) [3] Was the aeration system approved by the commission?

Goddard consulted with the Agawam Conservation Commission regarding the aeration system currently installed in Still Brook Pond. The system was not included or approved under the original Notice of Intent (DEP File No. 087-0668), issued in August 2021. This amendment to the current NOI (087-0710) is being submitted to request retroactive approval of the aeration system and authorization for its continued operation, consistent with ongoing pond management objectives. Aeration is an important management tool that improves dissolved oxygen levels, enhances water circulation, reduces internal nutrient loading, and supports overall aquatic ecosystem health. The aeration system is operated at the discretion of the Town or the pond management team and is used on an as-needed basis throughout the year in response to water quality and vegetation conditions; however, it is not operated during periods when the pond is frozen.

If you have any questions, please feel free to contact Goddard Consulting at (508) 393-3784.
Sincerely,
Goddard Consulting LLC

Steven Riberdy, MS, PWS, CWB, CERP, CE, PSS
Principal Ecologist, Regional Manager

Owen Kramer, CESSWI
Lead Wetland Scientist

Request for Certificate of Compliance

Under the Massachusetts Wetlands Protection Act 310 CMR 10.00

DEP FILE # 087-0671

Project Location:

233, 265 & Lot 6 Main Street
Agawam, Massachusetts 01001
(Parcel IDs: K14-2-8, K13-2-1 & K13-2-11)

Submitted To:

Town of Agawam Conservation Commission
1000 Suffield Street
Agawam, Massachusetts 01001

Applicant:

HP Hood, LLC
6 Kimball Lane
Lynnfield, Massachusetts 01940

Property Owner(s):

265 Main Street & Lot 6 Main Street
HP Hood, LLC
6 Kimball Lane
Lynnfield, Massachusetts 01940

233 Main Street
HP Hood, Inc.
6 Kimball Lane
Lynnfield, Massachusetts 01940

RLA Project File No. 201016

January 28, 2026

R LEVESQUE ASSOCIATES, INC.
A LAND PLANNING SERVICES COMPANY
40 School Street, Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

TABLE OF CONTENTS

SECTIONS

1. COVER LETTER
2. WPA FORM 8A – REQUEST FOR CERTIFICATE OF COMPLIANCE
3. RECORDED ORDER OF CONDITIONS

LIST OF APPENDICES

APPENDIX A: SITE PLAN

I. COVER LETTER

R LEVESQUE ASSOCIATES, INC.
40 School Street, P.O. BOX 640, Westfield, MA 01085
p 413.568.0985 · f 413.568.0986 · www.rlaland.com

January 28, 2026

Henry Kozloski, Chairman
Town of Agawam Conservation Commission
1000 Suffield Street
Agawam, Massachusetts 01001

Re: Request for Certificate of Compliance (MassDEP File #087-0671)
233, 265 & Lot 6 Main Street
Agawam, Massachusetts 01001
(Parcel IDs: K14-2-8, K13-2-1 & K13-2-11)
RLA Project File No. 201016

Dear Chairman Kozloski and Commissioners,

On behalf of the applicant, H.P. Hood, LLC, R Levesque Associates, Inc. is submitting a Request for Certificate of Compliance for Order of Conditions #087-0671 issued by the Town of Agawam Conservation Commission on November 18, 2021.

Portions of the approved work that has been completed consist of the building addition and vehicle drive aisle improvements located on the southeast side of the existing building (#265). The completed work is shown on the "Partial As-Built" plan prepared by R Levesque Associates, Inc., dated 11/30/2023. The remaining work permitted with the Order of Conditions will not be pursued by the applicant.

The applicant respectfully requests a Certificate of Compliance to close out the Order of Conditions and allow for a future Notice of Intent filing for other projects on the subject properties. Enclosed, please find a Request for Certificate of Compliance (WPA Form 8A). We are requesting to be placed on the next available Conservation Commission meeting agenda.

Sincerely,
R LEVESQUE ASSOCIATES. INC.

Filipe J. Cravo, P.E
Vice President

2. WPA FORM 8A – REQUEST FOR CERTIFICATE OF COMPLIANCE

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 8A – Request for Certificate of Compliance

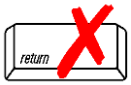
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: 087-0671
Provided by DEP

A. Project Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

HP Hood, LLC
Name

6 Kimball Lane
Mailing Address

Lynnfield | MA | 01940
City/Town | State | Zip Code

617-887-8317
Phone Number

2. This request is in reference to work regulated by a final Order of Conditions issued to:

HP Hood, LLC
Applicant

11-18-2021 | 087-0671
Dated | DEP File Number

3. The project site is located at:

233, 265, & Lot 6 Main Street | Agawam
Street Address | City/Town

Map K14, Block 2; Map K13, Block 2 | Parcels 8,1, & 11
Assessors Map/Plat Number | Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

HP Hood, Inc. & HP Hood, LLC
Property Owner (if different)

Hampden | 24910 | 387
County | Book | Page

Certificate (if registered land)

5. This request is for certification that (check one):

☐ the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.

☒ the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).
Portions of the approved work that has been completed consist of the building addition and vehicle drive aisle improvements located on the southeast side of the existing building (#265). The remaining work permitted within the Order of Conditions will not be pursued by the applicant.

☐ the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

☒ Yes — If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

☐ No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html).

3. RECORDED ORDER OF CONDITIONS

(SOURCE: HAMPDEN COUNTY REGISTRY OF DEEDS)

fl6

Bk 24910 Pg387 #7459
02-16-2023 @ 11:19a

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:087-0671
eDEP Transaction #:1324036
City/Town:AGAWAM

RECEIVED
2021 NOV 19 A 9:04
CLERK'S OFFICE
TOWN OF AGAWAM

A. General Information

1. Conservation Commission: AGAWAM
2. Issuance: a. ☑ OOC b. ☐ Amended OOC
3. Applicant Details
   - a. First Name: SCOTT
   - b. Last Name: BLAKE
   - c. Organization: HP HOOD, LLC
   - d. Mailing Address: 6 KIMBALL LANE
   - e. City/Town: LYNNFIELD
   - f. State: MA
   - g. Zip Code: 01940
4. Property Owner
   - a. First Name:
   - b. Last Name:
   - c. Organization: HP HOOD, INC. & HP HOOD, LLC
   - d. Mailing Address: 6 KIMBALL LANE
   - e. City/Town: LYNNFIELD
   - f. State: MA
   - g. Zip Code: 01940
5. Project Location
   - a. Street Address: 233, 265, & LOT 6 MAIN STREET
   - b. City/Town: AGAWAM
   - c. Zip Code: 01001
   - d. Assessors Map/Plat#: MAP K14, BLOCK 2 & MAP K13, BLOCK 2
   - e. Parcel/Lot#: PARCEL 8, PARCEL1, & PARCEL 11
   - f. Latitude: 42.08428N
   - g. Longitude: 72.61772W
6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
HAMPDEN		13330 & 23606	509 & 527

7. Dates

a. Date NOI Filed : 9/24/2021 b. Date Public Hearing Closed: 11/10/2021 c. Date Of Issuance: 11/18/2021

8. Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
PROPOSED INDUSTRIAL DEVELOPMENT 233, 265, & LOT 6 MAIN STREET AGAWAM, MA 01001 AS PREPARED FOR H.P HOOD LLC	R LEVESQUE ASSOCIATES, INC	FILIPE CRAVO	11/04/2021	AS NOTED

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the the above-referenced Notice of Intent and based on the information provided in this

I CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL.
ATTEST:
VINCENT GIOSCIA, TOWN CLERK
TOWN OF AGAWAM, MASSACHUSETTS, U.S.A.

application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

a. ☑ Public Water Supply	b. ☐ Land Containing Shellfish	c. ☑ Prevention of Pollution
d. ☑ Private Water Supply	e. ☑ Fisheries	f. ☑ Protection of Wildlife Habitat
g. ☑ Ground Water Supply	h. ☑ Storm Damage Prevention	i. ☑ Flood Control

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

a. ☑ The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

b. ☐ The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act , and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☑ Buffer Zone Impacts:Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a). 0 a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☐ Land under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding				

	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8.☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10.☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11.☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12.☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13.☐ Coastal Beaches	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14.☐ Coastal Dunes	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15.☐ Coastal Banks	a. linear feet	b. linear feet		
16.☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17.☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18.☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19.☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet

20. ☐ Fish Runs

Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above

_____ c. c/y dredged _____ d. c/y dredged

21. ☐ Land Subject to Coastal Storm Flowage

_____ a. square feet _____ b. square feet

22.

☐ Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

_____ a. square feet of BVW _____ b. square feet of Salt Marsh

23.

☐ Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

_____ a. number of new stream crossings _____ b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. the work is a maintenance dredging project as provided for in the Act; or
   b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..
10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP"]
File Number :"087-0671"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) ☑ is not (2)☐ subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;

a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period

erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.*. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

g) The responsible party shall:

1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission")

upon request; and

3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS



TOWN OF AGAWAM, MASSACHUSETTS
CONSERVATION COMMISSION
ORDER OF CONDITIONS
HP Hood, LLC DEP File # 087-0671

1. This Order supersedes all previous Orders of Conditions issued for this work.

2. The Order of Conditions applies only to the work permitted by this Order. Any other work to be done within the area of statutory interests of Wetlands Protection shall require the filing of a new Notice of Intent or Request for Determination.

3. During the construction phase, the applicant shall be responsible for maintaining a copy of these Orders at the site. The applicant shall be responsible for compliance with the conditions of these Orders.

4. If something in the plan changes substantially, the applicant shall contact the Conservation Commission and arrange a conference between the Commission, contractor, designer/engineer, and applicant. This conference shall take place at a regularly scheduled Commission meeting.

5. Prior to the start of construction, adequate erosion and sedimentation control measures shall be implemented, and shall be maintained throughout the entire construction phase and until the site has become stabilized with permanent vegetative cover.

6. The Commission shall be notified at least seventy-two hours prior to the start of site work (including tree cutting or clearing).

7. The Commission shall be notified when the erosion control measures are in place to enable the Commission to ensure compliance with these Orders.

8. The erosion and sedimentation barrier shall serve as the alteration limit line. Said barrier shall fully protect the adjacent wetland/resource area, and no work shall be permitted beyond this limit line. No machinery shall be operated beyond this limit line.

9. There shall be no discharge or spillage of oil, fuel, any petroleum product or any other pollutant into any area of statutory interest.

10. At no time shall any construction materials, soils, fills, sediments, dredging or any other substances be stockpiled or stored in any area of statutory interest.

11. All work within the area of statutory interest shall be performed so as to create minimum

disturbance to the existing vegetative cover and contours.

12. The construction site shall be left in a stable condition at the close of each day. Erosion and sedimentation controls shall be continuously monitored to ensure proper operation.

13. If any alteration of the wetland/resource area does occur, the Commission shall impose such measures as it finds necessary to protect and restore the areas of statutory interest.

14. Only tagged trees shall be removed. All limbs, branches, slash and deadwood shall be removed from the areas of statutory interest.

15. Whether from on-site or off-site, any fill used in connection with this project shall be clean fill as described here:

    The fill material shall be clean coarse washed sand or other clean granular material essentially free of clay, fines, dust, organic matter, large stones, masonry, stumps, frozen clumps of earth, wood tree branches and waste material. Before the fill is put in place, all trees, brush and stumps shall be removed from the area to be filled. Topsoil, peat and other impervious materials shall be removed from all areas to be filled prior to the placement of the fill material.

16. No creosote shall be used in any areas of statutory interest. An Environmental Impact Statement of any alternative preservative shall be submitted to the Commission prior to the start of construction phase.

17. All disturbed areas of statutory interest shall be stabilized with permanent vegetative cover. After proper grading, the area shall be loamed with not less than four (4) inches of good quality loam, seeded with a cover appropriate to the area and fertilized with an organic 10-6-4 or equivalent dry fertilizer at the rate of fifteen pounds per one thousand feet. A mulch of hay, straw or bark of at least two (2) inches in depth shall be placed on newly seeded areas and all slopes capable of eroding into the areas of statutory interest.

18. No liquid or solid chemical lawn fertilizers, pesticides, herbicides or chemical or petroleum dust control agents shall be applied within the area of statutory interest or anywhere that the surface drainage is discharged into an area of statutory interest. Also no petroleum or liquid or solid chemical storage is permitted in any areas of statutory interest.

19. During snow removal operations, snow shall not be piled or placed within an area of statutory interest, and snow containing extraneous matter shall be kept away from these areas. Road salt shall not be used in an area of statutory interest or on surfaces where surface drainage discharges into these areas.

20. Where stone or rock fill has been specified for use in areas that will require subsequent seeding, a minimum of twelve (12) inches or compacted clean fill shall be placed prior to loam placement and seeding.

21. Riparap specifications. (size of stone – 50 lb, 75 lb., 100-125 lb.)
Placement of riprap. (over matting, dimensions, i.e. feet beyond outfall, etc.)
Method of placement. (mechanical or manual, minimal disturbance, etc.)

22. Periodic maintenance/cleaning of the (basin, drainage channel, swale, catch basin or other structure) shall be conducted by the owner and all successors in interest or control of the property. (All catch basins shall contain oil/grease traps. These traps shall be cleaned routinely, but at least once every six months.) The applicant, his successors or assigns shall have the continuing responsibility of this maintenance.

23. Parcels abutting or containing wetland or resource areas shall carry the following restrictions, and a covenant so noted on each deed:

"This lot contains certain areas or abuts areas protected by Chapter 131, Section 40 of the General Laws of Massachusetts known as the Wetlands Protection Act and comes under the jurisdiction of the Agawam Conservation Commission. No cutting of trees, clearing of brush, digging, filling in with soil or debris, or the building of bridges is permitted within one hundred (100) feet of the designated wetland areas or within 200' of any designated river without specific approval granted by the Conservation Commission."

24. The Commission reserves the right to impose additional conditions on any or all portions of this work to minimize the impact of potential site erosion or noticeable degradation of water quality discharging from the site at any time.

25. This order shall apply to all successor or assignee in interest or control of the subject property. Any conveyance of interest or control in the subject property shall make reference to this order by stating that the conveyance is subject to the provisions of an Order of Conditions under the Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and by giving the book and page reference in the Hampden County Registry of Deeds where this order is recorded.

26. The petitioner shall have recorded in the Hampden County Registry of Deeds an "Order of Conditions Form" provided by this Commission. The Commission will not allow work to begin until proof of recording is provided the Conservation Commission.

27. Finding of Fact: This project also includes one stream crossing that has no proposed disturbance to the bank.

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☑ No

2. The Conservation Commission hereby(check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____ 2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
087-0671
MassDEP File #

eDEP Transaction #

Agawam
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

11/18/21
1. Date of Issuance

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
	Henry A. Kozlowski
	Magda Galiatsos
	FRANK MEAGHER.
	Sheryl Becker

RECEIVED
2023 FEB 15 P 2:06
CLERK'S OFFICE
TOWN OF AGAWAM

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on
11-18-21
Date

I CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL.
ATTEST:
VINCENT GIOSCIA, TOWN CLERK
TOWN OF AGAWAM, MASSACHUSETTS, U.S.A.

E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

11/18/2021
1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

Sheryl Becker

Henry Kozloski

Magda Galiatsos

Frank Meagher

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act

(M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

AGAWAM
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

AGAWAM
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

233, 265, & LOT 6 MAIN STREET — Project Location
087-0671 — MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for:

Property Owner

and has been noted in the chain of title of the affected property in:

Book | Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

CHERYL A. COAKLEY-RIVERA, ESQ.
HAMPDEN COUNTY REGISTRY OF DEEDS

APPENDIX A: SITE PLAN

SITE PLAN ENTITLED “PARTIAL AS BUILT”

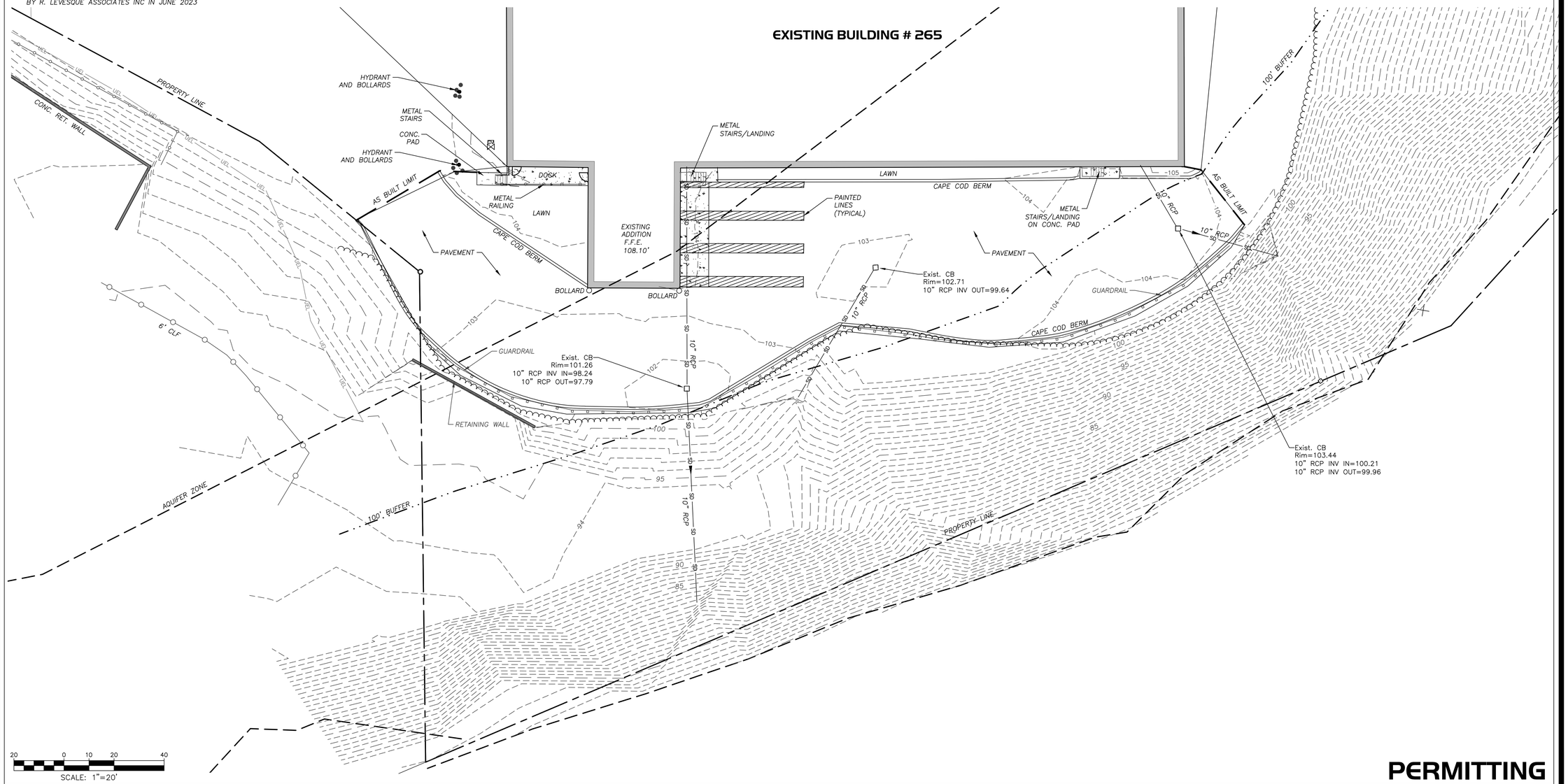
PREPARED FOR H.P. HOOD, LLC

PREPARED BY R LEVESQUE ASSOCIATES, INC.

DATED NOVEMBER 30 2023

NOTES

1. THE RECORD OWNERS OF THE SUBJECT PARCELS ARE:
   265 MAIN STREET – HP HOOD, LLC (L.C. CTF. #39127 & DEED BK. 23606 PG. 527)
   233 MAIN STREET – H.P. HOOD, INC. (L.C. CTF. #25079 & DEED BK. 13330 PG. 509)
2. THE PROPERTY LINES SHOWN HEREON ARE BASED UPON THE FOLLOWING PLANS:
   LAND COURT PLAN #1369A – #1369E
   PLAN BOOK 305 PAGES 118+119
   AND OTHER UNRECORDED PLANS AS FURNISHED BY THE CLIENT
3. THE EXISTING BUILDING(S) SHOWN HEREON ARE BASED ON AN APPROXIMATE MEASUREMENT OF THE OUTSIDE PERIMETER OF THE EXISTING STRUCTURES. THE ACTUAL LOCATION OF THE EXISTING BUILDING WALLS AND CORNERS SHOULD BE VERIFIED IN THE FIELD PRIOR TO ANY CONSTRUCTION WORK THAT WOULD ABUT OR TAKE PLACE ADJACENT TO THE EXISTING BUILDING(S). IF THE PLAN HEREON IS USED FOR CONSTRUCTION LAYOUT PURPOSES, THE PARTIES CONDUCTING LAYOUT SHALL CONTACT R. LEVESQUE ASSOCIATES INC. PRIOR TO SAID LAYOUT TO DETERMINE PROPER CONTROL. PLEASE NOTE WHILE THE BUILDING(S) ARE SHOWN TO BE SQUARE, IT SHOULD NOT BE ASSUMED THAT THE WALLS ARE SQUARE OR PLUMB. R. LEVESQUE ASSOCIATES TAKES NO RESPONSIBILITY FOR THIRD PARTY LAYOUT OF THE PLAN SHOWN HEREON.
4. THIS PLAN HAS BEEN PREPARED FOR CONSERVATION AS BUILT PURPOSES AND SHALL NOT BE USED FOR THE CONVEYANCE OF LAND OR FOR ANY OTHER USE.
5. SUBJECT PARCELS CONTAIN APPROXIMATELY 21.7 ACRES (TOTAL).
6. THE SUBJECT PROPERTIES SHOWN HEREON MAY BE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED IN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PROPERTIES. THE LOCATION AND EXTENT OF ANY SUCH RIGHTS AND EASEMENTS IS NOT THE SUBJECT OF THIS PLAN.
7. RESOURCE AREA FLAGGING WAS PERFORMED BY R LEVESQUE ASSOCIATES, INC. IN DECEMBER 2020.
8. ABUTTERS SHOWN HEREON ARE REFERENCED FROM THE TOWN OF AGAWAM MUNICIPAL GIS WEBSITE GIS.
9. SUBJECT PARCELS ARE ZONED INDUSTRIAL A (IA) ACCORDING TO THE AGAWAM ZONING MAP.
10. A PORTION OF THE SUBJECT PARCEL IS LOCATED WITHIN THE ESTABLISHED FLOOD HAZARD ZONE AE ACCORDING TO FLOOD INSURANCE RATE MAP #25013C0403E DATED 07/16/2013. THE FLOOD ZONE ELEVATION FOR THE SITE IS 60.2.
11. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM (NHESP) JURISDICTION.
12. AS BUILT INFORMATION SHOWN HEREON TAKEN FROM ON THE GROUND SURVEY BY R. LEVESQUE ASSOCIATES INC IN JUNE 2023



20 0 10 20 40
SCALE: 1"=20'

PERMITTING

RLA
R LEVESQUE ASSOCIATES INC
Landscape Architects
Civil Engineers · Land Surveyors
Environmental Consultants
ph: 413.568.0985 fax: 413.568.0986
40 School Street
Westfield, MA 01085
rlaland.com

PARTIAL AS BUILT

233 & 265 & Lot 6 MAIN ST.
(Paecel IDs: K13-2-1, K13-2-11, & K14-2-8)
AGAWAM, MA

COMMONWEALTH OF MASSACHUSETTS
FILIPE J. CRAVO
CIVIL
No. 48376
REGISTERED PROFESSIONAL ENGINEER
11/30/23

PREPARED FOR:
H.P. Hood, LLC
Six Kimball Lane
Lynnfield, MA 01940

ISSUANCE DATE: 11–30–2023

REVISIONS:	DATE:

DRAFTED BY: t.a.

UNAUTHORIZED ALTERATION OF THIS DOCUMENT IS A VIOLATION OF MASSACHUSETTS STATE LAW

SCALE: AS NOTED

RLA PROJ. NUMBER: 201016

DRAWING#	REV.
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AGAWAM CONSERVATION COMMISSION
January 22, 2026

MEMBERS PRESENT:
Henry Kozloski, Chair
Keven Brown
Sheryl Becker
Magda Galiatsos

MEMBERS ABSENT:
Frank Meagher
Jill Ward

ALSO PRESENT:
Taryn Egerton

Mr. Kozloski called the meeting to order at 6:00pm.

1. 6:00PM PUBLIC HEARING-NOTICE OF INTENT-38 Tuckahoe Drive-Town of Agawam

Frank Muzio with Goddard Consulting and Tanner Poole with Solitude were present for this agenda item. Mr. Poole stated he was present to talk about the NOI filed to create a pond management plan for Stillbrook Park. He stated there is a lot of nuisance vegetation growth and the management plan would use herbicides and algaecides, to keep the vegetation under control and from growing into the pond. He stated new access has been created for access to the pond. Mr. Kozloski asked if the Notice of Intent had been amended to include the aeration system. Mr. Muzio stated yes. Mr. Poole stated the aeration was not included on the original NOI. Mr. Kozloski ask if it was treated this year. Mr. Kozloski asked if they were involved with the aeration. Mr. Poole stated yes. Mr. Kozloski asked why it wasn't filed last year. Mr. Poole stated they believed it was permitted under the original Order of Conditions, but it was not. Mr. Kozloski stated that was done in violation.
Ms. Galiatsos asked about the time frame of the work. Mr. Muzio stated first visits would be in April, and depending on the weather but they would attempt to return on a monthly basis. The would notify the Commission and applicant.
Mr. Kozloski asked how citizens would know not to go near the pond. Mr. Poole stated they have orange signs, will post on the corkboard at the entrance to the park and at the launches of the pond.
Mr. Kozloski stated a new Order of Conditions could not be written until the previous one is closed. The Certificate of Compliance request is scheduled for the next agenda on February 12, 2026.
Ms. Becker asked about the impact on non-targeted species and stated she is concerned about the impacts even though she knows it is temporary. Her concerns are how many fish are killed. Mr. Muzio stated not many, and they are aware of the environment and will use safe practices. Ms.

Becker asked if the water would be deadly if an animal drank it. Mr. Poole stated he had not seen these effects in animals. Mr. Poole recommended everyone stay away from the treated area for one day for safe practice.
Mr. Brown asked when the work would be done. Mr. Poole stated April.
Mr. Kozloski stated it is a 5 year program.
Mr. Brown asked what conditions they are looking for where treatment may not be needed. Mr. Poole stated the vegetative coveris at 30%.
Mr. Brown asked if the aeration is powered. Mr. Poole stated solar power.

Mr. Kozloski opened it up to the public. There were no comments.

Motion was made by Mr. Brown and seconded by Ms.Galiatsos to continue this agenda item to the February 12, 2026 meeting.

VOTE 4-0-0

2. REQUEST FOR DETERMINATION CONT.-769 Silver Street-Agawam Energy Center, LLC

The Conservation Commission received a request to continue this agenda item to the February 26, 2026 meeting.

Motion was made by Mr. Brown and seconded by Ms. Galiatsos to continue the REQUEST FOR DETERMINATION CONT.-769 Silver Street-Agawam Energy Center, LLC., to the February 26, 2026 meeting, as requested.

VOTE 4-0-0

3. Request to Amend Order of Conditions-River Road/Forest Ridge-Nakhabenko

Mike Bowen with R. Levesque Associates was present for this agenda item, as well as the applicant Sergey Nakhabenko. Mr. Bowen stated this project was approved in 2025, for 248 River Road which proposed an addition to the house which needed compensatory storage. 56 Forest Ridge Lane is the location for compensatory storage. They are proposing to increase the area to bank more storage for potential future projects.
Mr. Kozloski asked what the reason for the increase is. Mr. Bowen stated the petitioner has more work, potentially another house he would like to build. Mr. Kozloski asked if the property is sold who would be responsible for the compensatory storage. Mr. Bowen stated the owner.
Mr. Brown asked about the additional square footage. Mr. Muzio stated 499 cubic square yards of storage, previously proposed was 55. Mr. Brown asked if the proposed work is already done and how deep is the storage. Mr. Bowen stated the excavation is about 3 ft.
Mr. Kozloski asked if it will meet the elevation requirements for another project. Mr. Bowen stated that is the assumption, and it will be similar grades. Mr. Kozloski stated it has to meet specific elevations. Mr. Bowen stated the elevations would be similar.

Ms. Egerton stated this is just a request to amend the Order of Conditions, but not a requirement and it is the Commission's decision.
Ms. Galiatsos asked if the properties adjourn each other. Mr. Bowen stated no, the site of the compensatory storage it further north.
Mr. Brown stated he was concerned about the permanence of the compensatory storage. Ms. Galiatsos said some individual has to be responsible for the compensatory storage.
Mr. Kozloski stated that the compensatory storage cannot be built on.
Mr. Nakhabenko, 248 River Road, stated rather than disturbing the land twice he would like to do the compensatory storage once.
Ms. Egerton stated once the compensatory storage is there and the grading is done there will be no other ongoing maintenance.
The Commission had a lengthy discussion.
Ms. Egerton stated she spoke with DEP and surrounding towns have done projects similar to what is being proposed. Mr. Bowen stated the area is in Conservation jurisdiction so any father future work would have to come before the Conservation Commission.
Ms. Egerton stated the previous Order of Condition is still in effect.

Motion was made by Mr. Brown and seconded by Ms. Galiatsos to amend the Order of Conditions-River Road/Forest Ridge-Nakhabenko.

VOTE 4-0-0

The public hearing will be scheduled for February 12, 2026.

4. Request for Certificate of Compliance-Suffield Street-Tennessee Gas Pipeline, LLC

The Conservation Commission received a request to continue this agenda item to the February 12, 2026 meeting. They are awaiting DEP to close out the water quality certification.

Motion was made by Ms. Galiatsos and seconded by Mr. Brown to continue the Request for Certificate of Compliance-Suffield Street-Tennessee Gas Pipeline, LLC to the February 12, 2026 meeting, as requested.

VOTE 4-0-0

5. APPROVAL OF MINUTES-January 8, 2026

Motion was made by Mr. Brown and seconded by Ms. Galiatsos to approve the January 8, 2026 as written.

VOTE 4-0-0

6. Correspondence and Complaints

379 Southwick Street-Ms. Becker went onsite and stated there is a lot of junk and debris within the river front on both sides. She recommended a letter be sent requiring the removal and that the Commission will follow up in the Spring to make sure it has been removed. Mr. Kozloski stated it should be an Enforcement Order. Ms. Becker stated the owner stated he would burn it. Ms. Egerton stated she could send a letter. Mr. Kozloski stated send a letter stating there is a violation and it will be dealt with when the weather breaks.

Mr. Kozlsoki stated the work is commencing at 1422 Main Street. Ms. Egerton stated the compliance monitor has put up the erosion controls and starting on January 27, he will be sending monitoring reports every two weeks.

Motion was made by Mr. Brown and seconded by Ms. Galiatsos to adjourn the meeting.

VOTE 4-0-0

Meeting adjourned at 7:00pm.