
Notice of Intent

TEC Project File No. T0904

Ayer Road (Route 110/111) Improvements

Harvard, MA 01451

MassDOT Project Number 609213

Applicant/
Owner:

Town of Harvard Department of Public Works
47 Depot Road
Harvard, MA 01451



Prepared by: **TEC, Inc.**
311 Main Street, Suite 201
Worcester, MA 01608



April 1, 2024



Liz Allard
Land Use Administrator/ Conservation Agent
Conservation Commission
Town of Harvard
15 Elm Street
Harvard, MA 01451

RE: Notice of Intent Application; DOT Project #609213
Ayer Road Reconstruction & Multimodal Improvements

On behalf of the project Applicant/Owner, the Town of Harvard, TEC, Inc. is filing a Notice of Intent for the proposed reconstruction and multimodal transportation improvements along Ayer Road (Rt 110/111) starting from approximately 100 feet north of the State Highway Layout at Route 2 to the Harvard/Ayer town line.

The project involves the construction of a 10' wide shared use path for the length of the project, as well as reconstruction of Ayer Road. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. The shared use path is also proposed to replace Lancaster County Road between Ayer Road and Gebo Lane. The Gebo Lane/ Ayer Road intersection is also proposed to be reconstructed to provide for an improved approach closer to 90 degrees. There are proposed stormwater improvements along the length of the project which is described in the stormwater analysis memo included herein. As the intent of the project is for the construction of a proposed shared use/bike path and the improvement of an existing public roadway, the project qualifies as a limited project under the MA Wetlands Protection Act 310 CMR 10.53(3)(f) and 310 CMR 10.53(6).

Wetland resource areas were evaluated and delineated by Rimmer Environmental Consulting, and a copy of the wetland evaluation and delineation report dated August 27, 2019 is included herein and provides in depth detail on the evaluation and methodology of delineation of resource areas.

Resource area impacts, and associated mitigation are proposed for Bordering Vegetated Wetlands (40 s.f. temporary, 676 s.f. permanent, 1,990 s.f. replication), Bank (160 l.f. temporary, 70 l.f. permanent), Land Under Water (708 s.f. temporary, 256 s.f. permanent), Riverfront Area (58,125 s.f. total disturbance within previously disturbed and degraded 200' RA, 1,920 s.f. reduction in impervious area within 200' RA), and Bordering Land Subject to Flooding (50 c.f. increase in flood storage volume). Mitigation includes Wetland replication at a ratio of just under 3:1, Bank restoration, Land Under Water restoration, decreased impervious area within Riverfront Areas, and Bordering Land Subject to Flooding storage volume increase. Further information regarding impacts and mitigation is included herein.



As the Town of Harvard is the applicant, per 310 CMR 4.02, the project is exempt from being assessed a Notice of Intent filing fee.

The following documents are enclosed for your review in support of this project:

- Notice of Intent Application Package including WPA Form 3
- "MassDOT Highway Division Plans for Ayer Road (Route 110/111) in the Town of Harvard, 100% Submittal" prepared by TEC, Inc.

Please do not hesitate to contact me directly if you have any questions at 774-670-3569. Thank you for your attention to these matters.

Sincerely,
TEC, Inc.
"The Engineering Corporation"

A handwritten signature in blue ink, appearing to read "Jared Duval". The signature is fluid and cursive.

Jared M. Duval, P.E.
Worcester Regional Director

LOCAL TOWN OF HARVARD CONSERVATION FILING FORMS

FORM C

REQUEST FOR WAIVER

HARVARD WETLANDS PROTECTION BYLAW

Date: April 1, 2024

To: Harvard Conservation Commission

From: Town of Harvard - DPW
(name of petitioner)

47 Depot Road, Harvard, MA
(address of petitioner)

RE: Harvard Wetlands Rules and Regulations

Request for Waiver

Pursuant to the provisions of §147-3 of the Regulations for the administration of The Harvard Wetlands Protection Bylaw, I hereby request a waiver from the Commission for compliance with the following section of the regulations:

§147-6.C: Harvard Filing Fees, §147-12: 50' No Disturbance Zone Setback

§147-12: 100' Vernal Pool No Disturbance Zone Setback, §147-12: 75' Roadway Setback

§147-14.C(1): Stormwater Management – Peak Flow and Volume 5% Reduction

The waiver is requested for the following reason(s):

See NOI Narrative and Plans

Signature of petitioner RJ B. M... Telephone # 978-456 4130

FORM F

Wetland filing fees calculation worksheet for work in resource areas

	Fee	Total
<u>Notice of Intent Fees</u>		
1) <i>Single family</i>		
Septic Repair or Upgrade (Enter Fee & Skip to Total Fee)	\$200.00	_____
New Construction or alteration involving 500sf or less of total construction	\$300.00	_____
New Construction or alteration involving 501sf to 1499sf of total construction	\$600.00	_____
New Construction or alteration involving 1500 sf or more of total construction	\$900.00	_____
2) <i>Subdivision/mini Subdivision</i>		
Roads and Utilities only	\$1,500.00	<u>\$1,500</u>
Multifamily/Condominium Structures construction	\$1,500.00	_____
3) <i>Commercial or Industrial Projects</i>	\$1,500.00	_____
<u>Additional charges under a Notice of Intent for disturbance within the buffer zone</u>		
1) Disturbance within the buffer zone	158,000 sf	x 0.25 = \$39,500
2) Confirmation delineated wetland line	5,200 linear ft	x 0.50 = \$2,600
3) Alteration or replication of wetlands	1,990 sf	x 1.00 = \$1,990
TOTAL FILING FEE		<u>\$45,590</u>
Fee doubled if Notice of Intent is filed after work began or an Enforcement Order was issued		_____
<u>Other fees</u>		
Request for an amendment to an Order of Conditions	\$200.00	_____
Request for an extension to an Order of Conditions	\$125.00	_____
Request for a reissued Certificate of Compliance	\$100.00	_____
Request for an Emergency Certificate of Compliance	\$200.00	_____
Request for an Emergency Certification Form	\$200.00	_____
Request for Certificate of Compliance with Expired OOC or Partial Certificate of Compliance	\$125.00	_____
Request for Determination of Applicability (RDA)	\$100.00	_____
Abbreviated Notice of Resource Area Delineation (ANRAD) (Minimum \$100.00, Maximum \$1,500.00)	_____ linear ft	x \$1.50= _____
TOTAL FEE PAYABLE TO THE TOWN OF HARVARD		<u>\$45,720</u>
		Waiver Requested: Town Project

NOTICE OF INTENT NARRATIVE

INTRODUCTION AND PURPOSE

The Town of Harvard DPW is proposing a transportation improvement project on Ayer Road (Route 110/111) from approximately 100 feet north of the State Highway Layout at Route 2 to the Harvard/Ayer town line. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. The project involves the construction of a shared use path for the length of the project, as well as reconstruction of Ayer Road. The shared use path is also proposed to replace Lancaster County Road between Ayer Road and Gebo Lane. The Gebo Lane/ Ayer Road intersection is also proposed to be reconstructed to provide for an approach closer to 90 degrees. There are proposed stormwater improvements along the length of the project. As the major intent of the project is for the construction of a proposed shared use/bike path and the improvement of an existing public roadway, the project qualifies as a limited project under the MA Wetlands Protection Act 310 CMR 53. It is TEC's opinion that the Order of Conditions should be granted as the project involves the improvement of an existing roadway and the existing stormwater management system for the roadway which will contribute to an improvement of the resource areas over current conditions.

Wetland resource areas were evaluated and delineated by Rimmer Environmental Consulting, and a copy of the wetland evaluation and delineation report dated August 27, 2019 is attached and provides in depth detail on the evaluation and methodology of delineation and resource areas. Resource area impacts will include both temporary and permanent impacts, which are discussed in further detail in the resource area impacts section below.

EXISTING CONDITIONS AND RESOURCE AREAS

Ayer Road, signed as Massachusetts State Routes 110 and 111, is a two lane, north-south, urban principal arterial roadway under the jurisdiction of the Town of Harvard. Beyond the southern project limits, Ayer Road widens to two lanes in each direction through its interchange with Route 2. Ayer Road provides a regional connection between Harvard town center and Route 2 to the south and the Town of Ayer and Route 2a to the north. Ayer Road provides a full cloverleaf interchange with Route 2. The posted regulatory speed limit along Ayer Road (Route 110/111) is 40 miles per hour (mph) south of Myrick Lane and 35 mph to the north of Myrick Lane. There are no sidewalks or designated bike lanes present along Ayer Road. Ayer Road experiences a high volume of cut-through truck traffic, often traveling at high speeds, from municipalities to the north to access Route 2 to the south. The corridor provides access to retail, office, and other commercial developments which serve as the primary commercial (non-residential or non-municipal/educational) section of the Town of Harvard.

Lancaster County Road and Poor Farm Road intersect Ayer Road (Route 110/111) to form an offset four-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free-flowing while the Lancaster County Road and the Poor Farm Road approaches are under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Lancaster County Road approach consists of a single general-purpose lane with directional flow not delineated. The Poor Farm Road approach consists of a single general-purpose lane with directional flow separated by a single-yellow centerline. Sidewalks are not provided on either Ayer Road, Lancaster County Road, or Poor Farm Road. Crosswalks are not striped across the Ayer Road, Lancaster County Road, or Poor Farm Road approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Gebo Lane intersects Ayer Road (Route 110/111) from the west to form a three-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free flowing while the Gebo Lane approach is under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Gebo Lane approach consists of a single general-purpose lane with directional flow not delineated. Sidewalks are not provided on either Ayer Road or Gebo Lane. Crosswalks are not striped across the Ayer Road and Gebo Lane approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Rimmer Environmental Consulting (REC) conducted a resource area evaluation and delineation of the project area in July 2019. At that time, wetland resources subject to jurisdiction under the Massachusetts Wetlands Protection Act (MGL Ch 131 §. 40) and the Town of Harvard Wetland Protection Bylaw (Chapter 119) within the project area were identified. Wetlands were delineated in accordance with the procedures established in the Mass. Wetlands Protection Act Regulations (310 CMR 10.00) and the Bylaw Regulations (chapter 147). Numbered sequences of flags or stakes were placed in the field to delineate the boundary between upland and wetland resources. Delineation flags as part of the project limits include BVW A1-A16, B1-B26, BB1-BB12, D1-23, E1-E5, F1-F21, G1-G54, H1-H15, J1-J22, K1-K14 and MAHW/Bank RFA1-RFA16, RFB1-RFB6, RFC1-RFC19. The flags/ stakes were survey located and are depicted on the proposed improvements plan set. Resource Areas associated with the project include Bordering Vegetated Wetlands,

intermittent streams, a perennial stream (Bower's Brook) and associated Riverfront Areas, Land Under Water and Waterways, Bank, and Bordering Land Subject to Flooding. A copy of the wetland evaluation and delineation report prepared by Rimmer Environmental Consulting dated August 27, 2019 is attached and provides for greater detail on the evaluation and methodology of delineation. In discussion with the local conservation agent, a resource area delineation review will be conducted upon filing of the NOI, and therefore it is not necessary to re-delineate due to time of original delineation being over 3 years from the date of filing. The following is a description of resource areas present along the site starting at the southern project limit and heading north to the Ayer town line:

The west side of Gebo Lane contains an unnamed, unmapped intermittent channel and associated BVW. There is also a retention basin containing primarily broadleaf cattail (*Typha latifolia*) facing Gebo Lane adjacent to the athletic field though this area is likely a stormwater management feature and may not be a jurisdictional wetland resource area. The intermittent stream flows from west to east under Gebo Lane through an existing 30" CMP. A drainage ditch along the east side of Gebo Lane flows to the south and converges with the intermittent stream and BVW. The channel contains a very narrow band of Bordering Vegetated Wetland, typically sapling red maple (*Acer rubrum*) honeysuckle (*Lonicera tatarica*) and black chokeberry (*Aronia melanocarpa*). The intermittent stream then flows east under Ayer Road through an existing 24" CMP. This stream is not indicated on the USGS topographic map. StreamStats indicates a watershed of less than 0.1 square miles. The channel directs surface flow generally to the south and under Ayer Road (Route 110/111) through an existing 24" CMP.

The stream continues from the 24" CMP culvert to the east side of Ayer Road and connects to a larger wetland system on the east side of Ayer Road known as Ayer Road Meadows. This Bordering Vegetated Wetland (BVW) borders Bowers Brook all the way to the Bowers Brook culvert which passes back under Ayer Road. This wetland consists of an over story of red maple, with an understory of elderberry (*Sambucus canadensis*) and highbush blueberry (*Vaccinium corymbosum*). Sensitive fern (*Onoclea sensibilis*) and skunk cabbage (*Symplocarpus foetidus*) are dominant as groundcover.

Bowers Brook is indicated as a perennial stream on USGS maps and StreamStats and is therefore has a 200- foot Riverfront Area extending from mean annual high water (MAHW). MAHW was determined based upon observation of bankfull indicators, including scour marks, water marks undercutting, changes in slope and changes in vegetation. Bordering Vegetated Wetland extends from Bank to the north which appears to be a man-made drainage ditch.

Bowers Brook passes back west under Ayer Road and north under Lancaster County Road and flows generally to the northwest eventually to Cold Spring Brook. Between Ayer Road and Lancaster County Road, the banks are very steep and there is an old beaver dam located close to the culvert under Ayer Road. There is a narrow BVW extending from the south bank parallel to Lancaster County Road and is a dense shrub swamp. There is what appears to be a stormwater basin associated with the post office located at 215 Ayer Road. The basin is dominated by wetland plants, including cattail, common reed (*Phragmites australis*) and sensitive fern, however if it is determined to be constructed in accordance with MassDEP Stormwater Management Regulations it would not be considered a jurisdictional wetland resource. The basin was delineated as if it were jurisdictional. After Lancaster County Road, the brook flows away from the project site.

There is associated BVW which eventually extends greater than 100' from the project site in the vicinity of 231 Ayer Road.

Under the FEMA NFIP, Bowers Brook is mapped as a regulatory floodway and has a 100 year and 500 year floodplain. The 100 year floodplain is elevated, however the elevation is not constant as it is a riverine floodplain. Floodplain in the vicinity of the project is between elevation 246 north of Lancaster County Road and elevation 250 south of Ayer Road. The floodway and 100 year floodplain are considered Bordering Land Subject to Flooding.

There is a small waterbody east of 6 Lancaster County Road. At approximately 6,000 square feet, it is too small to be regulated as a pond under 310 CMR 10.00; however there is no size limit under the Town of Harvard Wetland Bylaw. Wetland vegetation along its banks includes highbush blueberry and silky dogwood (*Cornus amomum*).

There is an unnamed intermittent stream which flows from east to west under Ayer Road, through a 36" RCP, north of 294 Ayer Road which is a tributary to Bowers Brook. This stream is not indicated on the USGS topographic map and is presumed to be intermittent. Also, USGS StreamStats indicates the drainage area is only 0.25 square miles, well under the minimum 0.5 square mile threshold for jurisdiction as a perennial stream. There was no flow at the time of inspection. There are no Bordering Vegetated Wetland extending from the banks of the stream in the vicinity of the project.

There is a small forested wetland and roadside swale located on the east side of the project site at 320 Ayer Road across from the entrance to Doe Orchards. The portion of this wetland closest to the road was delineated. It contains small red maple, northern arrow-wood (*Viburnum recognitum*) and green ash (*Fraxinus pennsylvanica*). This wetland appears to connect to a south flowing off-site intermittent stream to the east and qualifies as BVW. The wetlands and intermittent stream appear to eventually converge with the previously mentioned intermittent stream at 294 Ayer Road.

Another unnamed intermittent stream not shown on USGS topographic maps flows from east to west under Ayer Road just south of the Ayer municipal boundary through an existing 36" RCP. USGS StreamStats indicates it has a drainage area of only 0.16 square miles. This channel conveys flow west to Cold Spring Brook. Reed canary grass (*Phalaris arundinacea*) is growing up to the bank where it has not been mowed. The downstream side on the west side of Ayer Road contains a rocky channel. There was no flow through the culvert at the time of inspection. The banks on this side are vegetated primarily with upland vegetation, especially Japanese knotweed (*Polygonum cuspidatum*).

The project is not located within NHESP mapped priority or estimated habitats of rare species. There are two mapped potential vernal pools along the length of the project: 6 Lancaster County Road and 320 Ayer Road.

PROPOSED IMPROVEMENTS AND STORMWATER MANAGEMENT

The proposed improvements are needed to address the existing aging infrastructure, safety deficiencies regarding conflicting turning movements and lack of multi-modal accommodations. The multi-modal improvements are anticipated to include provision of bicycle and pedestrian accommodations, including bicycle lanes, curbing and sidewalk on the west side of Ayer Road, ADA/AAB compliance improvements, realignment of Gebo Lane to approximately 90-degrees approaching Ayer Road and incorporation of an improved unsignalized intersection with Gebo Lane, closure of Lancaster County Road to vehicular traffic between Gebo Lane and Ayer Road, upgrades to stormwater management infrastructure, pavement resurfacing, and new pavement markings and signs. Additionally, traffic safety features will be implemented compliant with today's industry standards in accordance with MassDOT construction specifications.

The conversion of Lancaster County Road to a shared use path/ non-motorized path would provide for an improvement to the potential vernal pool at 6 Lancaster County Road. There is no work proposed that would negatively impact the potential vernal pool at 320 Ayer Road.

The project intends to improve existing stormwater management throughout the limits of work over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain stormwater standards to the maximum extent practicable. A drainage study has been included as an appendix of this application which justifies the project's accordance with the MassDEP checklist for stormwater report.

MITIGATION

Prior to construction, erosion and sedimentation barriers (compost tubes) will be installed between the project area and resource areas to establish a limit-of-work. The erosion and sedimentation barriers will be installed and maintained throughout construction per the regulations of the Harvard Wetland Protection Bylaws. Any dewatering will be required to be routed to a stilling basin/ dewatering bag before being discharged to resource areas. The project will result in the following resource area impacts:

Resource Area	Impacts +/-				
	Temporary	Area/ Station	Permanent	Area/ Station	Mitigation
BVW	40 s.f.	T4/ STA 65+30 R	12 s.f. 205 s.f. 51 s.f. 34 s.f. 60 s.f. <u>334 s.f.</u> 676 s.f.	P1/ STA 19+50 L P3/ STA 21+50 L P4/ STA 28+75 R P5/ STA 29+15 R P6/ STA 65+30 R P7/ STA 65+40 L	40 s.f. restoration 1,990 s.f. replication
Bank	20 l.f. 90 l.f. 38 l.f. <u>12 l.f.</u> 160 l.f.	T1/ STA 20+70 R T2/ STA 20+90 L T4/ STA 65+30 R T5/ STA 65+40 L	40 l.f. 6 l.f. <u>46 l.f.</u> 70 l.f.*	P2/ STA 20+70 L P6/ STA 65+30 R P7/ STA 65+40 L	160 l.f. restoration 70 l.f. culvert
LUWW	86 s.f. 490 s.f. 80 s.f. <u>52 s.f.</u> 708 s.f.	T1/ STA 20+70 R T2/ STA 20+90 L T4/ STA 65+30 R T5/ STA 65+40 L	180 s.f. 30 s.f. <u>46 s.f.</u> 256 s.f.*	P2/ STA 20+70 L P6/ STA 65+30 R P7/ STA 65+40 L	708 s.f. restoration 95 s.f. culvert
0'-100' Riverfront (Bowers Brook)	27,050 s.f.**	STA 24+00 – 29+50	-		920 s.f. reduction in imp. area
100'-200' Riverfront (Bowers Brook)	31,075 s.f.**	STA 22+50 – 30+75	-		1,000 s.f. reduction in imp. area
BLSF (Bowers)	175 s.f.	T3/ STA 27+00 R	+50 c.f.***	T3/ STA 27+00 R	175 s.f., +50 c.f.***

*Bank and land under waterways permanent impacts resulting from extending of (2) existing intermittent stream culverts.

**Impacts within riverfront areas will take place within previously disturbed and degraded riverfront areas.

***Proposed headwall and outfall within BLSF will result in increase of flood storage. No fill proposed.

Permanent Bordering Vegetated Wetland impacts are necessitated by the proposed change in roadway alignments, the addition of a shared use path, limits of grading, and improvements to the roadway stormwater management system. To mitigate the impacts to resource areas, Bordering Vegetated Wetland replication is proposed at a ratio just under 3:1 to meet the Harvard Wetland Protection Bylaw Requirements of 1.5:1. Additional replication area was added to mitigate impacts to bank and land under water. All wetland replication will be conducted according to the construction special provisions/ specifications approved by MassDOT, provided herein.

The Bank and Land Under Water impacts are associated with the need to extend two existing intermittent stream crossings, one 30" culvert which passes under Ayer Road at the intersection with Gebo Lane and a 36" culvert which passes under Ayer Road in between #294 Ayer Road and #304 Ayer Road, as well as the restoration of impacts to the intermittent stream at the Gebo Lane intersection. The slight change in roadway alignment and addition of a shared use path along the west side of Ayer Road results in the necessity to extend the existing culverts to the west of Ayer Road approximately 20' and 15' respectively. New concrete headwalls are proposed to limit impacts further, and stone pipe outfalls are proposed to provide stabilization at the discharge.

All proposed work within the Bower's Brook Riverfront Area is within previously disturbed or degraded Riverfront Area according to the definitions as set forth in 310 CMR 10.58(5) and will result in an improvement over existing conditions as the project will result in a net reduction of impervious area within the Riverfront Area. No work is proposed on the existing Bower's Brook Stream Crossing Structures on Ayer Road or Lancaster County Road.

A drainage study was performed to assess the potential impacts of the proposed project. The proposed project will improve upon the existing stormwater management system and will incorporate additional Best Management Practices (BMPs) to the maximum extent feasible including maintaining existing drainage paths, maintaining existing vegetation to the maximum extent practicable, country drainage where feasible, grassed swales, deep sump and hooded catch basins, upgraded and properly sized drainage pipe networks, and stabilized discharge outfalls. This analysis has been prepared to verify that the proposed roadway improvements will not have an adverse effect on the stormwater discharged, resulting in an improvement in the stormwater runoff quality. The Stormwater Management Plan has been designed to meet the Stormwater Standards identified in the Massachusetts Stormwater Handbook and the Harvard Wetland Protection Bylaw to the maximum extent practicable. The proposed project reduces the risk of erosion and sedimentation via improvement to conveyance methods, addition of stabilized discharge outfalls, as well as ensuring revegetation of all disturbed areas within the limit of work. The upgrading of catch basins with deep sumps will result in improvement to treatment of stormwater runoff on Ayer Road as well. Please see the attached Drainage Study for further details.

WPA INLAND RESOURCE AREA PERFORMANCE STANDARDS

10.54: Bank

The proposed bank impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not impair the physical stability of the bank.
The culvert extensions are proposed to be constructed out of reinforced concrete pipe which will maintain stability. Temporary impacts to bank will be restored to its predevelopment conditions.
2. Not impair the water carrying capacity of the channel.
The proposed 30" and 36" diameter RCPs are the same size as the existing stream crossing culverts and will provide for the same hydraulic capacity as the existing conditions. Temporary impacts to bank will be restored to its predevelopment conditions.
3. Not impair ground or surface water quality.
The proposed culvert extensions and the temporary impacts and restoration to bank will not affect the water quality of the intermittent stream or ground water. Best management practices are proposed for the control of water, erosion, and sedimentation during construction.
4. Not impair the capacity of the bank to provide fisheries habitat.
The proposed bank impacts are on intermittent streams which are unlikely to provide for fisheries habitat.
5. Not impair the capacity of the bank to provide important wildlife habitat function.
The impact to bank is under 50' for both culvert extensions and therefore would not be deemed to impair the capacity to provide important wildlife habitat functions. Temporary impacts to bank will be restored to its predevelopment conditions.
6. No impact on habitat sites of rare species.
No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

The Bank impact is necessitated by the realignment of the roadway to add a 10' wide shared use path as required by the Massachusetts Department of Transportation Design Guidelines. The proposed construction has been designed using best management practices and practical measures to minimize adverse effects of the characteristics and functions of the resource area.

10.55: Bordering Vegetated Wetlands

The proposed BVW impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Work resulting in the loss of up to 5,000 square feet shall be replaced.
The cumulative impact area to BVW is under 5,000 s.f. and a 3:1 replication is proposed.
2. The surface area of the replacement area shall be equal to or greater than the lost area.
A 3:1 replication area ratio is proposed to replace the lost area which meets the local wetlands bylaw requirements and the WPA requirements for replacement area. Replication area protocols/ special provisions/ specifications are attached, and the replication effort shall be overseen by the MassDOT contracted wetland scientist.

3. Groundwater and surface elevation of the replacement area shall approximately equal that of the lost area. Horizontal configuration and location of the replacement area shall be similar to that of the lost area. The replacement area shall have an unrestricted hydraulic connection to the same waterway of the lost area. The replacement area shall be located within the same general area of the waterway as the lost area.

Replication areas are proposed as close to the proposed impact areas to the maximum extent practicable, hydraulically connected to the same waterways, and at similar elevations as the lost areas to ensure similar groundwater levels.

4. At least 75% of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons.

The replication areas are proposed to be seeded with a native wetland seed mix and will be monitored according to MassDOT specifications and the Town of Harvard Local Bylaw. Replication area protocols/ special provisions/ specifications are attached, and the replication effort shall be overseen by the MassDOT contracted wetland scientist.

5. No project shall have adverse effect on specified habitat sites of rare species.

The impacted BVW is not located within an Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps.

6. Work shall not destroy or impair BVW within an Area of Critical Environmental Concern.

The impacted BVW is not located within an ACEC as designated by the Secretary of EEA.

10.56: Land under Water Bodies and Waterways

The proposed Land Under Waterways impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not impair the water carrying capacity of the channel.

The proposed 30" and 36" diameter RCPs are the same size as the existing stream crossing culverts and will provide for the same hydraulic capacity as the existing conditions. Temporary impacts to land under water will be restored to its predevelopment conditions.

2. Not impair ground or surface water quality.

The proposed culvert extensions and the temporary impacts and restoration to land under water will not affect the water quality of the intermittent stream or ground water. Best management practices are proposed for the control of water, erosion, and sedimentation during construction.

3. Not impair the capacity of the LUW to provide fisheries habitat.

The proposed land under water impacts are for intermittent stream crossing which are unlikely to provide for fisheries habitat.

4. Not impair the capacity of the LUW to provide important wildlife habitat function.

The impact to LUW is well under 5,000 s.f. and therefore would not be deemed to impair the capacity to provide important wildlife habitat functions. Temporary impacts to land under water will be restored to its predevelopment conditions.

5. No impact on habitat sites of rare species.

No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

The LUW impact is necessitated by the realignment of the roadway to add a 10' wide shared use path as required by the Massachusetts Department of Transportation Design Guidelines. The proposed construction has been designed using best management practices and practical measures to minimize adverse effects of the characteristics and functions of the resource area.

10.57: Land Subject to Flooding

The proposed Bordering Land Subject to Flooding impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not cause an increase or contribute incrementally to an increase in the horizontal extent and level of flood water during peak flows.

The impact within Bordering Land Subject to flooding is associated with the installation of a new stormwater management pipe outfall (headwall and stone lined outlet) below the 100-year elevated floodplain associated with Bower's Brook at the Ayer Road bridge. The construction of the headwall will result in an increase of flood storage below the 100-year flood elevation (50 c.f. +/-) therefore there is no need for compensatory storage and there will be no increase in the horizontal extent and level of flood water during peak flows.

2. Not impair capacity to provide important habitat functions.

The work within the BLSF is well under 5,000 s.f. and therefore would not be deemed to impair its capacity to provide wildlife habitat functions.

3. No impact on habitat sites of rare species.

No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

10.58 Riverfront Area

The proposed work meets the performance standards for Riverfront Area as the project is for redevelopment within previously developed and degraded riverfront areas. The work is intended to improve upon existing conditions via a reduction in impervious area within the riverfront area (reduction of 1,920 s.f.) via the elimination of pavement for motor vehicle traffic over Lancaster County Road by replacing it with both crushed stone and loam and seed, and the improvement of the stormwater management system including an increase in water quality treatment via deep sump catch basins. The stormwater management design is intended to meet the standards established by the department. A Drainage Study has been included as an appendix of this application which justifies the project's accordance with the MassDEP Checklist for Stormwater Report. Work is not proposed closer to the river than currently exists, with the exception of the installation of (2) new stormwater system pipe discharges (headwalls and stone outfalls) within the Riverfront Area on the east side of Ayer Road. The outfalls have been designed and sized to prevent erosion or scour within the resource area, of which does not exist on all existing outfalls.

Alternatives Analysis:

- No Build: The project purpose is to improve upon the existing condition of Ayer Road, as well as the construction of a shared use path along the length of the project. The No Build alternative would not achieve the project goal and would leave the previously disturbed and degraded Riverfront Areas in the same condition as they currently are and allow for the continued degradation of existing roadway pavement conditions. There would be no

improvement to stormwater management or reduction of impervious area within the Riverfront Areas.

- Resurfacing Only: Resurfacing of Ayer Road and Lancaster County Road within the Riverfront Area rather than the proposed reconstruction and multimodal transportation improvements is an alternative, however this alternative would not provide for a reduction of degraded areas within the Riverfront Area, would not allow for the improvement of stormwater management along the roadways, and would not allow for the addition of a shared use path which is one of the project requirements/goals. This alternative is similar to the No Build alternative in that the Riverfront Area disturbed and degraded areas would remain the same.
- Restoration of Riverfront Areas: An alternative to the project which would significantly improve Riverfront Area conditions would be the removal of all degraded areas and restoration of the Riverfront Area within the controlled property limits. This would require the removal of all impervious areas within 200' of Bower's Brook in each direction, which would include the removal of Lancaster County Road, Ayer Road, and the elimination of a proposed shared use path. This alternative would not meet the project purpose of improving multimodal transportation along Ayer Road and significantly impact traffic/transportation operations in the area, and therefore is not a feasible alternative.
- Preferred Alternative/ Current Proposal: The current proposal achieves the project goal of multimodal transportation improvements along the Ayer Road (Route 100/111) corridor from Route 2 to the Ayer Town Line. This proposal includes the removal of Lancaster County Road and replacement of the road with a shared use path, resulting in a reduction of impervious area (1,920 s.f.) in the Riverfront Area, along with improvements to stormwater management on Ayer Road for the length of the project. The proposal meets all other performance standards of all other resource areas as outlined herein.

10.59: Estimated Habitats of Rare Wildlife

Not Applicable. No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

LOCAL WETLAND PROTECTION BYLAW WAIVER REQUESTS

The following waivers of the Harvard Wetland Protection Bylaw and Rules are hereby respectfully requested by the Applicant:

- §147-6.C: Harvard Filing Fees. The project is for public roadway improvements on behalf of the Harvard DPW.
- §147-12: 50' No Disturbance Zone Setback. Much of the existing roadway and proposed improvements are located within 50' of resource areas.
- §147-12: 100' Vernal Pool No Disturbance Zone Setback. Work is proposed within 100' of a Potential Vernal Pool on Lancaster County Road. The work involves removal of existing pavement and conversion of a section of Lancaster County Road to a Shared Use Path which will eliminate motor vehicle passage in the vicinity of the Potential Vernal Pool.
- §147-12: 75' Roadway Setback. Much of the existing roadway and proposed improvements are located within 75' of resource areas.
- §147-14.C(1): Stormwater Management – Peak Flow and Volume 5% Reduction. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable, including Standard 2 for Peak Flow Attenuation. Due to limited space within the Town's right-of-way, infiltration BMPs are not feasible, and therefore a volume reduction is not possible. A Drainage Study has been included as an appendix of this application which justifies the project's accordance with the MassDEP Checklist for Stormwater Report.

CONCLUSION

The proposed roadway improvement project along Ayer Road includes the reconstruction of the roadway, the improvement of the roadway's stormwater management system, improvements for both pedestrian and bicycle access, ADA/AAB improvements, improvement of the Gebo Lane intersection, elimination of the Lancaster County Road intersection, pavement resurfacing, and new pavement markings and street signage. The resource area impacts are necessary for the improvement of the transportation and stormwater infrastructure. Wetland replication is proposed to offset the loss of resource areas associated with the project. Construction period erosion and sedimentation controls are proposed to protect the resource areas during construction, and stabilization measures following construction will provide for permanent protection of the resource areas from impact. The Applicant requests that the Conservation Commission finds that the project as described in this Notice of Intent successfully upholds the interest of the Wetlands Protection Act and the Harvard Wetland Protection Bylaw, and subsequently issues an Order of Conditions for the proposed improvement project.

DRAINAGE STUDY

Ayer Road (Route 110/111) Transportation Improvements Drainage Study

Introduction

This drainage study was performed to study the stormwater runoff conditions for the Ayer Road Transportation Improvement Project in Harvard, MA. The Town of Harvard is proposing the transportation improvement project on Ayer Road (Route 110/111) from approximately 100 feet south of the State Highway Layout at the Route 2 to the Harvard/ Ayer town line. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. Portions of the project are subject to the Massachusetts Department of Environmental Protection Wetlands Protection Act. This analysis has been performed to conclude that the proposed conditions for the project will not have any adverse effects on stormwater conditions.

Pre-Development Conditions

Ayer Road, signed as Massachusetts state Routes 110 and 111, is a two lane, north-south, urban principal arterial roadway under the jurisdiction of the Town of Harvard. Beyond the southern project limits, Ayer Road widens to two lanes in each direction through its interchange with Route 2. Ayer Road provides a regional connection between Harvard town center and Route 2 to the south and the Town of Ayer and Route 2a to the north. Ayer Road provides a full cloverleaf interchange with Route 2. The posted regulatory speed limit along Ayer Road (Route 110/111) is 40 miles per hour (mph) south of Myrick Lane and 35 mph to the north of Myrick Lane. There are no sidewalks or designated bike lanes present along Ayer Road. Ayer Road experiences a high volume of cut-through truck traffic, often traveling at high speeds, from municipalities to the north to access Route 2 to the south. The corridor provides access to retail, office, and other commercial developments which serve as the primary commercial (non-residential or non-municipal/educational) section of the Town of Harvard.

Lancaster County Road and Poor Farm Road intersect Ayer Road (Route 110/111) to form an offset four-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free-flowing while the Lancaster County Road and the Poor Farm Road approaches are under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Lancaster County Road approach consists of a single general-purpose lane

with directional flow not delineated. The Poor Farm Road approach consists of a single general-purpose lane with directional flow separated by a single-yellow centerline. Sidewalks are not provided on either Ayer Road, Lancaster County Road, or Poor Farm Road. Crosswalks are not striped across the Ayer Road, Lancaster County Road, or Poor Farm Road approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Gebo Lane intersects Ayer Road (Route 110/111) from the west to form a three-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free flowing while the Gebo Lane approach is under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Gebo Lane approach consists of a single general-purpose lane with directional flow not delineated. Sidewalks are not provided on either Ayer Road or Gebo Lane. Crosswalks are not striped across the Ayer Road and Gebo Lane approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Post-Development Conditions

The proposed improvements are needed to address the existing aging infrastructure, safety deficiencies regarding conflicting turning movements and lack of multi-modal accommodations. The multi-modal improvements are anticipated to include provision of bicycle and pedestrian accommodations, including bicycle lanes, curbing and sidewalk on one side of Ayer Road, ADA/AAB compliance improvements, realignment of Gebo Lane to approximately 90-degrees approaching Ayer Road and incorporation of an improved unsignalized intersection with Gebo Lane, closure of Lancaster County Road to vehicular traffic between Gebo Lane and Ayer Road, upgrades to stormwater management infrastructure, pavement resurfacing, and new pavement markings and signs. Additionally, traffic safety features will be implemented compliant with today's industry standards in accordance with MassDOT construction specifications.

The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable.

Low Impact Development

The roadway reconstruction design and shared use path addition has been designed with sensitive site design and low impact development techniques to the maximum extent practicable for the project. The project intends to preserve, replace, and enhance vegetation. Little tree clearing is necessary for the project

and the majority of work is proposed within an existing and previously developed right-of-way. The project also involves the reduction of impervious area within the riverfront area of Bowers Brook, which will allow for decreased runoff volume and peak flows, increased water quality, and increase groundwater recharge in the area. The project will maintain pre-development drainage patterns to the maximum extent practicable. Where existing structural stormwater management practices are located, new catch basins with sumps and hood will be utilized and drainage pipes replaced. Where existing country drainage is utilized, country drainage is intended to be maintained, including vegetated swales. New discharge outfalls are proposed to reduce velocity and prevent scour and erosion of resource areas where new outfalls are proposed, they currently don't exist, are undersized, or have not been maintained. Alternative stormwater management design was analysis, however it is not feasible to incorporate larger structural stormwater control measures such as infiltration BMPs, stormwater wetlands, bioretention BMPs, detention basins, subsurface recharge systems, sand filters, etc. due to space constraints as the project involves a limited right-of-way and would cause significant property ownership issues as well as the limitations due to the multiple wetland resource areas in the vicinity of the project.

Stormwater Standards

Standard 1: No New Untreated Discharges

No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. The project does propose several new stormwater discharges associated with the proposed improved stormwater system. The proposed stormwater system will provide for increased stormwater quality through the use of currently non-existent deep sump catch basins which will provide for increased TSS removal over existing conditions. The new discharges are proposed to be directed to stabilized stone energy dissipation outfalls to reduce velocity and prevent downstream erosion. As designed the project will meet Standard 1 and not discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

As a limited roadway/ redevelopment project, this project must meet this standard to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins,

manholes, culverts, and stabilized stone pipe outfalls and discharges. Stormwater drainage system modifications are proposed to address the existing antiquated and failing drainage system along Ayer Road. The project will increase the overall impervious area of the project site (increase of 1.2 acres+/-), resulting in a slight increase of peak runoff rates (Table 1). This increase is due to the addition of a 10' wide shared use path as required by MassDOT design parameters, accounting for approximately 1.8 acres of total impervious, meaning the project actually results in a reduction of existing impervious surfaces by around 0.6 acres. Per the Stormwater Handbook, footpaths/bike paths are only required to meet the Standards to the maximum extent practicable, and as the project is a roadway located within a limited width right-of-way, it is not practicable to capture, convey, and attenuate runoff created by the shared use path over the length of the project without significant increases in construction costs. The slight peak flow increases, less than 1.8 cfs in all storm events, will be distributed over the length of the project, just under 2 miles of public roadway and across approximately 10.5 total acres of right-of-way, and it can be assumed the increase in flows will be de minimis to the multiple wetland resource areas the roadway discharges to.

The work associated with the elimination of Lancaster County Road will actually result in a reduction of 1,920 s.f. of impervious area within the 200' Riverfront Area of Bowers Brook, which will actually result in a reduction of peak flows in that area (Table 2).

Table 1 – Peak Flows (entirety of project area)

Storm Event (frequency)	2-year	10-year	25-year	100-year
24-Hour Rainfall (inches)	3.05	4.54	6.75	8.02
Pre-development Peak (cfs)	29.33	46.51	71.62	85.92
Post-development Peak (cfs)	31.09	48.05	72.87	87.04
% Change	+6.0%	+3.3%	+1.7%	+1.3%

The entire site eventually drains to Cold Spring Brook. For comparison, the following are the existing peak flows for Cold Spring Brook at the Ayer municipal line taken from USGS Stream Stats. As listed, it can be assumed that the proposed increases in flows will be de minimis.

Storm Event (frequency)	2-year	10-year	25-year	100-year
Peak Flow (cfs)	258	552	738	1060
% Change	+0.68%	+0.28%	+0.17%	+0.10%

Table 2 – Bowers Brook Riverfront Area Peak Flows

Storm Event (frequency)	2-year	10-year	25-year	100-year
24-Hour Rainfall (inches)	3.05	4.54	6.75	8.02
Pre-development (cfs)	3.24	5.14	7.92	9.50
Post-development (cfs)	3.14	5.04	7.83	9.42
% Change	-3.0%	-1.9%	-1.1%	-0.9%

For comparison, the following are the existing peak flows for Bowers Brook at Ayer Road taken from USGS Stream Stats.

Storm Event (frequency)	2-year	10-year	25-year	100-year
Peak Flow (cfs)	190	409	549	788

Standard 3: Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance.

As a limited roadway/ redevelopment project, this project must meet this standard to the maximum extent practicable. The project does not include any proposed groundwater recharge. BMPs, such as infiltration basins, that would provide recharge are not feasible due to limited public right-of-way area. There is a decrease of impervious area along Lancaster County Road (1,920 s.f.) as the existing motor vehicle passageway will be removed, which will provide for increased groundwater recharge. Overall, the project will increase the overall impervious area of the project site which is largely due to the construction of a 10' wide shared use path as required by MassDOT design parameters. Per the Stormwater Handbook, footpaths/bike paths are only required to meet the Standards to the maximum extent practicable.

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

As a limited roadway/redevelopment project, this project must meet this standard to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. As previously described, the project will improve the quality of

stormwater runoff over existing conditions by removing total suspended solids (TSS) prior to being discharged, through the introduction of deep sump catch basins as part of the proposed improved stormwater management system, therefore the project meets the standard to the maximum extent practicable.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

The proposed project area is not considered a land use with higher potential pollutant load since the land use is not changing, therefore, Standard 5 does not apply to this project.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

As a limited roadway/redevelopment project, this project must meet this standard to the maximum extent practicable. There is no municipal water supply the length of Ayer Road, and as such, there are several public water supplies located along the stretch of the project area. Each of the public water supplies has a Zone I and an IWPA. Portions of Ayer Road reconstruction are located within these IWPAs and one Zone I. A portion of the project does discharge stormwater to these critical areas. There are also a couple of mapped NHESP potential vernal pools within proximity to the project area which may qualify as critical areas. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions while improving safety and operation of critical transportation infrastructure for all modes of travel within the project limits. As previously described, the project will improve the quality of stormwater runoff over existing conditions by removing total suspended solids (TSS) prior to being discharged, including to critical areas, through the introduction of deep sump catch basins as part of the proposed improved stormwater management system, therefore the project meets the standard to the maximum extent practicable.

Standard 7: Redevelopment and Other Projects Subject to the Standards Only to the Maximum Extent Practicable

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management

practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project is considered a redevelopment project as it is the reconstruction/improvement of an existing roadway, and as such is required to meet Standards 2, 3, 4, 5, and 6 only to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project has been designed to improve water quality using best management practices where feasible.

The project also qualifies as a limited project as described in 310 CMR 10.05(6)(m)6, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

This project in whole will disturb greater than one acre of land, and therefore the project requires coverage under the EPA NPDES Construction General Permit, and as such will require the development of a SWPPP.

The project has been designed to include erosion and sedimentation controls to prevent impacts to down gradient resource areas. Silt sacks for existing and proposed deep sump catch basins will be installed during construction within the project limits. Perimeter sediment control barriers will be installed in construction areas upgradient of adjacent resources areas. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented by the Contractor prior to any earth disturbance.

See attached Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan.

Standard 9: Operation and Maintenance Plan

A Long -Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

The completed stormwater management system will be maintained by the Town of Harvard Department of Public Works. See attached Operation and Maintenance Plan.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

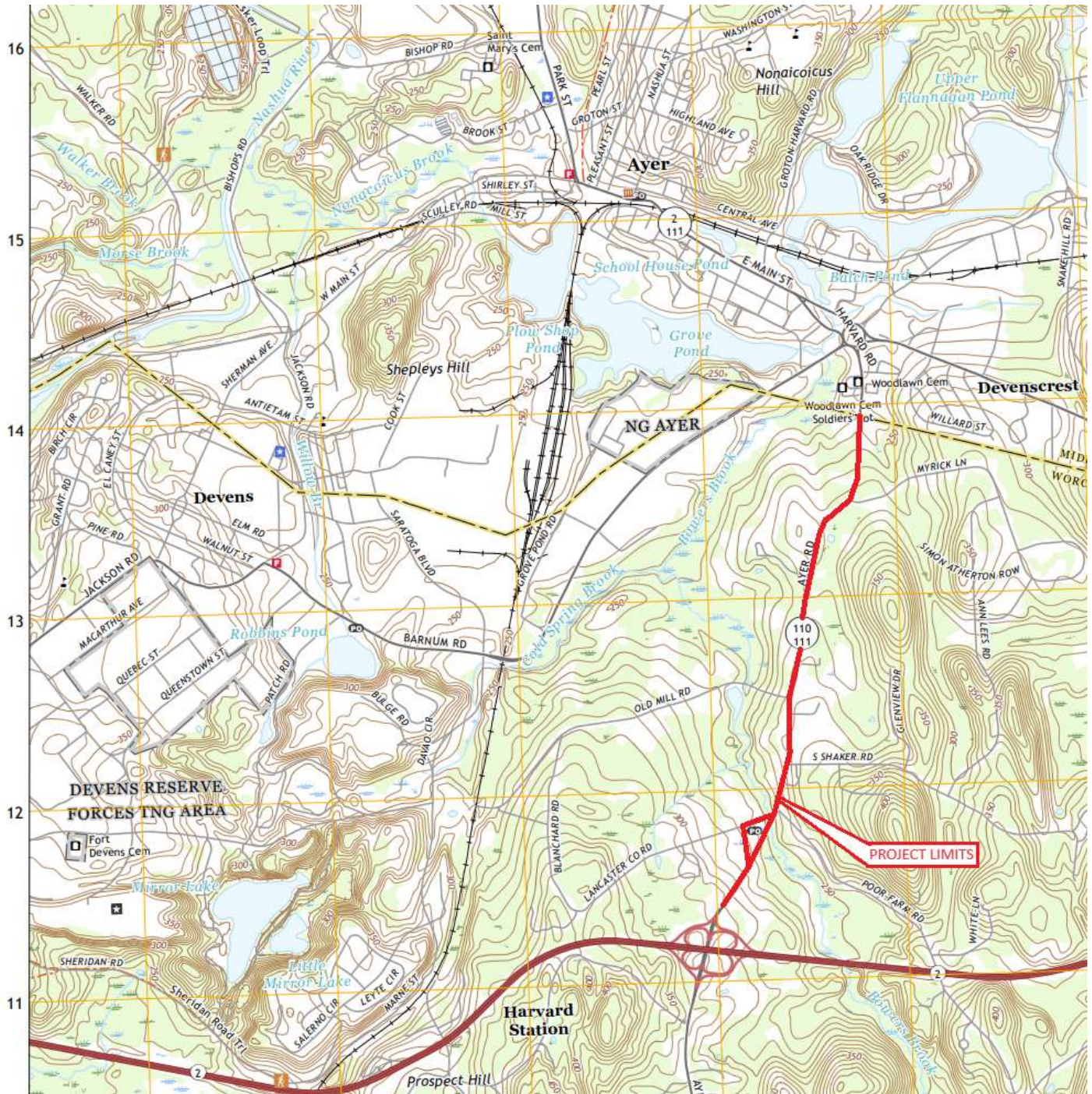
Only stormwater is proposed to be conveyed through the stormwater management system. No illicit materials will be permitted. The Town DPW is responsible for the maintenance of the stormwater system. See attached Illicit Discharge Compliance Statement.

Conclusion

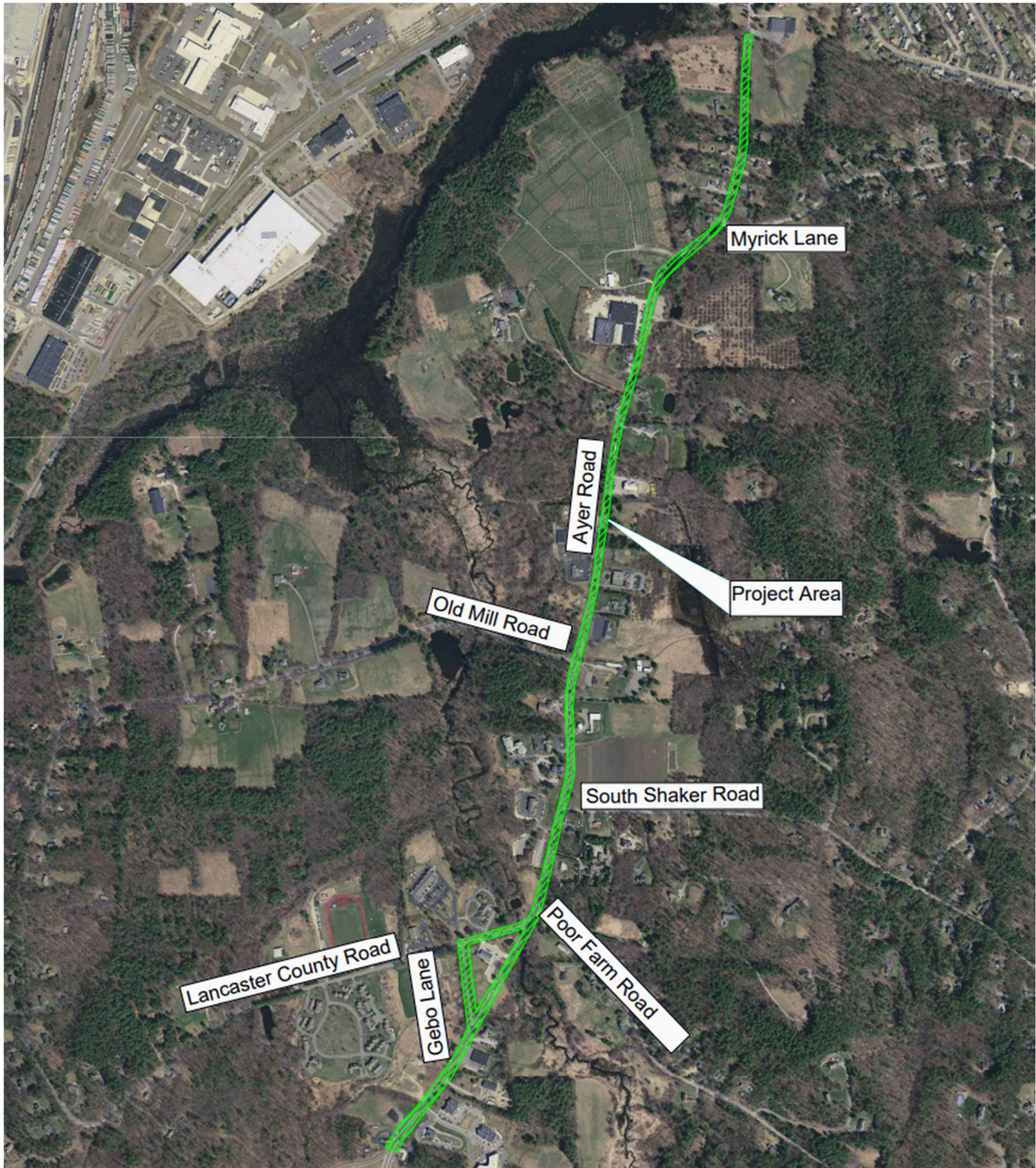
TEC believes the roadway improvement project will have positive impacts to the stormwater management of Ayer Road and the resource areas within and adjacent to the project area. As a redevelopment and limited project, the stormwater standards have been addressed to the maximum extent practicable.

SUPPORTING MAPS AND DATA

USGS Map



Project Location Map





Ayer Road (Route 110/111)

Town of Harvard, MA

1 inch = 1500 Feet



www.cai-tech.com

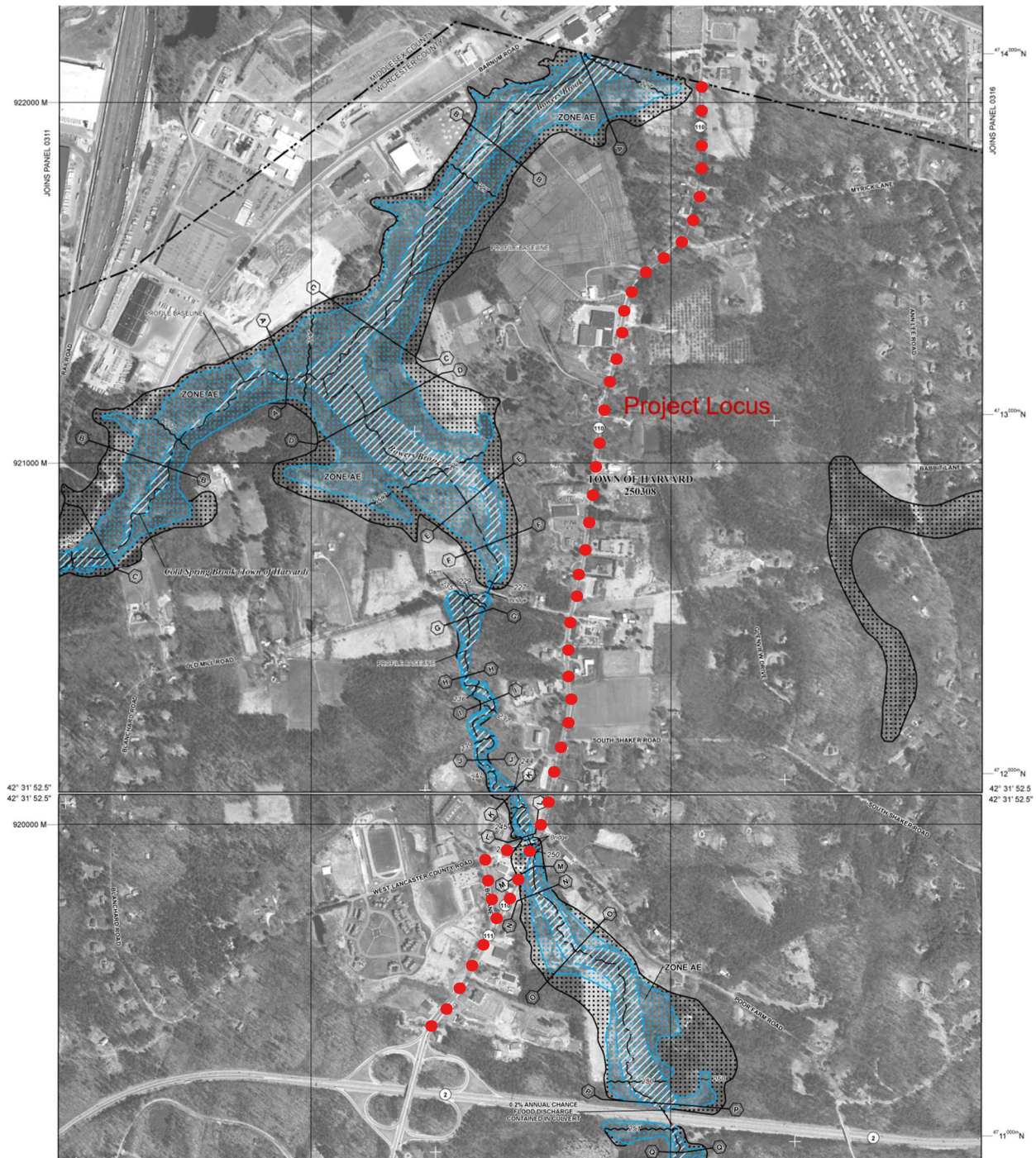
October 4, 2023



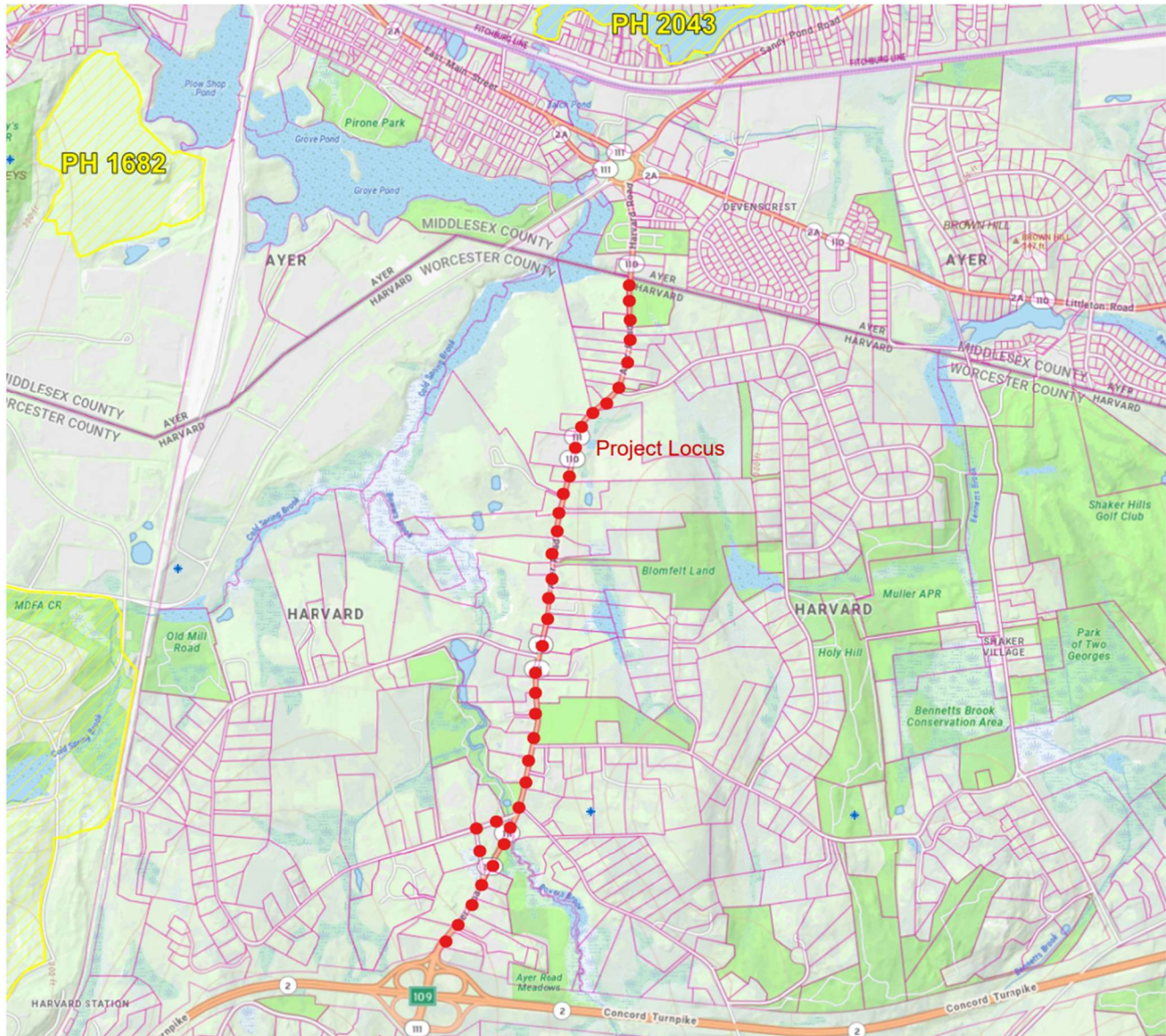
Large Scale	Property Line	Private Road ROW	Travel Way
CAI Town Line	Public Road	Right of Way	Wetland
PWater	Railroad	ROW Over	WaterLines
Private Road	Conservation Restriction	Property Hook	World Hillshade

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

FEMA Map



NHESP Map



NHESP Certified Vernal Pools



NHESP Priority Habitats of Rare Species



NHESP Estimated Habitats of Rare Wildlife

