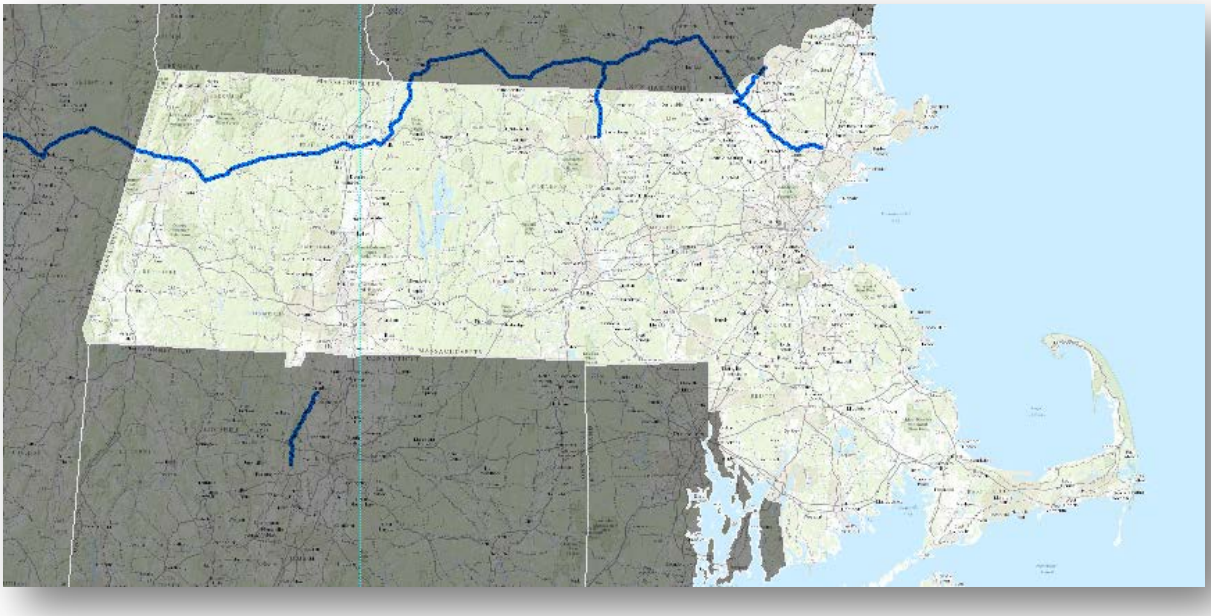
Massachusetts Department of Environmental Protection

BRP WW 10 - 401 Water Quality Certification for Fill & Excavation Projects
Section 401 of the Clean Water Act, 33 CFR § 1251

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

Northeast Energy Direct Project



Submitted to:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands and Waterways
1 Winter Street
Boston, Massachusetts 02108

Submitted by:

Tennessee Gas Pipeline Company, L.L.C. (a Kinder Morgan Company)
1001 Louisiana Street
Houston, Texas 77002

Prepared by:

Epsilon Associates, Inc.
3 Clock Tower Place, Suite 250
Maynard, Massachusetts 01754

In Association with:

AECOM
Hatch Mott MacDonald
Louis Berger Group
Normandeau Associates, Inc.

November 25, 2015

Epsilon ASSOCIATES INC.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

401 WATER QUALITY CERTIFICATION

Northeast Energy Direct Project

Submitted to:

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
1 Winter Street
Boston, MA 02111

Submitted by:

TENNESSEE GAS PIPELINE, LLC (A KINDER MORGAN COMPANY
1001 Louisiana Street
Houston, TX 77002

Prepared by:

EPSILON ASSOCIATES, INC.
3 Clock Tower Place, Suite 250
Maynard, MA 01754

In Association with:

AECOM
Hatch Mott MacDonald
Louis Berger Group
Normandeau

November 25, 2015

November 25, 2015

Mr. Gary Moran, Deputy Commissioner
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

Re: Northeast Energy Direct Project – Statewide
Tennessee Gas Pipeline Company LLC, a Kinder Morgan Company
Application for 401 Water Quality Certification - Transmittal No.: x268217

Dear Deputy Commissioner Moran:

Tennessee Gas Pipeline Company, LLC ("Tennessee" or "TGP") submits this Water Quality Certification ("WQC") application to the Massachusetts Department of Environmental Protection ("MassDEP" or "Department") concomitant with their application to the Federal Energy Regulatory Commission ("FERC") for a Certificate of Public Convenience and Necessity. Pursuant to the Energy Policy Act of 2005, Tennessee is required to submit all necessary Federal permit applications (e.g., U.S. Army Corps Section 404) concurrent with their FERC application. Whereas the WQC is delegated to the Commonwealth of Massachusetts pursuant to Section 401 of the federal Clean Water Act, Tennessee submits the attached WQC application to meet their obligation with respect to the Energy Policy Act of 2005.

Tennessee further understands that the MassDEP cannot issue a WQC until the Massachusetts Environmental Policy Act ("MEPA") review process is completed. This application package is submitted prior to completing MEPA review, and furthermore is based on a combination of remote sensing data, plus limited field reconnaissance to determine jurisdictional boundaries and estimate anticipated work within waters of the United Sates ("U.S.") within the Commonwealth, and presents proposed programmatic in-situ restoration plans to mitigate direct impacts to waters of the U.S. As the MEPA review process nears completion, Tennessee will submit an updated Section 401 WQC application containing detailed permit-level design. We expect the Department will initiate formal review of the updated WQC application at that time, pursuant to the procedures identified in 314 CMR 9.00.

As explained below and in further detail in the accompanying WQC application package, the Northeast Energy Direct Project ("NED Project" or Project") proposes to supply natural gas to help alleviate New England's high natural gas and electricity costs, caused in part by the severely constrained natural gas transportation capacity currently serving the region.

Following is a summary of the project description, purpose and need, alternatives analysis, and programmatic restoration.

Project Description

Tennessee proposes to expand and modify its existing pipeline system in Pennsylvania, New York, Massachusetts, New Hampshire, and Connecticut. The NED Project is being developed to meet the existing and increased demand in the Northeast United States for transportation capacity of natural gas. At full capacity, the NED Project will increase natural gas capacity by 1.3 billion cubic feet per day ("Bcf/d"). The proposed Project will include constructing more than 400 miles of pipeline (new pipeline,

looping pipeline segments, and laterals) in Pennsylvania, New York, Massachusetts, New Hampshire, and Connecticut. Additionally, Tennessee needs to construct new compressor and meter stations, and modify existing compressor and meter stations along its proposed and existing pipeline system to integrate the new NED Project facilities with the existing TGP pipeline facilities. The Project also requires construction of appurtenant facilities, including mainline valves ("MLVs"), cathodic protection, and pig launcher/receivers through the Project area.

The Wright, New York to Dracut, Massachusetts Segment, (also referred to as the "Market Path") plus associated lateral pipelines are the focus of this WQC application, for work proposed in the Commonwealth. These facilities involve constructing approximately 100 miles of new pipeline in 29 Massachusetts municipalities and is comprised of approximately 64 miles of 30-inch diameter mainline, and 36 miles of lateral pipelines, of various diameters; plus three new compressor stations, eight new meter stations, two new regulator stations, modifications to 11 existing meter stations at TGP facilities, plus appurtenant facilities along the proposed pipeline alignment. Approximately 86 miles of the 100 miles of new pipeline, approximately 86 percent, will be co-located or directly adjacent to existing utility corridors, in order to minimize impacts to the natural and built environments.

Purpose and Need

The purpose of the proposed NED Project is to increase natural gas transmission capacity into New England, thus expanding supplies of natural gas reaching Massachusetts and portions of New Hampshire and Maine. Increasing natural gas pipeline transmission capacity into New England, in general, and Massachusetts in particular, will achieve this purpose. Upon completion, the NED Project will provide up to 1.3 Bcf/d of additional natural gas transportation capacity into the region to supply local distribution companies ("LDCs") which serve: residential, business and institutional customers; gas-fired electric power generators; electric distribution companies; industrial plants; natural gas producers; and other New England natural gas consumers.

Thus far, Tennessee has executed precedent agreements with nine LDCs for 552,262 dekatherms per day ("Dth/d") of long-term firm transportation capacity in Massachusetts and Connecticut. Negotiations continue with other Project Shippers.

The benefits to be derived by Massachusetts, from increasing the regions natural gas pipeline capacity includes: improving the reliability of the electrical power grid; stabilizing electric and gas rates for consumers; providing adequate gas to residential, institutional, and commercial consumers to meet the market demands; ensuring adequate dispatchable electricity sources are available to support expanding renewable power, primarily wind and solar; improved air quality when oil- and coal-fired generating plants switch to natural gas fired generating plants; and reduced greenhouse gas ("GHG") emissions, when compared to burning oil and coal.

The need for increased gas pipeline capacity serving Massachusetts, and New England, has been documented by industry sources including: the U.S. Department of Energy – U.S. Energy Information Administration ("EIA") and the Independent System Operator - New England ("ISO New England"), and the results of a study commissioned by the Massachusetts Department of Energy Resources ("DOER"). See the Purpose and Need discussion in the attached WQC application package for more details.

Increasing natural gas pipeline capacity into Massachusetts should:

1) support expanded use of renewable energy by providing cleaner burning fuels for dispatchable electricity; and

2) facilitate the replacement of oil- and coal-fired generating facilities with cleaner burning natural gas, both of which support the goal of decreased GHG emissions and reduced emissions of air pollution from electricity generation.

In summary, the Purpose and Need for the NED Project is to provide the natural gas pipeline capacity to meet the region's, and the Commonwealth's, existing and growing energy demands, specifically natural gas demands. The increased use of natural gas is expected to yield the following additional benefits:

- improve reliability of electricity generation in Massachusetts, especially during peak energy demand,
- yield reduced price spikes and thus lower energy costs to consumers;
- better integrate renewable energy into the power distribution system, by producing dispatchable electricity to work synergistically with non-dispatchable (intermittent) renewable energy sources; and
- lastly, by replacing dirtier fossil fuels (coal and oil) and working synergistically with renewables, support goals for lower GHG emissions and lower air pollution emission from the power generation industry.

The NED Project is responding to the need for significant increase in natural gas transmission capacity into New England and will deliver sufficient incremental supplies that, based upon basic market forces of supply and demand, should put considerable downward pressure on energy commodity prices, which currently are among the highest in the U.S. Additionally, increased natural gas pipeline capacity will ensure greater reliability and fuel certainty in the electric generation sector, which should also yield lower energy commodity prices.

Alternatives

Tennessee evaluated a suite of project alternatives including but not limited to; the no-action alternative, alternative fuels, and systems alternatives, as summarized in the attached WQC application package. That analysis concluded that construction of a new natural gas pipeline facility is the preferred Project Alternative to meet the region's identified natural gas capacity constraints. The NED Project brings a reliable supply of natural gas to address the region's constrained infrastructure capacity.

Having identified the preferred project alternative, Tennessee evaluated a number of potential alignments through the Commonwealth that could be used to route the 30-inch diameter natural gas pipeline and locate related pipeline laterals, compressor stations and meter stations. From a Section 401 WQC perspective, the purpose of the routing analysis is to identify a route that is both practicable and feasible to construct and which avoids, minimizes and mitigates impacts to wetlands and other waters of the U.S. and the Commonwealth, to the maximum extent practicable.

The routing analysis was prepared using "desk top" evaluation of potential impacts relying on publicly available information, (e.g. geographic information system ("GIS") data, remote sensing data, and maps) for the length of the project. To date, "on-the-ground" data is not available for the entire length of the project corridor, thus using a consistent level of data to evaluate alternatives, relative to each other, is a valid and appropriate technique to compare potential environmental impacts associated with each alternative.

Tennessee started by identifying a geographic study area. After identifying the routing study area, Tennessee then used a variety of mapping and survey data, plus field reconnaissance of the area to

identify existing linear corridors that could potentially support construction of a new natural gas pipeline, or portions thereof. The existing corridors included transmission line ROWs, railroad corridors, roadway and highway layouts and other pipeline ROWs. Direct routes were preferred to more circuitous routes. Tennessee also determined that established ROWs should be used wherever possible (i.e. co-location) although new cross country or "greenfield" ROWs within the routing study area were also considered.

Tennessee evaluated nine major alternative routes in Massachusetts, the proposed route and eight alternative routes. The comparison of the proposed NED Project route to the eight alternatives is presented in Attachment 1 of the WQC application, and summarized in Table 1-7 Comparison of Major Route Alternatives to the Proposed NED Project.

The preferred mainline route is approximately 64 miles long through Massachusetts; of which approximately 63 miles will be generally co-located or directly adjacent to the existing utility corridors to avoid and minimize damage to the environment. The lateral pipelines comprise approximately 36 miles of pipeline of varying diameters, of which approximately 23 miles will be co-located or directly adjacent to existing utility corridors. This yields a total of approximately 86 miles of the proposed 100 miles of pipeline (~86%) to be co-located or directly adjacent to existing utility corridors. Tennessee advocates that co-locating the pipeline facilities with existing utility corridors, to the extent practicable, represents the least environmentally damaging practicable route alternative.

The environmental impact analysis will be refined through the MEPA and NEPA review processes and subsequent permitting processes, in consultation with the FERC and other local, state and Federal resource agencies, as access to the route becomes available to conduct field surveys. The revised impact assessment with site specific data and mitigation will be provided to the Department in the updated WQC application.

Mitigation

Tennessee advocates that co-locating the pipeline facilities with existing utility corridors avoids and minimizes impacts to the environment. To mitigate unavoidable impacts to wetlands and other waters of the U.S., Tennessee proposes the measures included in the Massachusetts Environmental Construction Plan ("ECP"), see Attachment 9, which presents the NED Project programmatic construction period environmental mitigation measures. The intent of the ECP is to identify the measures taken to avoid and mitigate the potential impacts to the surrounding environment before and during construction, and establish restoration guidelines for direct impacts as well as monitoring and maintenance procedures for the immediate post construction period. The ECP represents the starting point, or baseline condition, from which:

1) site and resource area specific restoration mitigation plans will be developed in consultation with the resource agencies; the framework of such plans will be outlined and described in the subsequent MEPA filings, as well as in the local, state and Federal permit applications; and
2) a comprehensive project mitigation package will be developed to address potential impacts to the built and natural environments identified through the MEPA review and interagency coordination processes. The comprehensive mitigation package will consider and describe mitigation to specified criteria and impacts to interests protected by state statutes and regulations.

Tennessee anticipates that the comprehensive mitigation package will be developed with stakeholder input, as the MEPA review process progresses, and will be communicated to MEPA, MassDEP and other state regulatory agencies as Draft Section 61 Findings incorporated in to the Final EIR. That plan will be incorporated in the updated WQC application, to be submitted as MEPA review nears completion.

Conclusion

As proposed, the NED Project will provide additional gas capacity that New England, and Massachusetts, needs to reduce energy costs, enhance electric reliability, integrate renewable electricity generation into the electricity grid, and stimulate economic growth.

Tennessee believes that the NED Project is uniquely designed to provide the transformative solution that New England needs to bring low-cost, abundant and environmentally clean natural gas to New England, at a scale to enhance the reliability of the electrical grid, lower and stabilize energy costs for gas and electric customers, service other regional pipelines, and help stimulate economic growth, providing the opportunity for New England to benefit similarly to other regions of the U.S. As a new path for gas into New England, the NED Project will create a large bi-directional pipeline system that will fundamentally improve natural gas flows, relieve existing bottlenecks, and enhance gas supply diversity and improve energy reliability for decades to come. The NED Project is designed to provide New York and New England with direct access to low-cost gas supplies in the "scale" necessary to significantly lower energy costs. Combined, the existing Tennessee system and the proposed NED Project are, among all pipeline systems serving New England, best situated and designed to serve the areas specifically identified by ISO New England as needing additional generation to replace substantial amounts of nuclear, oil- and coal-fired generation retiring in the next few years, without triggering electric transmission constraints. Additionally, increased reliance on natural gas in lieu of oil or coal, for electricity does not come at the expense of increased use of renewables for electricity. Natural gas fired generation more effectively integrates renewables, notably wind and solar, into the electrical grid than traditional fossil fuel fired plants. Natural gas fired generating plants can work synergistically with the fluctuating input from renewables especially during periods of peak demand.

Lastly, Tennessee submits this WQC application concomitant with the FERC submittal but is not expecting the Department to issue a WQC within the timeframes referenced under 310 CMR 4.00 "Schedule of Permit Application Fees and Timelines" starting from the date if this submission. As the MEPA review process nears completion, Tennessee will submit an updated WQC application to the Department containing site specific information, and we expect that formal commencement of the 401 WQC review process will begin after the final MEPA Certificate is issued, consistent with Massachusetts statutes and regulations. If you have any questions or need additional information, please contact me at (713.420.5360) or by email at michael_letson@kindermorgan.com.

Sincerely,

Michael Letson
Project Manager, Tennessee Gas Pipeline Company, L.L.C

Encl.

Cc: D. Dunk, Epsilon Associates
M. Gardella, AECOM
Hatch Mott McDonald

Contents of Water Quality Certification Application

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wetlands and Waterways

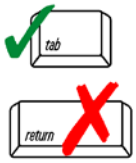
BRP WW 10 Major Project Certification
BRP WW 11 Minor Project Certification

401 water Quality Certification for Fill and excavation Projects in waters and Wetlands

x268217
Transmittal Number #

A. Applicant 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. Which permit category are you applying for?

☒ BRP WW 10 ☐ BRP WW 11

2. Applicant/Owner:

Tennessee Gas Pipeline Company LLC ("TGP" or Tennessee")
Name

1001 Louisiana Street
Address

Houston | TX | 77002
City/Town | State | Zip Code

Mr. Michael Letson
Contact Person

	713-420-5360
Telephone (home)	(work)

3. Authorized Agent

Epsilon Associates Inc.
Name

3 Clock Tower Place, Suite 250
Address

Maynard | MA | 01754
City/Town | State | Zip Code

Dr. Dwight R. Dunk, PWS, BCES
Contact Person

	978-897-7100
Telephone (home)	(work)

B. Project Information

1. Project Location:

See Figures 1 - 6 immediately following this BRP WW 10 Form
Address

Various (See Attachment 1 - Project Description) | MA | | |
City/Town | State | Zip Code

Various (See Attachment 1 - Project Description)
Nearest or Adjacent Waterbody

2. Project Name (if any):

Northeast Energy Direct Project ("NED Project")

3. a. Describe project purpose:

The basic purpose of the NED Project is to increase natural gas transmission capacity into New England, to increase supplies of natural gas reaching Massachusetts and portions of Connecticut, New Hampshire and Maine. Increasing natural gas pipeline transmission capacity into New England in general, and Massachusetts in particular, will achieve this purpose. At full capacity, the NED Project will provide up to 1.3 Bcf/d (billion cubic feet per day) of additional natural gas transportation capacity to meet the region's energy needs. This includes needs of local distribution companies which primarily serve residential, business and institutional customers; gas-fired electric power generators; electric distribution companies; industrial plants; natural gas producers; and other New England natural gas consumers.

See Attachment 1 for a more detailed description of the project's purpose and need.

b. Is the project

☒ water-dependent ☐ non water-dependent

B. Project Information (cont.)

4. a. provide a brief description of the proposed project (See Application Instructions and include a copy of the Notice of intent, if any.):

In Mass. the NED Project consists of approximately 100 miles of gas pipeline (64 miles of main line and 36 miles of lateral pipeline), 3 new compressor stations, 8 new meter station, 3 new compressor stations, modifications at 11 existing meter stations plus appurtenant facilities. Of the 100 miles of pipeline, 86 miles (~86%) is proposed to be co-located with existing utility ROWs. The use of co-location as a principle design element minimizes environmental impacts (e.g. habitat fragmentation), public disturbance (e.g. number of affected property owners), and construction costs. See Attachment 1 for a more detailed Project Description.

b. Notice of Intent File number (if any): N.A.

5. Identify the loss in square feet of each type of resource area (see Application Instructions for additional information.):

a. Bordering vegetated wetland: Temporary Impact 138.24 ac. (6,021,734 s.f.) square feet

b. Isolated vegetated wetland: -- square feet

c. Land under water: Temporary Impact 1.12 acres (48,780 s.f.) square feet

d. Total cumulative loss of a. + b. + c.: Temporary Impact 139.36 acres (6,070,514 s.f.) square feet

e. Salt marsh: N.A. square feet

6. a. Will the proposed project occur in any wetlands or waters designated as "Outstanding Resource Waters"?

☒ Yes ☐ No

If yes has public notice been published in the Environmental Monitor?

☐ Yes ☒ No Date of Publication

b. Is this project a subdivision or any part of a subdivision? ☐ Yes ☒ No

c. Is the project categorically subject to MEPA? ☒ Yes ☐ No

If yes, has final action been taken? ☐ Yes ☒ No

If yes, please include copy of MEPA certificate.

B. Project information (cont.)

7. Alternatives Analysis:

   As related to the project purpose, attach a detailed description of alternatives to the proposed project that were considered and why none are available that avoid adverse impacts to wetlands and waters.

   If no alternatives are available, describe how the activity will minimize or mitigate the adverse impacts to wetlands and waters.

   See application instructions for information required. Attach required documentation.

C. Additional Information

1. Is any of your proposed work exempt from the Massachusetts Wetlands Protection Act or taking place in a federal non-state wetland?

   ☐ Yes ☒ No

   If yes, see Application Instructions for additional information needed.

2. Public notice to a newspaper of general circulation within the area of the proposed activity must be published within 10 days of the date of this application. Is proof of public notice submitted?

   ☐ Yes ☒ No

   (See Application Instructions for additional information)

D. Certification

Application is hereby made for water quality certification.

"I certify that I am familiar with the work proposed and that to the best of my knowledge and belief the information contained in this application is true, complete, and accurate"

Gina B. Dorsey
Applicant's Signature

Ms. Gina Dorsey
Print name

Dwight R. Dunk
Agent's Signature

Dwight R. Dunk
Print Name

November 25, 2015
Date

Enter your transmittal number → x268217 (Transmittal Number)

Your unique Transmittal Number can be accessed online: http://mass.gov/dep/service/online/trasmfrm.shtml

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

1. Permit Code: 7 or 8 character code from permit instructions	2. Name of Permit Category
Transmittal No. x268217BRP WW 10	Major Project Certification

3. Type of Project or Activity: 401 Water Quality Certification for Fill & Excavation Projects in Waters and Wetlands

B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: Tennessee Gas Pipeline Company, LLC

2. **Last Name** of Individual	3. **First Name** of Individual	4. MI

5. Street Address: 1001 Louisiana Street

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Houston	TX	77002	713-420-5360	

11. Contact Person	12. e-mail address (optional)
Mr. Michael Letson	Michael_Letson@kindermorgan.com

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: Northeast Energy Direct Project ("NED Project")

2. Street Address: Various

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Various				

8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)
N.A.		

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual: Epsilon Associates, Inc.

2. Address: 3 Clock Tower Place, Suite 250

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Maynard	MA	01754	979-897-7100	

8. Contact Person	9. LSP Number (BWSC Permits only)
Dr. Dwight R. Dunk	

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☒ yes ☐ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit: -- (EOEA File Number)

F. Amount Due

DEP Use Only

Permit No:

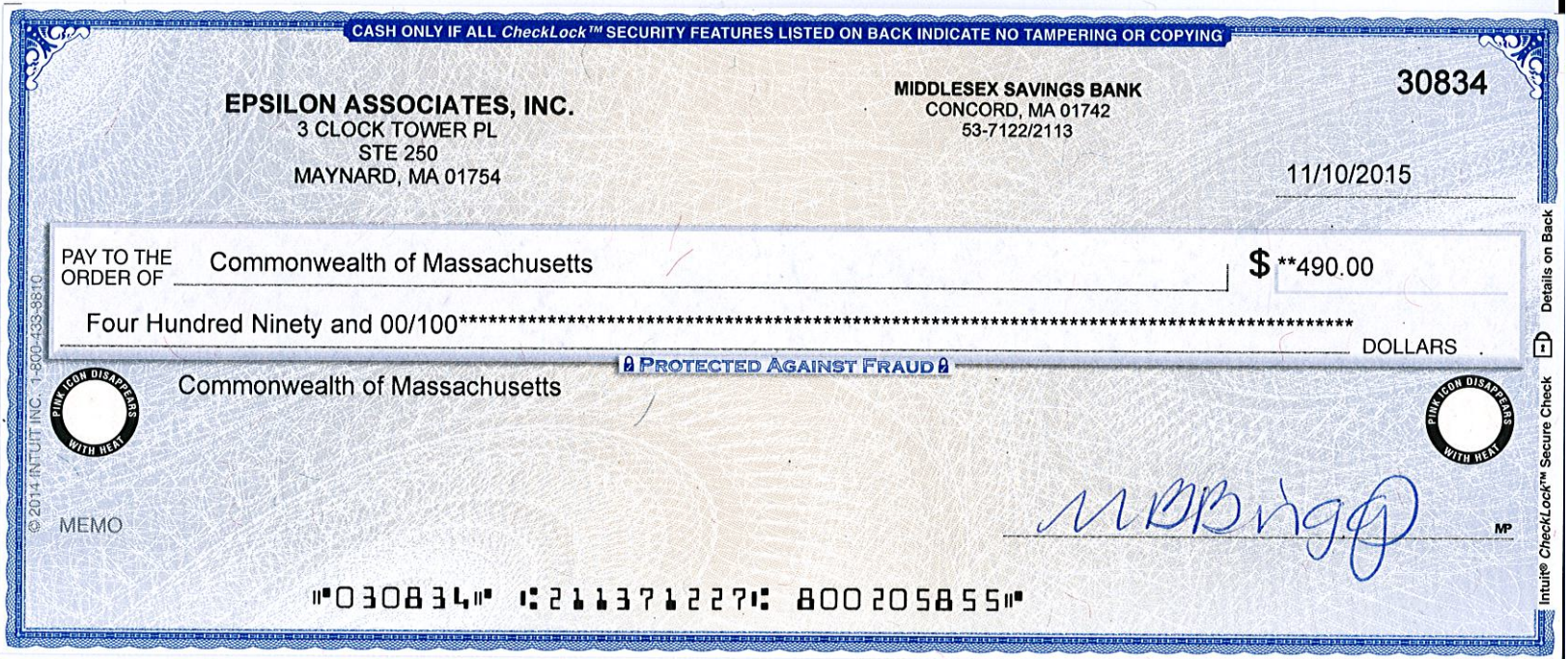
Rec'd Date:

Reviewer:

Special Provisions:

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
   There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

Check Number	Dollar Amount	Date
30834	$490	11/10/2015



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MAYNARD, MA 01754

MIDDLESEX SAVINGS BANK
CONCORD, MA 01742
53-7122/2113

30834

11/10/2015

PAY TO THE ORDER OF Commonwealth of Massachusetts $ **490.00

Four Hundred Ninety and 00/100********** DOLLARS

PROTECTED AGAINST FRAUD

Commonwealth of Massachusetts

PINK ICON DISAPPEARS WITH HEAT

PINK ICON DISAPPEARS WITH HEAT

MEMO

MP

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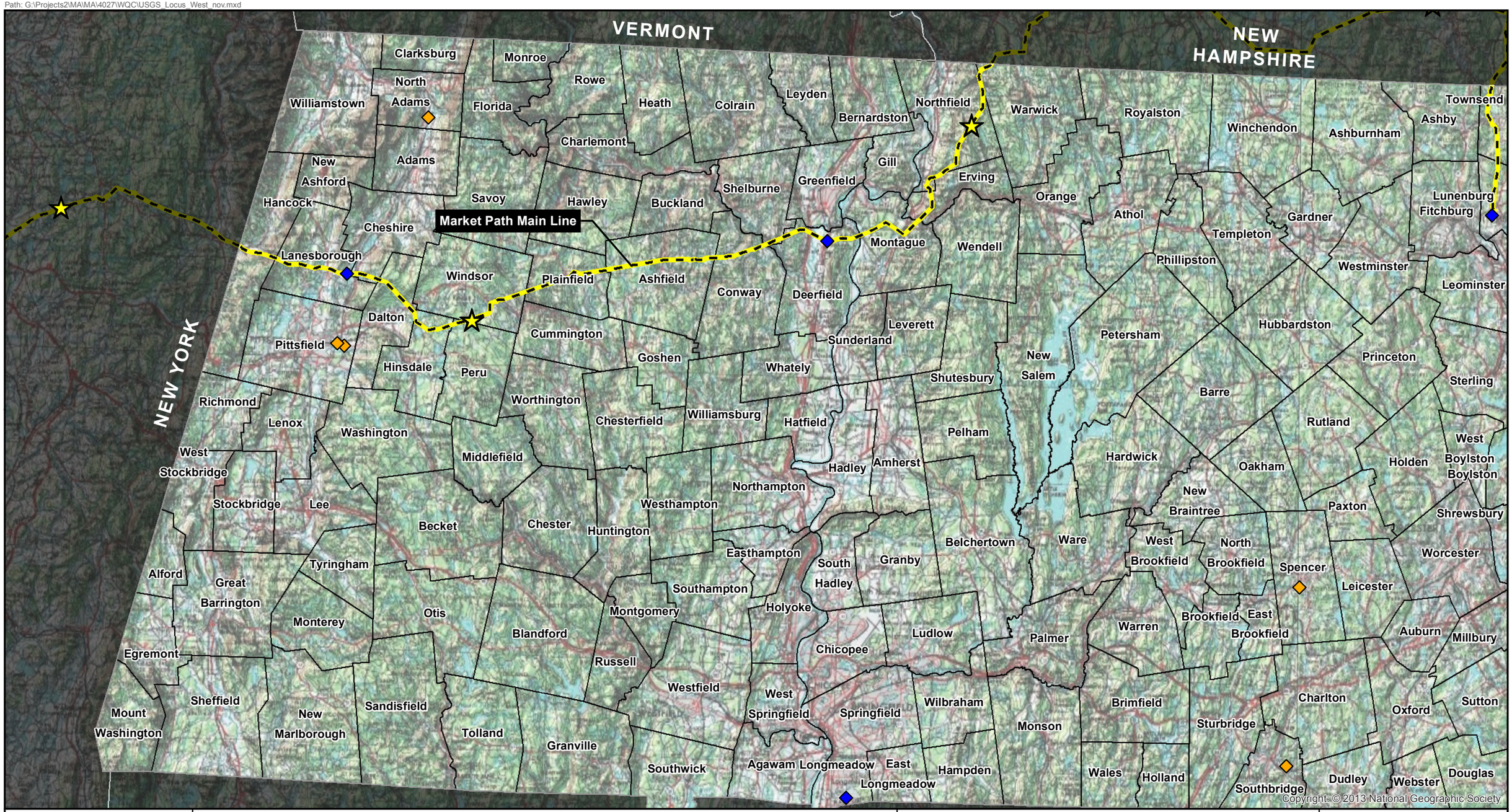
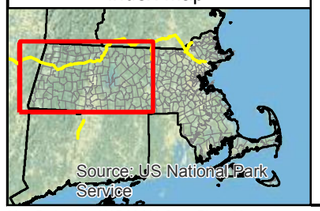


Index Map



Legend

- Market Path Main Line and Laterals
- Massachusetts Town/City Boundary
- Meter Station (New)
- Meter Station (Existing – Modified)
- Compressor Station (New)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Project Location Map - West

0 4 8 16 Miles

1 inch = 6 miles

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

November 2015

FIGURE 1

Map Projection: NAD83 MA State Plane M.

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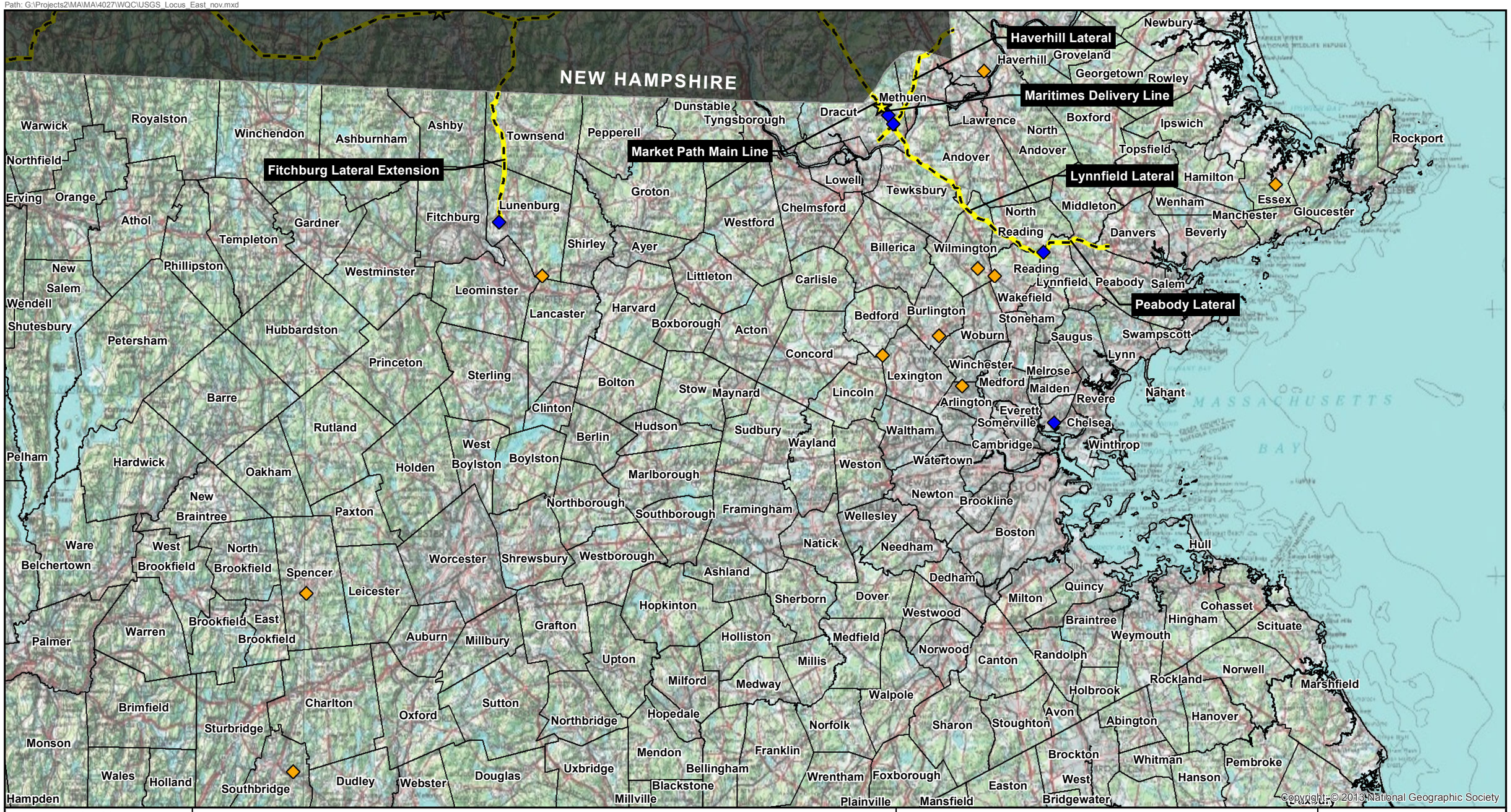
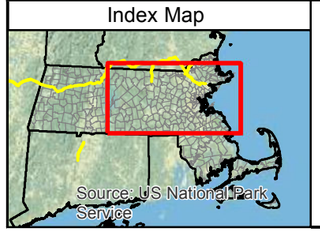


Index Map



Legend

- Market Path Main Line and Laterals
- Massachusetts Town/City Boundary
- Meter Station (New)
- Meter Station (Existing – Modified)
- Compressor Station (New)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Project Location Map - East

0 4 8 16 Miles

1 inch = 6 miles

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

November 2015

FIGURE 2

Map Projection: NAD83 MA State Plane M.

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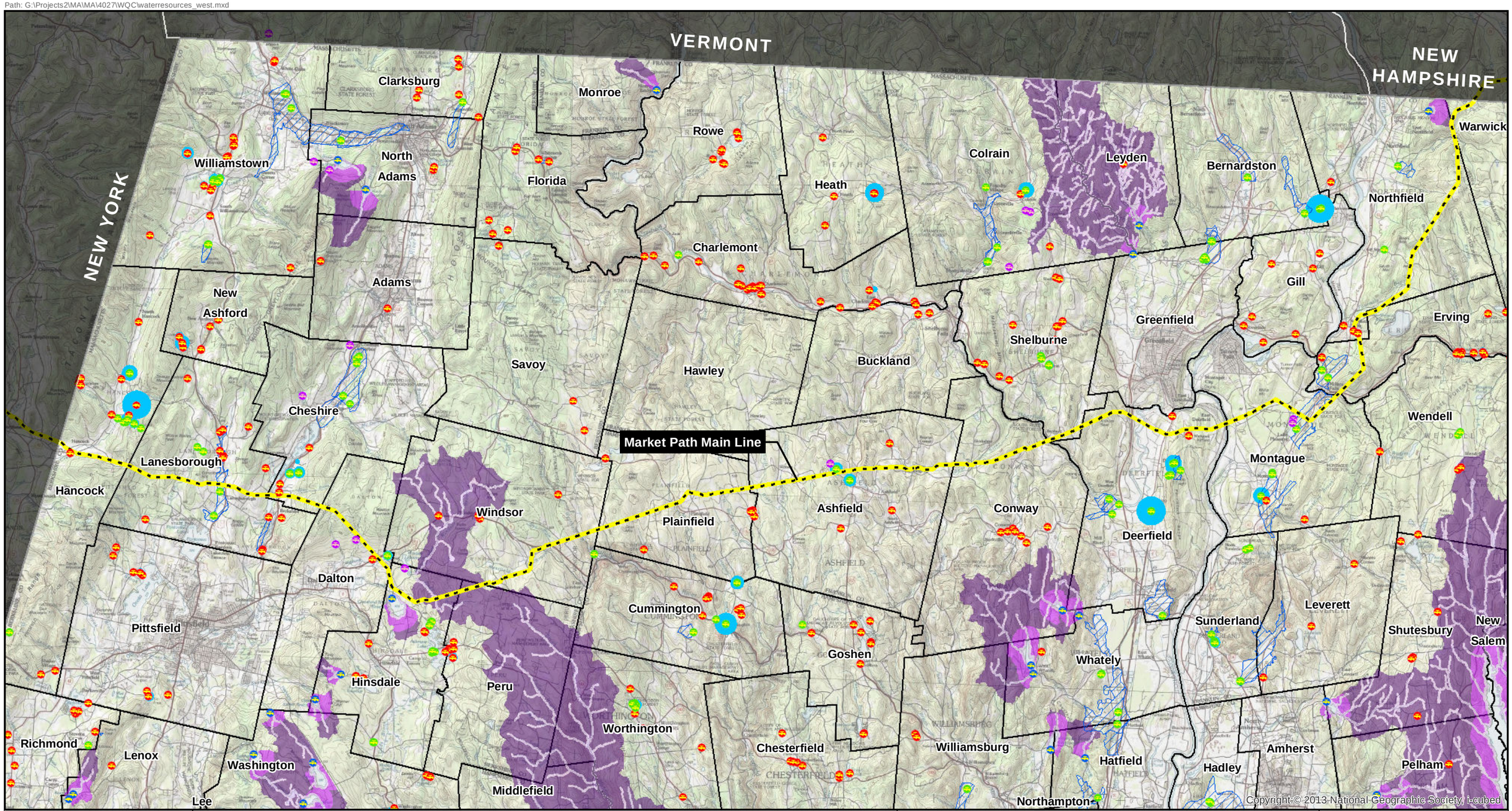
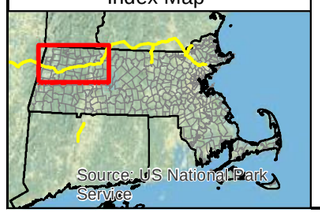


Index Map



Legend

- Market Path Main Line and Laterals
- Massachusetts Town/City Boundary

Surface Water Protection Areas

- ZONE A
- ZONE B
- ZONE C
- Surface Water Intake
- Emergency Surface Water

Groundwater Resources and Protection Areas

- Community Groundwater Source
- Non-Community Groundwater Source
- DEP Approved Zone IIs
- Interim Wellhead Protection Areas

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Surface and Groundwater Resources - West

0 2.5 5 10 Miles 1 inch = 3 miles

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon

November 2015

FIGURE 3

Map Projection: NAD83 MA State Plane M.

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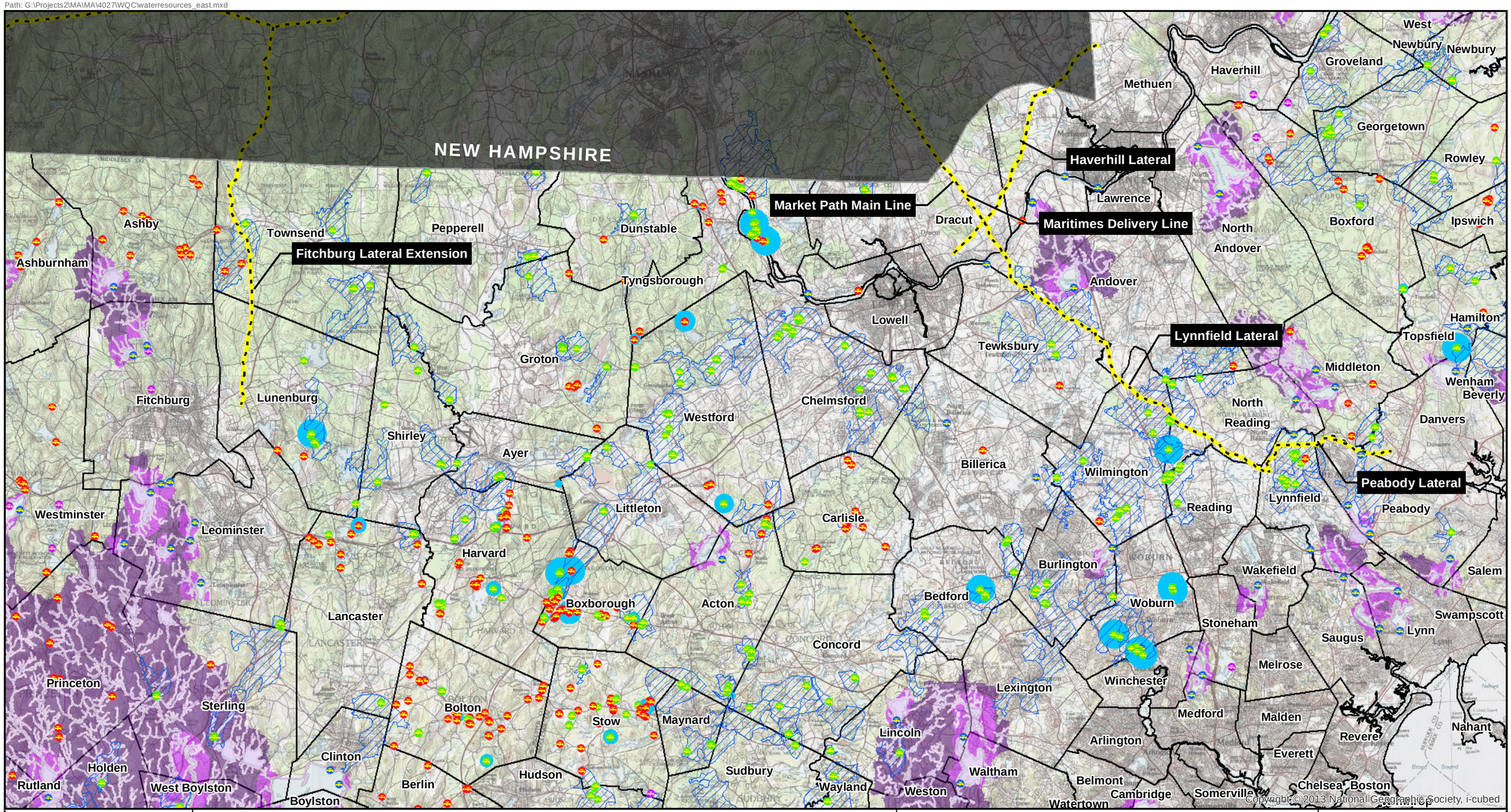
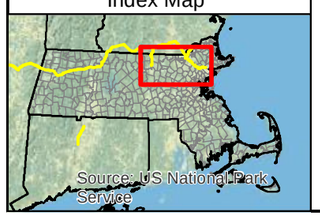


Index Map



Legend

- Market Path Main Line and Laterals
- Massachusetts Town/City Boundary

Surface Water Protection Areas

- ZONE A
- ZONE B
- ZONE C
- Surface Water Intake
- Emergency Surface Water

Groundwater Resources and Protection Areas

- Community Groundwater Source
- Non-Community Groundwater Source
- DEP Approved Zone IIs
- Interim Wellhead Protection Areas

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Surface and Groundwater Resources - East

0 2.5 5 10 Miles 1 inch = 3 miles

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

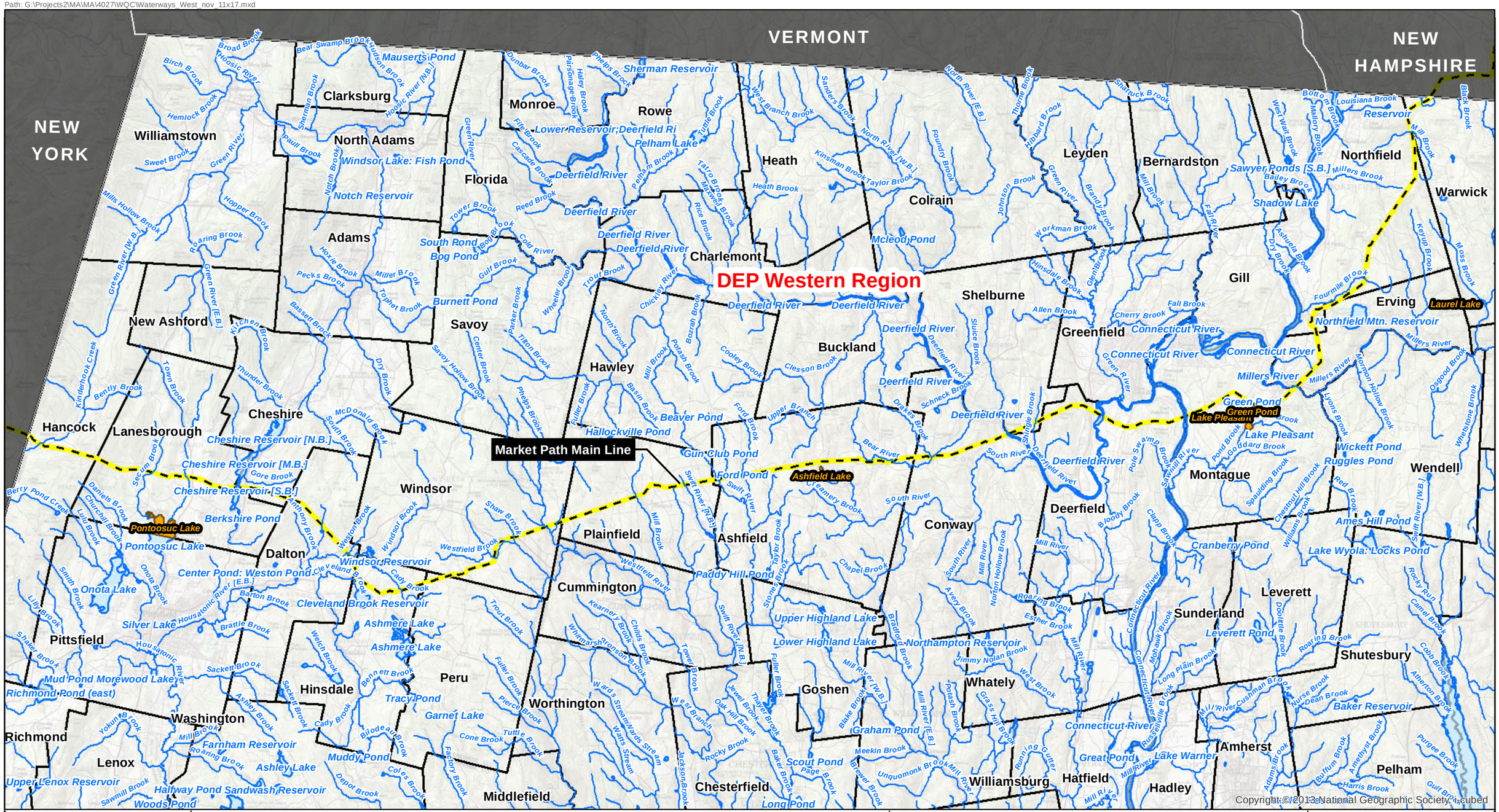
AECOM Epsilon

November 2015

FIGURE 4

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\WQC\Waterways_West_nov_11x17.mxd



Index Map

Legend

- Proposed Route
- Great Pond
- Rivers and Streams
- Lakes and Ponds
- Town Boundary

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Waterways - West

0 2 4 8 Miles

1 inch = 3 miles

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

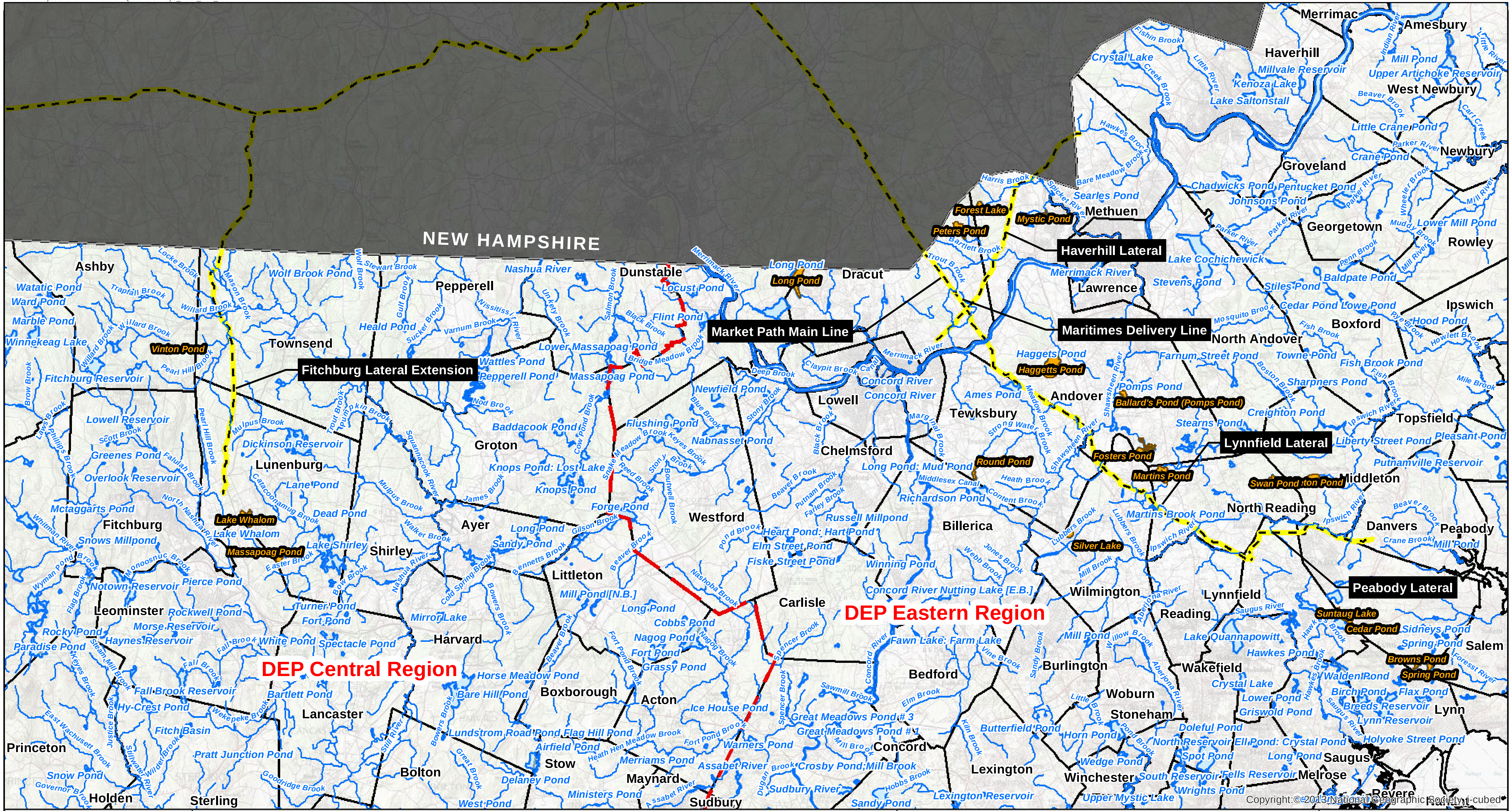
AECOM Epsilon

November 2015

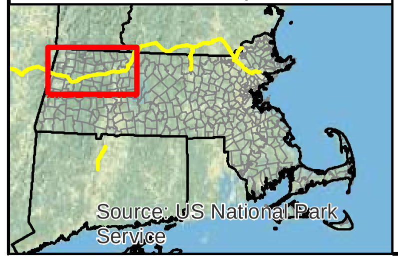
FIGURE 5

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\WQC\Waterways_East_nov_11x17.mxd



Index Map



Legend

- Proposed Route
- Great Pond
- Rivers and Streams
- Lakes and Ponds
- Town Boundary

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Waterways - East

0 2 4 8 Miles

1 inch = 3 miles

Tennessee Gas Pipeline Company, L.L.C. a Kinder Morgan company

AECOM Epsilon

November 2015

FIGURE 6

Map Projection: NAD83 MA State Plane M.

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ATTACHMENT 1 – WQC FORM ADDITIONAL INFORMATION

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ATTACHMENT 1 – WQC FORM ADDITIONAL INFORMATION

Attachment 1 to the Water Quality Certification ("WQC") augments the information presented in the preceding Massachusetts Department of Environmental Protection (MassDEP) Bureau of Resource Protection (BRP) WW 11 Major Project Certification Application Form ("WQC Form") and includes the following information, with numbering correlating to the WQC Form sections identified in the section headings:

B.1 - Project Location
B.3.a - Project Purpose and Need
B.3.b - Water Dependency
B.4.a. - Project Description
B.5. - Waterways and Wetlands Impacts
B.6.a. - Outstanding Resource Waters
B.7. - Alternatives Considered

Attachments 2 through 12 include other relevant information in support of this WQC application information, including but not limited to, information demonstrating compliance with the Massachusetts Water Quality Certification Criteria, permit drawings, wetland delineation report, conceptual restoration plans, environmental construction plans and administrative requirements.

Tennessee Gas Pipeline Company, L.L.C. ("Tennessee" or "TGP") is filing this Water Quality Certification ("WQC") application concomitant with an application seeking the issuance of a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission ("Commission" or "FERC"), also referred to as "FERC Order", to construct and operate the proposed Northeast Energy Direct Project ("NED Project" or "Project"). As required by the Energy Policy Act ("EPAct") of 2005, Tennessee is required to submit all necessary Federal permit applications (e.g., United States Army Corps of Engineers ("USACE") Section 404) concurrent with their FERC application. Whereas the WQC is delegated to the Commonwealth of Massachusetts pursuant to Section 401 of the federal Clean Water Act ("CWA"), Tennessee submits the attached WQC application to meet their obligation with respect to the EPAct of 2005.

Tennessee further understands that the Massachusetts Department of Environmental Protection ("MassDEP") cannot issue a WQC until the Massachusetts Environmental Policy Act ("MEPA") review process is completed. This application package is based on remote sensing data to determine jurisdictional boundaries and estimate anticipated work within waters of the United States ("U.S.") within the Commonwealth, and presents proposed programmatic in-situ restoration plans to mitigate direct impacts to waters of the U.S. As the MEPA review process nears completion, Tennessee will submit an updated Section 401 WQC application containing detailed permit-level design. We expect the MassDEP will complete review of the updated WQC application at that time, consistent with the procedures identified in 314 CMR 9.00.

The following introduction and Project summary provides context for the information presented in the WQC Form and subsequent sub-sections.

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1.0 INTRODUCTION

Tennessee proposes to expand and modify its existing pipeline system in Pennsylvania, New York, Massachusetts, New Hampshire, and Connecticut. The NED Project is being developed to meet the increased demand in the Northeast U.S. for transportation capacity of natural gas.

The proposed Project will include constructing more than 400 miles of pipeline (new pipeline, looping pipeline segments, and laterals) in Pennsylvania, New York, Massachusetts, New Hampshire, and Connecticut. Additionally, as part of the Project, Tennessee proposes to construct new compressor and meter stations and modify existing compressor and meter stations along its proposed and existing pipeline system. There will also be construction of appurtenant facilities, including mainline valves ("MLVs"), cathodic protection, and pig facilities through the Project area.

The basic purpose of the NED Project is to increase natural gas transmission capacity into New England, thus expand supplies of natural gas reaching Massachusetts and portions of New Hampshire and Maine. Increasing natural gas pipeline transmission capacity into New England in general, and Massachusetts in particular, will achieve this purpose. At full capacity, the NED Project will provide up to 1.3 Bcf/d (billion cubic feet per day) of additional natural gas transportation capacity to meet the New England region's energy needs. This includes needs of local distribution companies ("LDCs") which primarily serve: residential, business and institutional customers; gas-fired electric power generators; electric distribution companies; industrial plants; natural gas producers; and other New England consumers.

The benefits derived by Massachusetts from increasing the regions natural gas pipeline capacity includes: improving the reliability of the electrical power grid; stabilizing electric and gas rates for consumers; providing adequate gas to residential and commercial consumers to meet the market demands; ensuring adequate dispatchable electricity sources are available to support expanding renewable power, primarily wind and solar, in the Commonwealth of Massachusetts; improved air quality when oil and coal fired generating plants switch to natural gas fired generating plants; and reduced greenhouse gas ("GHG") emissions, when compared to burning oil and coal.

As proposed, the NED Project will provide needed gas volumes to New England, and Massachusetts, to reduce energy costs, enhance electric reliability, and stimulate economic growth. The NED Project will provide New England with increased natural gas pipeline capacity and direct access to low-cost gas supplies on a large scale necessary to significantly lower energy costs to the region's homes and businesses.

1.1 Project Description Summary (B.4.a)

The following is a summary of the Project Description. A more detailed description of the Project and appurtenances is provided in Section 2.0. The proposed NED Project includes two main components:

- The "Supply Path" is the proposed Project facilities from Troy, Pennsylvania, to Wright, New York, and which is comprised of approximately 174 miles of new and co-located pipeline and two pipeline looping segments on Tennessee's existing 300 Line in Pennsylvania, and compression facilities designed to receive gas from Tennessee's 300 Line and Iroquois Gas Transmission System, LP for deliveries to Tennessee's existing 200 Line system, Iroquois Gas Transmission System, and/or Market Path Component of the NED Project; and
- The "Market Path" is the proposed Project facilities from Wright, New York, to Dracut, Massachusetts, and which is comprised of approximately 188 miles of new and co-located/directly adjacent to pipeline facilities extending from Wright, New York, to an interconnect with the Joint Facilities of Maritimes & Northeast Pipeline System and Portland Natural Gas Transmission System ("PNGTS") ("Joint Facilities") at Dracut, Massachusetts and Tennessee's existing 200 Line near Dracut, Massachusetts; plus laterals.

More specifically, the proposed NED Project involves the following facilities:

- Approximately 41 miles of pipeline looping on Tennessee's 300 Line in Pennsylvania;
- Approximately 133 miles of new pipeline, of which 102 miles are proposed to be generally co-located with the certificated Constitution Pipeline Project ("Constitution")[1] in Pennsylvania and New York (extending from Tennessee's existing 300 Line near Auburn, Pennsylvania to Wright, New York);
- Approximately 54 miles of pipeline generally co-located with Tennessee's existing 200 Line and an existing utility corridor in New York;
- Approximately 64 miles of pipeline generally co-located/directly adjacent to an existing utility corridor in Massachusetts;
- Approximately 70 miles of pipeline generally co-located/directly adjacent to an existing utility corridor in New Hampshire (extending southeast to Dracut, Massachusetts);
- Approximately 58 miles of various laterals and pipeline looping segments in Massachusetts, New Hampshire, and Connecticut to serve local markets;
- Construction of nine new compressor stations and 15 new meter stations, and modifications to an existing compressor station and 14 existing meter stations throughout the Project area; and

[1] On December 2, 2014, the Commission issued an Order Issuing Certificates and Approving Abandonment, Constitution Pipeline Company, LLC, 149 FERC 61,199 (2014), for the Constitution Pipeline Project, which adopted the recommendations from the Constitution "Final Environmental Impact Statement: Constitution Pipeline and Wright Interconnect Projects," FERC Environmental Impact Statement ("EIS") No. 0249F, Docket Numbers CP13-499-000, CP13-502-000, and PF12-9-000 ("Constitution Final EIS ["FEIS"]") issued October 24, 2014. Information contained within this Resource Report 1 related to the Constitution Pipeline Project was based on the updated routing provided by Constitution to FERC in January 2015.

- Construction of appurtenant facilities, including mainline valves ("MLVs"), cathodic protection, and pig facilities through the Project area.

The Pennsylvania and New York segments ("Supply Path") essentially convey natural gas to the New England market area; while the Massachusetts and New Hampshire segments ("Market Path") deliver gas to the distribution systems (e.g., local gas providers). Proposed pipeline laterals are needed to connect the gas transmission main to local gas providers. In addition to the main line and lateral pipelines, compressor station, and appurtenant facilities (e.g., meter station, mainline valves, and pig facilities), Tennessee will need to modify some of their existing infrastructure in Massachusetts to fully integrate the NED Project infrastructure with the existing TGP system.

Tennessee's proposed route in Massachusetts presented herein, and depicted on Figures 1 and 2, will disturb significantly fewer landowners and result in lower costs to consumers than if Tennessee were to expand only along its existing 200 Line system corridor, see Figure 1. Additionally, the New York, Massachusetts, and New Hampshire route predominantly follows existing utility corridors to minimize impacts, and will serve several geographic areas in northern Massachusetts and southern New Hampshire that are not currently served by an interstate natural gas pipeline. Approximately 86 percent of the NED Project in Massachusetts will be new looping and/or co-located or adjacent to an existing utility easement.

To the extent that it is practicable, feasible, and in compliance with existing law, Tennessee proposes to locate proposed pipeline facilities (either pipeline looping segments or co-located pipeline facilities) generally within or adjacent to its existing right-of-way ("ROW") associated with its existing 300 Line in Pennsylvania and Connecticut; its 200 Line in New York and Massachusetts, and existing pipeline and other existing utility corridors in Pennsylvania, New York, Massachusetts, and New Hampshire; see Figure 1-2, for a depiction of typical co-located pipeline cross-sections.

Pipeline loops are those pipeline segments which are laid parallel to another pipeline and used as a way to increase capacity along an existing line. These lines are connected to move a larger flow of gas through a single pipeline segment.

Co-located pipelines are those that are laid parallel to another existing pipeline or linear utility. The current route of Tennessee's proposed NED Project, in large part, is located parallel and adjacent to, and, in many cases, overlaps existing utility easements (either pipeline or powerlines). This paralleling/overlapping of easements is commonly referred to as co-location. The use of co-location as a principle design element by Tennessee is necessitated not only by FERC guidelines, which stress the use of existing corridor concept, but also due to the existing land use characteristics in the areas of the pipeline system. The utility corridor created by Tennessee's existing pipeline or other utilities or pipelines minimizes further environmental impacts and public disturbance. Siting pipeline facilities along existing corridors reduces the establishment of new corridors in previously undisturbed areas, while limiting environmental impacts and the number of affected landowners.

Refinement to the routing, including locations of permanent easement and temporary construction workspaces, will occur as the NED Project is developed through the pre-filing and certificate processes, as well as the MEPA process, which will incorporate information gained from field surveys, and landowner and stakeholder input, including input from power companies that have existing easements in areas where Tennessee is proposing to co-locate the Project pipelines.

For areas of the NED Project pipeline alignment that are proposed to be co-located with existing powerline easements, Tennessee is proposing that the centerline of the pipeline will be installed generally five feet outside the existing powerline easement boundary. This proposed alignment is reflected in the proposed impacts of the Project. For all areas of co-location with powerline easements, Tennessee is proposing that the permanent easement be centered generally on the proposed pipeline and that 20 feet of the proposed 50-foot permanent easement overlap the existing powerline easement. Further, Tennessee is proposing that the temporary construction workspace for the Project for these areas of co-location will overlap the existing powerline easement between 30 to 60 feet. The amount of overlap of temporary construction easements and the existing powerline easements will depend ultimately on the location of the closest powerline towers and facilities, which will dictate the amount of available space on the powerline easement.

This proposed overlap of permanent easement and temporary construction workspace with existing powerline easements will reduce environmental and landowner impacts by a commensurate width outside the powerline easement. Tennessee notes that the proposed routing of the centerline of the pipeline, generally five feet outside the existing powerline easement boundaries, is based on information obtained from consultation with power companies or from available public information. Tennessee is engaged in discussions with the power companies regarding co-location and the proposed overlapping of NED Project permanent easements and temporary construction workspaces with that of existing powerline easements and these discussions are ongoing. Tennessee is currently conducting surveys of the powerline easements and may adjust the proposed centerline location of the pipeline and overlapping areas for the Project to reflect the results of these surveys, including appropriate mitigation for safety and operational considerations, as well as landowner and agency concerns, avoidance of sensitive environmental resources, and construction considerations. The centerline of the pipeline may be moved to within an existing powerline easement, less than five feet from the existing power line boundary, or further than five feet from the existing powerline boundary.

Figure 1-1 System Alternatives

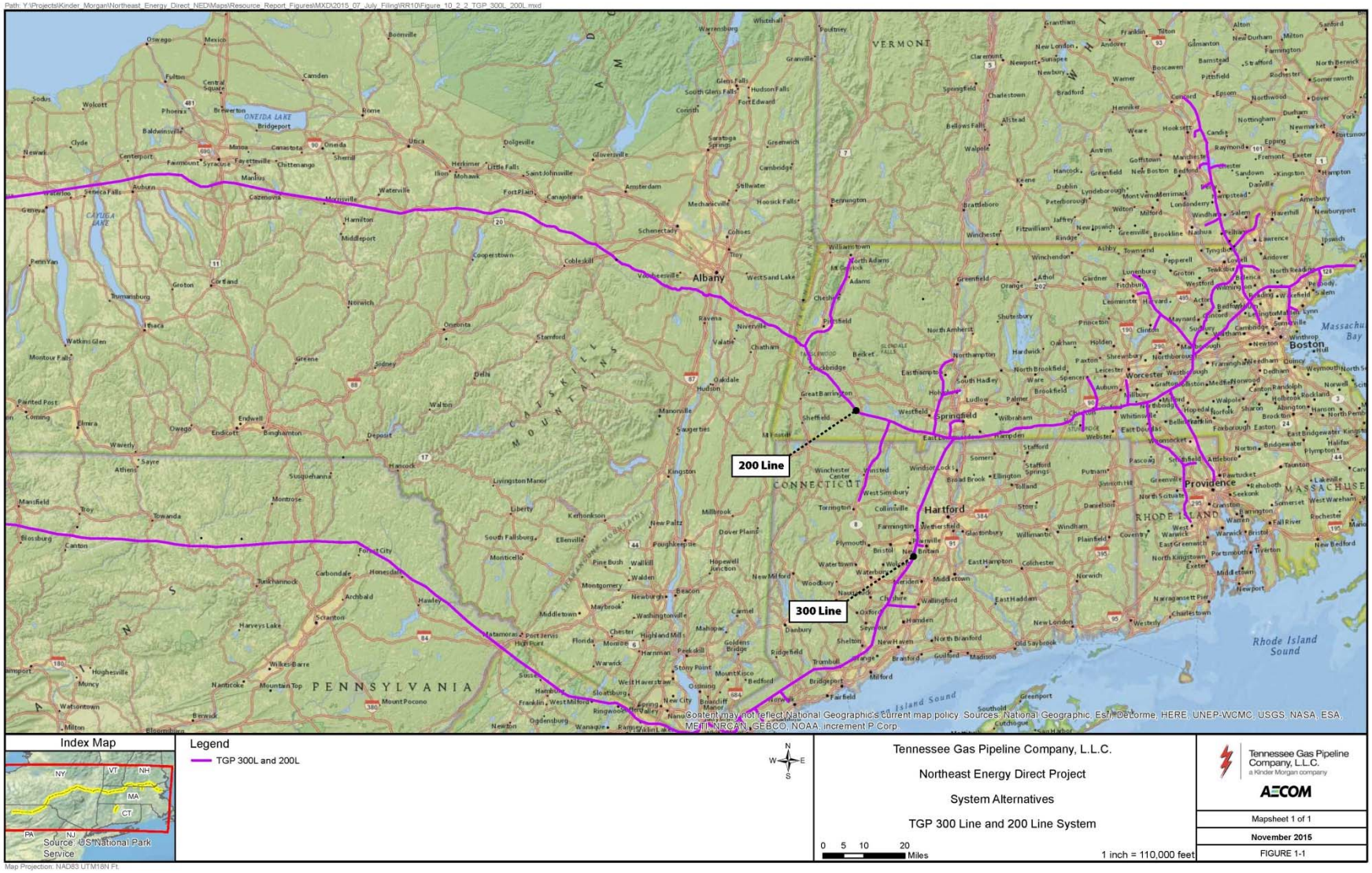
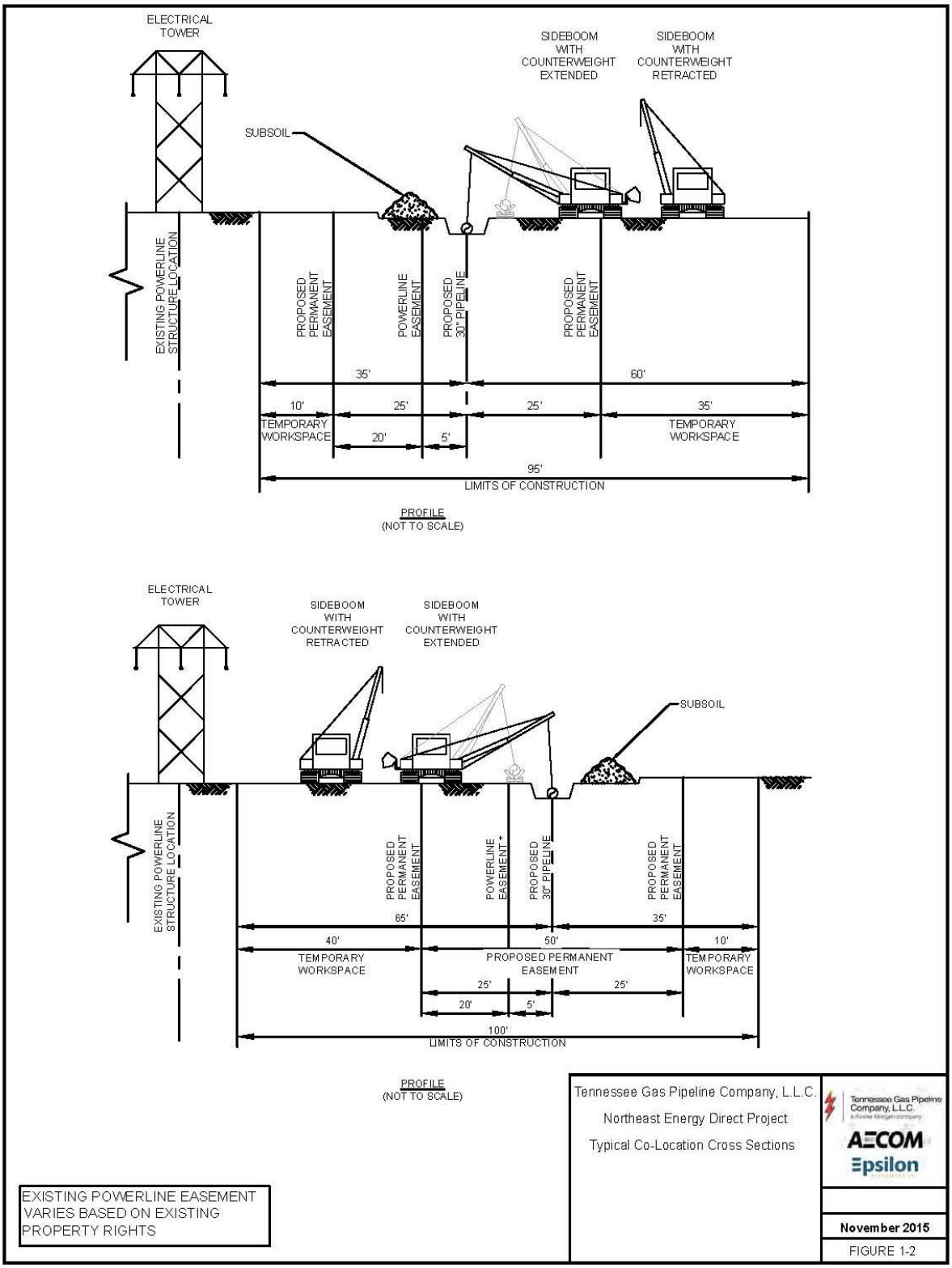


Figure 1-2 Typical Co-Location Cross Sections



1.2 Project Location (B.1)

Construction of new facilities will occur in the Massachusetts communities listed below in Table 1-1, while the waterways crossed by the pipeline are presented in Table 1-3 which also identifies the water quality criteria for each. Modifications to existing Tennessee facilities are required to integrate the NED Project facilities with existing Tennessee infrastructure; however, those modifications are not expected to occur in or adjacent to Waters of the U.S. within the Commonwealth.

Table 1-1
Massachusetts Communities

Hancock	Deerfield	Reading
Lanesborough	Montague	Lynnfield
Cheshire	Erving	Middleton
Dalton	Northfield	Peabody
Hinsdale	Warwick	Danvers
Peru	Dracut	Townsend
Windsor	Methuen	Lunenburg
Plainfield	Andover	Longmeadow
Ashfield	Tewksbury	Everett
Conway	Wilmington	Pittsfield
Shelburne	North Reading	

Waterbodies and waterways crossed by the pipeline are summarized below in Table 1-2, while Figures 5 and 6, included in previous section with the BRP WW 10 Form, depict the waterways. Those figures are not included to document all waterway crossings, but rather to depict the major water courses in the project area. Evaluation of Table 1-2 reveals that the pipeline will cross a total of 175 water courses as follows:

Table 1-2
Summary of Water Bodies and Waterways Crossed

Type of Water Body or Waterway	Number
Intermittent streams	98
Perennial water courses	67
Ephemeral streams	2
Reservoir	1
Other water courses *	7

* features categorized as no flow, artificial path and connectors

Although 258 waterways are listed in Table 1-3, those not crossed are either waterways within workspace but not crossed by the pipeline or crossed via trenchless technology techniques such as horizontal direction drilling ("HDD"). HDD construction is proposed at six of the watercourse crossings including: Deerfield River, Connecticut River, Millers River, Merrimack River, Shawsheen River, and a tributary to the Falulah Brook.

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Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Pipeline Facilities															
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.21	SPI-369	UNT to Kinderhook Creek	Hancock	I	MI	B/CFR	July 1 to Sept 30	II	Karst Area	6	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.50	SPI-370	Kinderhook Creek	Hancock	P	MA	B/HQ/CFR	July 1 to Sept 30	II	Karst Area	109	2,180
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.69	HA-N-S001	UNT to Kinderhook Creek	Hancock	I	I	B/CFR	July 1 to Sept 30	II		36	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.76	HA-N-S002	UNT to Kinderhook Creek	Hancock	I	I	B/CFR	July 1 to Sept 30	II		10	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	1.80	SPI-371	UNT to Kinderhook Creek	Hancock	I	I	B/HQ/CFR	July 1 to Sept 30	II		16	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	1.90	SPI-372	UNT to Kinderhook Creek	Hancock	P	MA	B/HQ/CFR	July 1 to Sept 30	II		148	2,960
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.10	SPI-373	UNT to Kinderhook Creek	Hancock	I	I	B/HQ/CFR	July 1 to Sept 30	II		61	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.19	SPI-373	UNT to Kinderhook Creek	Hancock	I	I	B/CFR	July 1 to Sept 30	II		97	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.24	SPI-373	UNT to Kinderhook Creek	Hancock	I	I	B/CFR	July 1 to Sept 30	II		20	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.26	SPI-373	UNT to Kinderhook Creek	Hancock	I	I	B/CFR	July 1 to Sept 30	II		64	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.29	SPI-373	UNT to Kinderhook Creek	Hancock	I	MI	B/CFR	July 1 to Sept 30	II		2	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	2.90	SPI-374	UNT to Hollow Brook	Hancock	I	I	B/HQ/CFR	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.25	SPI-375	UNT to Hollow Brook	Hancock	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	34	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.63	SPI-376	Hollow Brook	Hancock	P	I	B/HQ/CFR	July 1 to Sept 30	II	Karst Area	10	200
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.35	SPI-378	UNT to Secum Brook	Hancock	I	I	B/HQ/CFR	July 1 to Sept 30	II	Karst Area	37	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.75	SPI-379	UNT to Town Brook	Cheshire	P	I	B/CFR	July 1 to Sept 30	II	Karst Area	23	460
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.81	SPI-380	Town Brook	Cheshire	P	I	B/HQ/CFR	July 1 to Sept 30	II	Karst Area	18	360
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.56	NWI-1780	Cheshire Reservior	Cheshire	R	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.56	SPI-382	Cheshire Reservior	Cheshire	R	MA	B/CFR	July 1 to Sept 30	II	Karst Area	767	0
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	8.80	SPI-383	UNT to Cheshire Reservoir	Cheshire	I	MI	B	July 1 to Sept 30	II		9	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.99	SPI-384	UNT to Anthony Brook	Cheshire	I	I	B/CFR	July 1 to Sept 30	II		22	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.01	SPI-385	UNT to Wahconah Falls Brook	Cheshire	I	MI	A/HQ/CFR	July 1 to Sept 30	II		5	0
Wright to Dracut Pipeline	Berkshire	Dalton	G	11.20	SPI-386	UNT to Wahconah Falls	Pittsfield East	I	I	A/CFR	July 1 to Sept 30	II		14	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Segment						Brook									
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.33	SPI-387	UNT to Wahconah Falls Brook	Pittsfield East	I	I	A/CFR	July 1 to Sept 30	II		12	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.76	SPI-388	UNT to Wahconah Falls Brook	Pittsfield East	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.77	SPI-388	UNT to Wahconah Falls Brook	Pittsfield East	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.84	SPI-389	UNT to Wahconah Falls Brook	Pittsfield East	I	I	B/CFR	July 1 to Sept 30	II		12	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.30	SPI-390	Wahconah Falls Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.32	SPI-390	Wahconah Falls Brook	Peru	I	MI	B/CFR	July 1 to Sept 30	II		7	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.35	SPI-391	Wahconah Falls Brook	Peru	P	I	B/HQ/CFR	July 1 to Sept 30	II		84	1,680
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.46	SPI-392	UNT to Wahconah Falls Brook	Peru	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.35	SPI-393	UNT to Cleveland Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		16	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.55	HN-M-S001	UNT to Cleveland Brook	Peru	P	I	B/CFR	July 1 to Sept 30	II		10	200
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.60	HN-M-S002	UNT to Cleveland Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.67	HN-M-S003	UNT to Cady Brook	Peru	E	MI	A/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.99	HN-M-S004	Cady Brook	Peru	P	I	A/HQ/CFR	July 1 to Sept 30	II		23	460
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.99	HN-M-S004A	Cady Brook	Peru	I	I	A/CFR	July 1 to Sept 30	II		26	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.44	HN-N-S001	UNT to Cady Brook	Peru	P	I	A/CFR	July 1 to Sept 30	II		26	520
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.58	HN-N-S002	UNT to Cady Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		12	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	16.95	SPI-399	UNT to Westfield Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		32	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.75	WR-M-S005	UNT to Westfield Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.75	SPI-400	UNT to Westfield Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		16	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.25	SPI-402	UNT to Westfield Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.42	SPI-404	Westfield Brook	Peru	P	I	B/HQ/CFR	July 1 to Sept 30	II		27	540
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.75	WR-M-S011	UNT to Westfield Brook	Peru	P	I	B/CFR	July 1 to Sept 30	II		16	320
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.88	WR-M-S009	UNT to Westfield Brook	Peru	P	I	B/HQ/CFR	July 1 to Sept 30	II		19	380

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.88	SPI-408	UNT to Westfield Brook	Peru	I	MI	B/HQ/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.10	WR-M-S016	UNT to Westfield Brook	Peru	P	I	B/CFR	July 1 to Sept 30	II		15	300
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.15	WR-M-S018	UNT to Westfield Brook	Peru	I	I	B/CFR	July 1 to Sept 30	II		29	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.18	WR-M-S-19	UNT to Westfield Brook	Peru	Unknown	I	B/CFR	July 1 to Sept 30	II		22	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.20	WR-M-S017B	UNT to Westfield Brook	Peru	P	I	B/CFR	July 1 to Sept 30	II		14	280
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.21	WR-M-S017C	UNT to Westfield Brook	Peru	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.22	WR-M-S017B	UNT to Westfield Brook	Peru	P	I	B/CFR	July 1 to Sept 30	II		12	240
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.65	SPI-411	UNT to Westfield Brook	Peru	I	I	B/HQ/CFR	July 1 to Sept 30	II		50	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.63	WR-M-S015	UNT to Westfield River	Plainfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.79	SPI-413	Westfield River	Plainfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		82	1,640
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.58	SPI-414	UNT to Westfield River	Plainfield	I	MI	B/CFR	July 1 to Sept 30	II		7	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.60	SPI-415	UNT to Westfield River	Plainfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		11	220
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.64	SPI-415	UNT to Westfield River	Plainfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		25	500
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.46	SPI-422	Bartlett Brook	Plainfield	I	I	B/CFR	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.79	SPI-423	UNT to Bartlett Brook	Plainfield	I	I	B/HQ/CFR	July 1 to Sept 30	II		16	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.82	SPI-424	UNT to Barlett Brook	Plainfield	I	I	B/CFR	July 1 to Sept 30	II		17	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.06	SPI-427	Mill Brook	Plainfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		94	1,880
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.32	SPI-428	UNT to Mill Brook	Plainfield	I	I	B/CFR	July 1 to Sept 30	II		10	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.26	PL-E-S003	UNT to Meadow Brook	Plainfield	I	MI	B/CFR	July 1 to Sept 30	II		8	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.49	PL-E-S002	UNT to Meadow Brook	Plainfield	P	I	B/CFR	July 1 to Sept 30	II		20	400
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.58	PL-E-S001A	UNT to Meadow Brook	Plainfield	I	I	B/CFR	July 1 to Sept 30	II		12	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.97	SPI-430	North Branch Swift River	Plainfield	I	I	B/CFR	July 1 to Sept 30	II		10	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.24	SPI-431	UNT to North Branch Swift River	Plainfield	P	MI	B/CFR	July 1 to Sept 30	II		8	160
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.81	PL-M-S003	UNT to North Branch Swift River	Plainfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.93	PL-M-S004	UNT to North Branch Swift River	Plainfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.09	AS-M-S001	Billings Brook	Ashfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		51	1,020
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.20	AS-M-S002	Swift River	Ashfield	P	MI	B/HQ/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.20	SPI-435	Swift River	Ashfield	P	I	B/HQ/CFR	July 1 to Sept 30	II		17	340
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.43	SPI-436	UNT to Swift River	Ashfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.48	AS-M-S003	UNT to Swift River	Ashfield	P	MI	B/CFR	July 1 to Sept 30	II		9	180
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.97	AS-M-S004	Ford Brook	Ashfield	NF	MA	B/HQ/CFR	July 1 to Sept 30	II		419	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.99	AS-M-S006	UNT to Swift River	Ashfield	I	MI	B/HQ/CFR	July 1 to Sept 30	II		5	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.06	SPI-437	UNT to Swift River	Ashfield	I	MI	B/HQ/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.06	AS-M-S007	UNT to Swift River	Ashfield	P	MI	B/HQ/CFR	July 1 to Sept 30	II		5	100
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.17	AS-M-S008	UNT to Swift River	Ashfield	I	MI	B/CFR	July 1 to Sept 30	II		9	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.50	AS-M-S009A	Smith Brook	Ashfield	P	I	A/CFR	July 1 to Sept 30	II		75	1,500
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.51	AS-M-S009B	UNT to Smith Brook	Ashfield	P	MI	A/CFR	July 1 to Sept 30	II		4	80
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.85	AS-M-S010	UNT to South River	Ashfield	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	21	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	30.03	SPI-438	South River	Ashfield	I	MI	B/CFR	July 1 to Sept 30	II	Karst Area	7	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	31.71	AS-M-S011	UNT to Bear River	Ashfield	P	MI	B/CFR	July 1 to Sept 30	II	Karst Area	7	140
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	0.63	SPI-443	Bear River	Ashfield	P	I	B/CFR	July 1 to Sept 30	II	Karst Area	25	500
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	0.87	SPI-445	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	0.91	SPI-445	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	0.96	SPI-446	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	1.85	SPI-449	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	1.90	SPI-449	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	1.97	SPI-450	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	1.98	SPI-451	UNT to Bear RIver	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.05	SPI-452	Bear River	Shelburne Falls	P	I	B/HQ/CFR	July 1 to Sept 30	II	Karst Area	31	620
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.21	NHD-674	Pea Brook	Shelburne Falls	P	I	B/CFR	July 1 to Sept 30	II	Karst Area	25	500
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.35	SPI-454	UNT to Pea Brook	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.46	SPI-455	UNT to Pea Brook	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.48	SPI-457	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	2.48	SPI-456	UNT to Bear River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.26	SPI-458	UNT to South River	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	10	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.93	SPI-459	UNT to South River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	II	Karst Area	8	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.22	CN-M-S005	UNT to Deerfield River	Shelburne Falls	P	I	B/CFR	July 1 to Sept 30	II	Karst Area	11	220
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.24	SPI-460	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.24	SPI-461	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.24	SPI-460	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.40	SPI-464	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.40	CN-M-S004	UNT to Deerfield River	Shelburne Falls	P	MI	B/CFR	July 1 to Sept 30	II	Karst Area	5	100
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.55	CN-M-S004	UNT to Deefield River	Shelburne Falls	P	MI	B/CFR	July 1 to Sept 30	N/A	Karst Area	0	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.62	CN-M-S003	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	IV	Karst Area	9	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	4.84	SPI-466	Deerfield River	Shelburne Falls	P	MA	B/HQ/CFR	July 1 to Sept 30	IV	Karst Area	115	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	5.24	SPI-467	UNT to Deefield River	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	IV		24	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	5.41	SPI-468	UNT to Deefield River	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	IV		67	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	5.67	SPI-469	UNT to Shingle Brook	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	65	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	5.85	SPI-471	UNT to Shingle Brook	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	27	0
Wright to Dracut Pipeline Segment	Franklin	Shelburne	H	5.89	SPI-472	Shingle Brook	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	59	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	6.20	SPI-473	UNT to Shingle Brook	Shelburne Falls	I	I	B/CFR	July 1 to Sept 30	II	Karst Area	49	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	6.97	SPI-474	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	6.99	SPI-474	UNT to Deerfield River	Shelburne Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	8.03	SPI-476	UNT to Deerfield River	Greenfield	P	I	B/CFR	July 1 to Sept 30	IV		20	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	8.33	SPI-477	Deerfield River	Greenfield	P	MA	B/HQ/CFR	July 1 to Sept 30	IV		159	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	8.37	SPI-477	Deerfield River	Greenfield	P	MA	B/HQ/CFR	July 1 to Sept 30	IV		137	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.23	SPI-479	UNT to Deerfield River	Greenfield	I	I	B/CFR	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.52	SPI-480	UNT to Deerfield River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	II		8	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.92	SPI-481	UNT to Deerfield River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	II		8	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.25	SPI-482	UNT to Deerfield River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	II		5	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.64	SPI-483	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	II		6	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.66	SPI-483	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	II		7	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.28	SPI-484	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	IV		4	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.40	SPI-485	Connecticut River	Greenfield	P	MA	B	July 1 to Sept 30	IV		231	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.44	SPI-485	Connecticut River	Greenfield	P	MA	B	July 1 to Sept 30	IV		349	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.58	SPI-486	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	IV		6	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.65	SPI-487	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	IV		3	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	12.86	SPI-488	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	II		4	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	13.01	SPI-489	UNT to Connecticut River	Greenfield	I	MI	B	July 1 to Sept 30	II		4	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.35	SPI-491	UNT to Millers River	Millers Falls	I	MI	B	July 1 to Sept 30	II		9	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.39	SPI-492	UNT to Millers River	Millers Falls	I	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.40	SPI-493	UNT to Millers River	Millers Falls	I	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.64	SPI-494	UNT to Millers River	Millers Falls	I	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.73	SPI-495	UNT to Millers River	Millers Falls	I	I	B	July 1 to Sept 30	IV		13	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.74	MO-M-S002	UNT to Millers River	Millers Falls	I	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.76	MO-M-S002A	UNT to Millers River	Millers Falls	E	MI	B	July 1 to Sept 30	IV		6	0

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Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Wright to Dracut Pipeline Segment	Franklin	Montague	H	16.08	ER-M-S001	Millers River	Millers Falls	P	I	B	July 1 to Sept 30	IV		84	0
Wright to Dracut Pipeline Segment	Franklin	Erving	H	16.10	ER-M-S001	Millers River	Millers Falls	P	I	B	July 1 to Sept 30	IV		80	0
Wright to Dracut Pipeline Segment	Franklin	Erving	H	16.44	ER-M-S002	UNT to Millers River	Millers Falls	I	I	B	July 1 to Sept 30	II		10	0
Wright to Dracut Pipeline Segment	Franklin	Erving	H	16.44	ER-M-S002	UNT to Millers River	Millers Falls	I	I	B	July 1 to Sept 30	II		13	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	19.52	SPI-498	UNT to Fourmile Brook	Millers Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Erving	H	19.74	SPI-500	UNT to Fourmile Brook	Millers Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Erving	H	20.08	SPI-501	UNT to Fourmile Brook	Millers Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.30	SPI-502	UNT to Fourmile Brook	Millers Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.31	SPI-502	UNT to Fourmile Brook	Millers Falls	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.62	SPI-503	UNT to Fourmile Brook	Northfield	I	I	B/CFR	July 1 to Sept 30	II		15	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.33	SPI-504	Fourmile Brook	Northfield	I	I	B/CFR	July 1 to Sept 30	II		23	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.48	SPI-505	UNT to Fourmile Brook	Northfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.28	SPI-507	UNT to Fourmile Brook	Northfield	P	I	B	July 1 to Sept 30	II		24	480
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.39	SPI-508	UNT to Fourmile Brook	Northfield	I	I	B	July 1 to Sept 30	II		26	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.58	SPI-509	UNT to Fourmile Brook	Northfield	I	I	B	July 1 to Sept 30	II		14	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.77	NO-L-S002	UNT to Millers Brook	Northfield	I	I	B	July 1 to Sept 30	II		11	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.87	NO-G-S002	UNT to Millers Brook	Northfield	I	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	25.02	SPI-510	UNT to Millers Brook	Northfield	I	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	26.00	SPI-511	UNT to Mill Brook	Northfield	P	MI	B/CFR	July 1 to Sept 30	II		9	180
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	28.27	NHD-679	Lovers Retreat Brook	Northfield	P	I	B/CFR	July 1 to Sept 30	II		15	300
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.68	DR-E-S006	UNT to Trout Brook	Lowell	P	MI	B	July 1 to Sept 30	N/A		0	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.69	DR-E-S006A	UNT to Trout Brook	Lowell	P	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Middlesex	Dracut	N	0.26	NHD-706	UNT to Trout Brook	Lowell	P	I	B	July 1 to Sept 30	II		15	300
Lynnfield Lateral	Middlesex	Dracut	N	0.78	SPI-670	Nickel Mine Brook	Lowell	I	I	B	July 1 to Sept 30	II		21	0
Lynnfield Lateral	Middlesex	Dracut	N	0.81	SPI-670	Nickel Mine Brook	Lawrence	I	I	B	July 1 to Sept 30	II		34	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Lynnfield Lateral	Middlesex	Dracut	N	0.83	SPI-670	Nickel Mine Brook	Lawrence	I	I	B	July 1 to Sept 30	II		45	0
Lynnfield Lateral	Middlesex	Dracut	N	1.28	SPI-671	Merrimack River	Lawrence	P	MA	B	July 1 to Sept 30	IV		295	0
Lynnfield Lateral	Essex	Andover	N	1.33	SPI-671	Merrimack River	Lawrence	P	MA	B	July 1 to Sept 30	IV		130	0
Lynnfield Lateral	Essex	Andover	N	1.83	SPI-672	UNT to Merrimack River	Lawrence	I	MI	B	July 1 to Sept 30	II		7	0
Lynnfield Lateral	Essex	Andover	N	1.84	SPI-672	UNT to Merrimack River	Lawrence	I	MI	B	July 1 to Sept 30	II		5	0
Lynnfield Lateral	Essex	Andover	N	2.32	SPI-673	UNT to Meadow Brook	Lawrence	I	I	B	July 1 to Sept 30	II		23	0
Lynnfield Lateral	Essex	Andover	N	2.33	SPI-673	UNT to Meadow Brook	Lawrence	I	I	B	July 1 to Sept 30	II		25	0
Lynnfield Lateral	Middlesex	Tewksbury	N	2.34	SPI-673	UNT to Meadow Brook	Lawrence	I	I	B	July 1 to Sept 30	II		10	0
Lynnfield Lateral	Middlesex	Tewksbury	N	2.34	SPI-673	UNT to Meadow Brook	Lawrence	I	I	B	July 1 to Sept 30	II		16	0
Lynnfield Lateral	Essex	Andover	N	2.91	AN-K-S001A	UNT to Ames Pond	Lawrence	E	I	B	July 1 to Sept 30	II		11	0
Lynnfield Lateral	Essex	Andover	N	3.17	SPI-676	UNT to Ames Pond	Lawrence	I	I	B	July 1 to Sept 30	II		17	0
Lynnfield Lateral	Essex	Andover	N	3.28	TK-K-S001	UNT to Ames Pond	Lawrence	E	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.39	TK-K-S002	UNT to Meadow Brook	Lawrence	P	I	B	July 1 to Sept 30	II		13	260
Lynnfield Lateral	Middlesex	Tewksbury	N	4.40	SPI-677	UNT to Meadow Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.80	SPI-678	UNT to Meadow Brook	Lawrence	P	I	B	July 1 to Sept 30	II		19	380
Lynnfield Lateral	Middlesex	Tewksbury	N	4.84	SPI-678	UNT to Meadow Brook	Lawrence	P	I	B	July 1 to Sept 30	II		21	420
Lynnfield Lateral	Middlesex	Tewksbury	N	4.85	SPI-679	UNT to Meadow Brook	Lawrence	P	I	B	July 1 to Sept 30	II		85	1,700
Lynnfield Lateral	Essex	Andover	N	5.90	AN-K-S003	UNT to Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	II		11	220
Lynnfield Lateral	Middlesex	Tewksbury	N	6.34	TK-K-S004A	UNT to Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	II		13	260
Lynnfield Lateral	Middlesex	Tewksbury	N	6.35	TK-K-S004A	UNT to Shawsheen River	Wilmington	P	MI	B	July 1 to Sept 30	II		9	180
Lynnfield Lateral	Middlesex	Tewksbury	N	6.35	TK-K-S004A	UNT to Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	II		14	280
Lynnfield Lateral	Middlesex	Tewksbury	N	6.63	SPI-682	Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	IV		26	0
Lynnfield Lateral	Middlesex	Tewksbury	N	6.63	TK-K-S005	Shawsheen River	Wilmington	P	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Essex	Andover	N	6.63	SPI-682	Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	IV		35	0
Lynnfield Lateral	Essex	Andover	N	6.80	AN-P-S001	UNT to Shawsheen River	Wilmington	P	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Essex	Andover	N	7.74	AN-K-S004	UNT to Shawsheen River	Wilmington	P	I	B	July 1 to Sept 30	II		10	200
Lynnfield Lateral	Middlesex	Wilmington	N	8.02	AN-G-S003	UNT to Shawsheen River	Wilmington	P	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Middlesex	Wilmington	N	8.10	WL-K-S001	UNT to Shawsheen River	Wilmington	I	MI	B	July 1 to Sept 30	N/A		0	0
Lynnfield Lateral	Middlesex	Wilmington	N	8.77	WL-P-S002	UNT to Martins Brook	Wilmington	E	MA	B	July 1 to Sept 30	II		338	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Lynnfield Lateral	Middlesex	Wilmington	N	8.86	SPI-683	UNT to Martins Brook	Wilmington	I	I	B	July 1 to Sept 30	II		14	0
Lynnfield Lateral	Middlesex	Wilmington	N	9.67	SPI-684	Martins Brook	Wilmington	P	I	B	July 1 to Sept 30	II		54	1,080
Lynnfield Lateral	Middlesex	North Reading	N	10.35	SPI-685	Martins Brook	Wilmington	P	MA	B	July 1 to Sept 30	II		138	2,760
Lynnfield Lateral	Middlesex	North Reading	N	10.87	SPI-686	UNT to Martins Brook	Reading	I	MI	B	July 1 to Sept 30	II		7	0
Lynnfield Lateral	Middlesex	North Reading	N	11.91	SPI-687	Ipswich River	Reading	P	I	B/HQ	July 1 to Sept 30	II		27	540
Lynnfield Lateral	Middlesex	North Reading	N	12.70	SPI-688	UNT to Bear Meadow Brook	Reading	I	I	B	July 1 to Sept 30	II		24	0
Lynnfield Lateral	Middlesex	North Reading	N	12.83	SPI-688	UNT to Bear Meadow Brook	Reading	I	I	B/HQ	July 1 to Sept 30	II		60	0
Peabody Lateral	Essex	Lynnfield	O	0.87	SPI-689	UNT to Ipswich River	Reading	P	I	B	July 1 to Sept 30	II		15	300
Peabody Lateral	Essex	Lynnfield	O	0.91	SPI-689	UNT to Ipswich River	Reading	P	MI	B	July 1 to Sept 30	II		8	160
Peabody Lateral	Essex	Peabody	O	3.04	SPI-699	Ipswich River	Reading	P	MI	B	July 1 to Sept 30	N/A		0	0
Peabody Lateral	Essex	Peabody	O	3.34	SPI-699	Ipswich River	Reading	P	MI	B	July 1 to Sept 30	N/A		0	0
Peabody Lateral	Essex	Peabody	O	3.43	SPI-697	Ipswich River	Reading	I	MI	B	July 1 to Sept 30	N/A		0	0
Peabody Lateral	Essex	Peabody	O	3.97	SPI-699	Ipswich River	Reading	P	MI	B	July 1 to Sept 30	N/A		0	0
Peabody Lateral	Essex	Peabody	O	4.26	SPI-700	UNT to Ipswich River	Reading	P	I	B	July 1 to Sept 30	II		63	1,260
Haverhill Lateral	Middlesex	Dracut	P	0.45	NHD-714	UNT to Trout Brook	Lowell	P	MA	B	July 1 to Sept 30	II		150	3,000
Haverhill Lateral	Middlesex	Dracut	P	0.82	NHD-717	Trout Brook	Lowell	C	I	B	July 1 to Sept 30	II		16	0
Haverhill Lateral	Middlesex	Dracut	P	1.69	NHD-718	UNT to Trout Brook	Lowell	AP	I	B	July 1 to Sept 30	II		15	0
Haverhill Lateral	Middlesex	Dracut	P	2.12	NHD-722	UNT to Griffin Brook	Lawrence	I	MI	B	July 1 to Sept 30	II		5	0
Haverhill Lateral	Middlesex	Dracut	P	2.49	NHD-727	Griffin Brook	Lawrence	AP	MI	B	July 1 to Sept 30	II		4	0
Haverhill Lateral	Essex	Methuen	P	3.47	NHD-729	Bartlett Brook	Lawrence	P	MA	B	July 1 to Sept 30	II		320	6,400
Haverhill Lateral	Essex	Methuen	P	3.92	NHD-732	UNT to Bartlett Brook	Lawrence	I	MI	B	July 1 to Sept 30	II		6	0
Haverhill Lateral	Essex	Methuen	P	4.42	NHD-733	UNT to Bartlett Brook	Lawrence	I	MI	B	July 1 to Sept 30	II		5	0
Haverhill Lateral	Essex	Methuen	P	4.76	ME-P-S005	UNT to Bartlett Brook	Lawrence	NF	I	B	July 1 to Sept 30	II		19	0
Haverhill Lateral	Essex	Methuen	P	4.77	ME-P-S005	UNT to Bartlett Brook	Lawrence	NF	MI	B	July 1 to Sept 30	II		9	0
Haverhill Lateral	Essex	Methuen	P	5.58	ME-P-S007	UNT to Harris Brook	Lawrence	I	I	B	July 1 to Sept 30	II		30	0
Haverhill Lateral	Essex	Methuen	P	5.60	ME-P-S007	UNT to Harris Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		0	0
Haverhill Lateral	Essex	Methuen	P	5.63	ME-P-S007B	UNT to Harris Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		0	0
Haverhill Lateral	Essex	Methuen	P	6.18	SPI-723	Harris Brook	Lawrence	P	I	B	July 1 to Sept 30	II		19	380
Haverhill Lateral	Essex	Methuen	P	6.62	SPI-724	UNT to Harris Brook	Lawrence	I	I	B	July 1 to Sept 30	II		26	0
Haverhill Lateral	Essex	Methuen	P	6.87	SPI-725	UNT to Harris Brook	Lawrence	P	MI	B	July 1 to Sept 30	N/A		0	0
Haverhill Lateral	Essex	Methuen	P	6.90	ME-P-S004	UNT to Harris Brook	Lawrence	P	MI	B	July 1 to Sept 30	N/A		0	0

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Haverhill Lateral	Essex	Methuen	P	6.94	ME-P-S004	UNT to Harris Brook	Lawrence	P	MI	B	July 1 to Sept 30	N/A		0	0
Haverhill Lateral	Essex	Methuen	P	6.96	ME-P-S004	UNT to Harris Brook	Lawrence	P	MI	B	July 1 to Sept 30	N/A		0	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.77	SPI-771	UNT to Walker Brook	Ashby	P	I	B/HQ	July 1 to Sept 30	II		41	820
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.94	SPI-772	Walker Brook	Ashby	P	I	B/CFR/ORW	July 1 to Sept 30	II		77	1,540
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.26	SPI-774	UNT to Walker Brook	Ashby	P	MI	B/CFR	July 1 to Sept 30	N/A		0	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.65	SPI-775	UNT to Locke Brook	Ashby	I	I	B/CFR	July 1 to Sept 30	II		24	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.25	SPI-777	Locke Brook	Ashby	P	I	B/HQ/CFR/ORW	July 1 to Sept 30	II		69	1,380
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.46	SPI-778	Willard Brook	Ashby	P	I	B/HQ/CFR/ORW	July 1 to Sept 30	II		33	660
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.89	SPI-780	Pearl Hill Brook	Ashby	P	I	B/HQ/CFR/ORW	July 1 to Sept 30	II		30	600
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.17	SPI-781	UNT to Pearl Hill Brook	Ashby	I	I	B/CFR	July 1 to Sept 30	II		28	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.49	SPI-782	UNT to Pearl Hill Brook	Ashby	P	I	B/HQ/CFR	July 1 to Sept 30	II		13	260
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.81	SPI-783	UNT to Pearl Hill Brook	Ashby	I	I	B/CFR	July 1 to Sept 30	II		17	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.73	SPI-784	UNT to Pearl Hill Brook	Townsend	I	I	B/CFR	July 1 to Sept 30	II		46	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.61	SPI-786	UNT to Malphus Brook	Townsend	I	I	B/CFR	July 1 to Sept 30	II		13	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.67	SPI-785	UNT to Malphus Brook	Townsend	I	MI	B/CFR	July 1 to Sept 30	II		8	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.98	SPI-787	UNT to Malphus Brook	Ashby	I	I	B/CFR	July 1 to Sept 30	II		16	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.35	SPI-788	Mulpus Brook	Fitchburg	P	I	B/HQ/CFR	July 1 to Sept 30	II		38	760
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.37	SPI-788	Mulpus Brook	Fitchburg	P	I	B/HQ/CFR	July 1 to Sept 30	II		10	200
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.49	SPI-789	Mulpus Brook	Fitchburg	I	I	B/HQ/CFR	July 1 to Sept 30	II		16	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.54	SPI-789	Mulpus Brook	Fitchburg	I	I	B/HQ/CFR	July 1 to Sept 30	II		10	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.28	SPI-791	UNT to Malphus Brook	Fitchburg	P	MI	B/CFR	July 1 to Sept 30	II		9	180
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.40	SPI-793	UNT to Malphus Brook	Fitchburg	P	MI	B/CFR	July 1 to Sept 30	II		8	160
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.44	SPI-794	UNT to Malphus Brook	Fitchburg	I	I	B/CFR	July 1 to Sept 30	II		14	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.39	LU-K-S001	UNT to Falulah Brook	Fitchburg	I	MI	B	July 1 to Sept 30	II		3	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.52	SPI-795	UNT to Falulah Brook	Fitchburg	I	MI	B	July 1 to Sept 30	N/A		0	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.64	LU-A-S001A	UNT to Falulah Brook	Fitchburg	E	I	B	July 1 to Sept 30	IV		13	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.64	LU-A-S001B	UNT to Falulah Brook	Fitchburg	E	MI	B	July 1 to Sept 30	N/A		0	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.70	LU-A-S001A	UNT to Falulah Brook	Fitchburg	E	I	B	July 1 to Sept 30	IV		13	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.71	LU-A-S001A	UNT to Falulah Brook	Fitchburg	E	MI	B	July 1 to Sept 30	IV		9	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.72	LU-A-S001A	UNT to Falulah Brook	Fitchburg	E	MI	B	July 1 to Sept 30	IV		6	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.73	LU-A-S001A	UNT to Falulah Brook	Fitchburg	E	MI	B	July 1 to Sept 30	IV		6	0
													Pipeline Total	**7,692**	**48,780**
Aboveground Facilities															

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
Market Path Mid Station 3	Franklin	Northfield	H	23.98	NO-G-S001	UNT to Millers Brook	Northfield	P	MI	B	July 1 to Sept 30	N/A		N/A	N/A
Market Path Mid Station 3	Franklin	Northfield	H	23.98	NO-G-S001	UNT to Millers Brook	Northfield	P	MI	B	July 1 to Sept 30	N/A		N/A	N/A
Aboveground Facilities Subtotal														**0**	**0**
Contractor Yards[12]															
NED-G-0400	Berkshire	Windsor	G	12.07	NHD-672	Weston Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		N/A	N/A
NED-G-0400	Berkshire	Windsor	G	12.07	NHD-908	Weston Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		N/A	N/A
NED-H-0108	Franklin	Montague	H	11.93	NHD-840	UNT to Sawmill River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	N/A		N/A	N/A
NED-H-0107	Franklin	Northfield	H	18.64	NHD-675	UNT to Connecticut River	Millers Falls	P	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-H-0201	Worcester	Athol	H	21.21	NHD-909	UNT to Millers River	Orange	P	MI	B/CFR	July 1 to Sept 30	N/A		N/A	N/A
NED-H-0201	Worcester	Athol	H	21.21	NHD-909	UNT to Millers River	Athol	P	MI	B/CFR	July 1 to Sept 30	N/A		N/A	N/A
NED-K-0100	Middlesex	Dracut	K	1.48	DRA-A-S001B	UNT to Potash Brook	Lowell	Unknown	I	B	July 1 to Sept 30	N/A		N/A	N/A
NED-K-0100	Middlesex	Dracut	K	1.48	SPI-743	UNT to Potash Brook	Lowell	I	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-K-0100	Middlesex	Dracut	K	1.48	DRA-A-S001	UNT to Potash Brook	Lowell	Unknown	I	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0400	Essex	Andover	N	6.6	NHD-712	Shawsheen River	Wilmington	AP	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0100	Middlesex	Dracut	N	0.29	NHD-724	UNT to Merrimack River	Lawrence	AP	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0100	Middlesex	Dracut	N	0.29	NHD-723	UNT to Merrimack River	Lawrence	I	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0100	Middlesex	Dracut	N	0.29	NHD-720	UNT to Griffin Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0300	Middlesex	Tewksbury	N	2.53	NHD-707	UNT to Trout Brook	Lawrence	AP	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0300	Middlesex	Tewksbury	N	2.53	NHD-708	UNT to Trout Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57	NHD-713	Martins Brook	Wilmington	P	MI	B	July 1 to Sept 30	N/A		N/A	N/A
NED-Q-0200	Middlesex	Townsend	Q	6.18	NHD-737	Walker Brook	Ashby	P	MI	B/CFR/ORW	July 1 to Sept 30	N/A		N/A	N/A
Contractor Yard Subtotal														**0**	**0**
Access Roads[12]															
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.48	NHD-862	Cady Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-G-1300	Berkshire	Peru	G	13.48	NHD-863	Cady Brook	Peru	P	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-G-1800	Hampshire	Plainfield	G	21.57	NHD-864	UNT to Westfield River	Plainfield	I	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-1000	Franklin	Deerfield	H	8.45	NHD-865	UNT to Deerfield River	Greenfield	AP	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-1000	Franklin	Deerfield	H	8.45	NHD-866	UNT to Deerfield River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-1000	Franklin	Deerfield	H	8.45	NHD-867	UNT to Deerfield River	Greenfield	I	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-1600	Franklin	Northfield	H	16.59	NHD-869	Tailrace Tunnel	Millers Falls	P	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-2101	Franklin	Warwick	H	0.32	NHD-870	UNT to Lovers Retreat	Northfield	P	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A

Table 1-3 Waterbodies Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Nearest Milepost[2]	Waterbody ID[3]	Waterbody Name[4]	Quadrangle	Type[5]	FERC Class[6]	Water Quality Designation / Fishery Classification[7]	Timing Restriction[8]	Crossing Method[9,10]	Comments	Crossing Length[11] (feet)	Land Under Water (square feet.)
						Brook									
NED-TAR-H-2101	Franklin	Warwick	H	0.32	NHD-871	Lovers Retreat Brook	Northfield	P	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-2101	Franklin	Warwick	H	0.32	NHD-872	Lovers Retreat Brook	Northfield	P	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-H-2101	Franklin	Warwick	H	0.32	NHD-873	UNT to Lovers Retreat Brook	Northfield	I	MI	B/CFR	July 1 to Sept 30	N/A		3	N/A
NED-TAR-N-1200	Middlesex	North Reading	N	9.98	NHD-885	Martins Brook	Wilmington	P	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-N-0500	Middlesex	Tewksbury	N	2.51	NHD-883	UNT to Meadow Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-N-0500	Middlesex	Tewksbury	N	2.51	NHD-884	Meadow Brook	Lawrence	I	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-N-1100	Middlesex	Wilmington	N	9.30	NHD-713	Martins Brook	Wilmington	P	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-O-0300	Essex	Danvers	O	5.32	NHD-886	Crane Brook	Salem	I	MI	B	July 1 to Sept 30	N/A		3	N/A
NED-TAR-Q-0400	Middlesex	Townsend	Q	8.39	NHD-738	UNT to Pearl Hill Brook	Ashby	P	MI	B/HQ/CFR/ORW	July 1 to Sept 30	N/A		3	N/A
													Access Road Subtotal	**51**	**0**
													Total Crossing Length	**7,743**	**48,780**

Source: The data sets utilized for waterbodies is a combination of field surveyed data, photo interpreted LiDAR data, and publically available data. Field surveyed data was used wherever there was parcel access, photo interpreted LiDAR data was used where there was no parcel access, and publically available data was used where there was no parcel access and no photo interpreted aerial coverage. The publically available data is from the USGS-NHD 2015.

1. Each segment is associated with its own set of mileposts beginning at MP 0.00.
2. Nearest Milepost for access roads indicates the point at which the access road connects with the pipeline ROW, or closest milepost to ROW if there is no direct connection.
3. Waterbody ID in the form of NHD-XXX and NHD-R-XXX are USGS-NHD waterbodies, and waterbody ID in the form SPI-XXX are photo interpreted waterbodies. All other waterbody ID's represent field surveyed data.
4. Unnamed tributary; waterbody is not mapped as a tributary on available GIS data layers; tributary name was identified based on review of USGS topographical mapping.
5. P = Perennial; I = Intermittent; E = Ephemeral; NF = No Flow; AP = Artificial Path; C = Connector
6. MI = Minor (<10 feet); I = Intermediate (10 - 100 feet); MA = Major (>100 feet).
7. Water quality classification was identified through a desktop review of available GIS data layers.
8. Consultation with MADEP is ongoing. Timing restrictions is based on consultation with Massachusetts Division fo Fish and Wildlife (Buckley 2015).
9. I = Conventional, Wet Crossing Method; II = Dry Crossing Method including Flume and Dam and Pump; III = Conventional Bore; IV = Horizontal Directional Drill; N/A = waterbody not crossed by the pipeline. Intermittent streams containing discernable flow at the time of construction will be crossed using a dry crossing method.
10. Crossing methods for each waterbody are still being evaluated. Tennessee intends to implement a dry-crossing construction technique on all waterbody crossings with discernible flow (with the exception of roadside swales and ditches) at the time of construction unless an alternative crossing method is approved by the state agencies, USACE, and Commission.
11. For non-surveyed waterbodies shown as a single line feature on the Project alignment sheets, the stream crossing length was determined from a desktop analysis using Google Earth and/or ArcGIS. A crossing length of 0 feet indicates that a waterbody is within the construction workspace limits, but does not cross the pipeline. N/A = Not Applicable. The Project will not cross waterbodies at aboveground facilities or contractor yards, however number of stream crossing indicated reflect streams on the entire parcel that will be avoided through final design of the aboveground facility or contractor yard. Access to aboveground facilities that require linear crossings of streams is accounted for in the AR line item and crossing length.
12. Existing waterbodies will not be impacted. Any improvements to existing culverts will be permitted as necessary.

1.3 Purpose And Need (B.3.a)

The basic purpose of the NED Project is to increase natural gas transmission capacity into New England, thus expanding supplies of natural gas reaching Massachusetts and portions of New Hampshire and Maine. Increasing natural gas pipeline transmission capacity into New England in general, and Massachusetts in particular, will achieve this purpose. At full capacity, the NED Project will provide up to 1.3 Bcf/d (billion cubic feet per day) of additional natural gas transportation capacity to meet the region's energy needs. This includes needs of LDCs which primarily serve: residential, business, and institutional customers; gas-fired electric power generators; electric distribution companies; industrial plants; natural gas producers; and other New England consumers.

Thus far, Tennessee has executed precedent agreements for 552,262 Dth/d of long-term firm transportation capacity on the Market Path Component of the proposed NED Project, including:

- four New England LDCs,
- two natural gas producers,
- a municipal light department, and
- a power generator

These commitments demonstrate the market need for the Project capacity. Tennessee is confident that the significant demand for natural gas and pipeline capacity in the northeast U.S., particularly the demand from the electric power generation market as a result of the initiatives underway with five of the six states in New England to facilitate the ability of electric distribution companies to contract for pipeline capacity and recover the costs in their rates, will result in additional contract commitments for the full Project capacity. Tennessee is in ongoing negotiations with other additional potential Project shippers and as additional precedent agreements are executed, Tennessee will supplement the FERC record

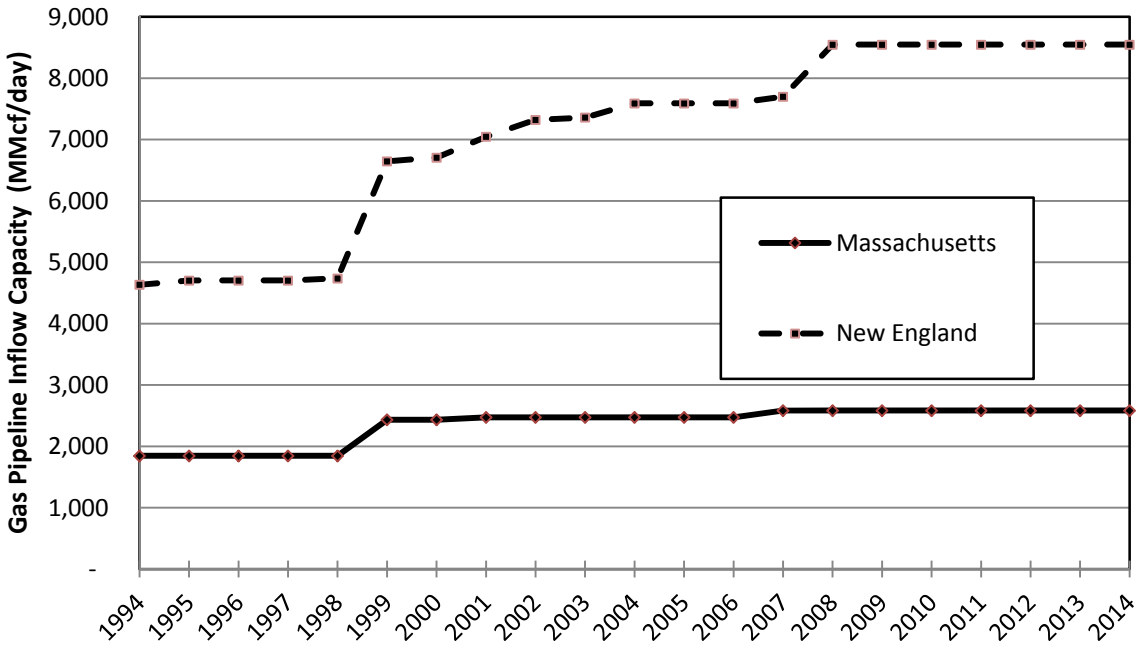
The benefits to be derived by Massachusetts from increasing the regions natural gas pipeline capacity includes: improving the reliability of the electrical power grid; stabilizing electric and gas rates for consumers; providing adequate gas to residential and commercial consumers to meet the market demands; ensuring adequate dispatchable electricity sources are available to support expanding renewable power, primarily wind and solar, in the Commonwealth of Massachusetts; improved air quality when oil and coal fired generating plants switch to natural gas fired generating plants; and reduced greenhouse gas ("GHG") emissions, when compared to burning oil and coal.

The need for increased gas pipeline capacity serving Massachusetts, and New England, has been documented by industry sources including; the U.S. Department of Energy – U.S. Energy Information Administration ("EIA") and the Independent System Operator - New England ("ISO New England"), and the results of a study commissioned by the Massachusetts Department of Energy Resources ("DOER").

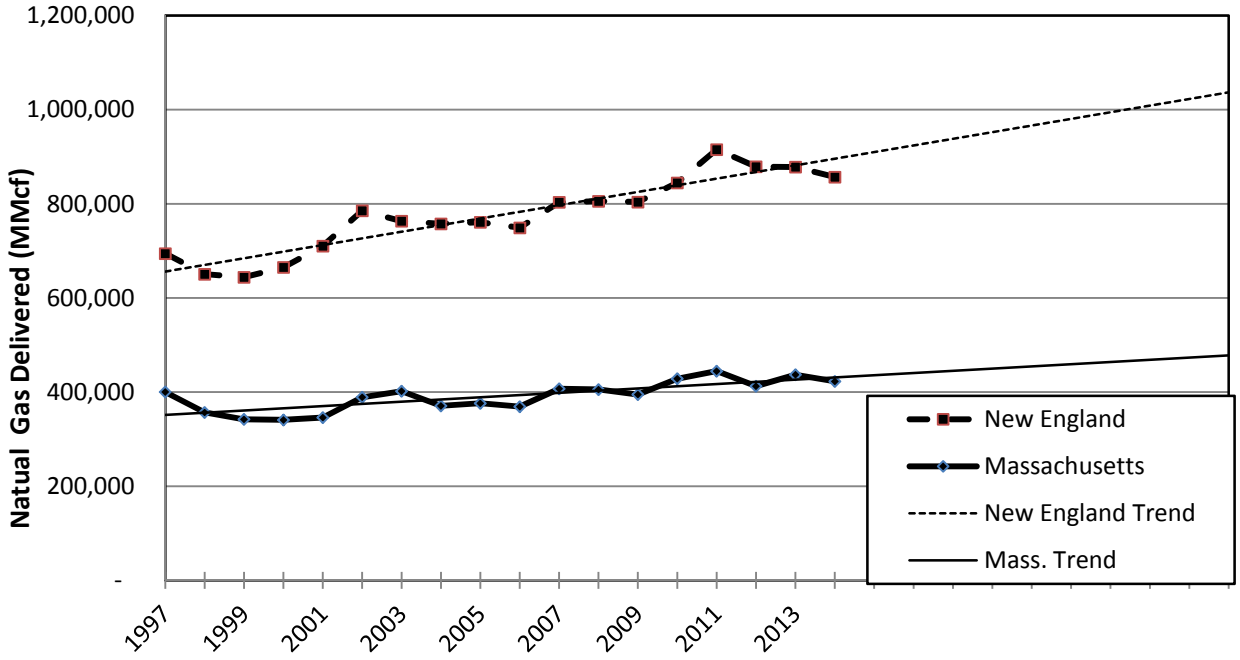
Data available from EIA show that pipeline capacity has remained stagnant while natural gas consumption has increased,[2] and is expected to continue increasing over time, see Graphs 1-1 and 1-2 respectively.

[2] http://www.eia.gov/naturalgas/data.cfm#pipelines (accessed 09 JULY 2015)

Graph 1-1
Natural Gas Pipeline Capacity Serving Massachusetts & New England (1994 – 2014)



Graph 1-2
Annual Natural Gas Deliveries to Massachusetts & New England Consumers (1997 – 2013)



Comparing these two graphs one can see that pipeline capacity in Massachusetts, and New England, has remained unchanged for the past eight and seven years, respectively; while total natural gas consumption has continued to increase over that same time period, and is expected to increase going forward in time. Increased demand for natural gas, coupled with no expansion in pipeline capacity, will further constrain natural gas supplies, which can lead to shortages, especially during peak demand days, and thus lead to increased prices. Massachusetts consumers have experienced price hikes due to the seasonal shortages the region experienced for the past two years.

The EIA documents that the combined natural gas transmission capacity into Massachusetts from both the Algonquin Gas Transmission ("AGT") system and the Tennessee Gas Transmission Pipeline ("TGP") system is approximately 3.5 Bcf/D[3]. On peak days in the winters of 2012-2013 and 2013-2014 demand nearly reached the combined capacities of AGT and TGP. To some degree, swing supply into the Commonwealth is available from the Maritimes and Northeast Pipeline and the Everett, Massachusetts liquefied natural gas ("LNG") facility. Canadaport is a relatively new LNG facility which connects to the Maritimes and Northeast Pipeline; however it is not a significant supplier to the region due to high LNG prices. The Maritimes and Northeast Pipeline delivers natural gas to New England from the offshore natural gas production fields of the Sable Offshore Energy Project ("SOEP") and Deep Panuke in Nova Scotia, Canada. However, SOEP has experienced significant declines in production in the past few years

[3] U.S. EIA, 2014. High Prices Show Stresses in New England Natural Gas Delivery System dated February 7, 2014. Found at: http://www.eia.gov/naturalgas/review/deliverysystem/2013/pdf/newengland_natgas.pdf (accessed July 16, 2015).

and is fully expected to cease production completely within a decade.[4] Deep Panuke commenced production in the third quarter of 2013, but has experienced a number of "shut-ins" of production, and has had higher than expected operating costs. A number of energy analysts have indicated that future gas exploration and production activity around Deep Panuke and other Nova Scotia gas fields is uncertain.[5] If these fields continue to decline as analysts have projected, gas consumers in New England will need to replace this portion of their fuel supplies, which will increase the competition for already scarce pipeline capacity serving New England. Additionally, the approximately 0.7 Bcf/D of natural gas produced from the Everett LNG facility is used at Exelon's Mystic Power Generating Station, leaving little available to other consumers. Thus, there is little swing supply capacity onto the Commonwealth.

ISO New England is the independent non-profit corporation responsible for operating New England's electric power generation and transmission system, and they concluded that natural gas pipeline capacity is insufficient to meet the increasing demands for home and business heating needs and power generating facilities, especially in winter when natural gas demands are highest.[6] Thus, ISO New England identifies a need to expand natural gas transmission pipeline capacity into Massachusetts and New England to meet existing and growing demands of natural gas and electricity.

Because of the highly constrained natural gas delivery capacity, Massachusetts natural gas customers pay more for gas than other regions in the U.S., and by extension Massachusetts electricity customers pay more because of the correlation between natural gas costs and electricity rates. The EIA reports that the gas supply system to Massachusetts, and the Boston market which is the largest market demand in New England, is significantly stressed on peak demand days and experiences higher costs[7]. For example, during the winter of 2013-14 price spikes were more frequent in Boston than in New York City, and the EIA attributes that difference to recently expanded gas pipeline capacity to the New York City area. The increased pipeline capacity likely buffered price spikes in New York City. Thus, the EIA concludes one solution to reduce the frequency of price spikes in Massachusetts is to increase pipeline capacity to better meet peak demand.

Limited natural gas transportation infrastructure has led to extremely high electricity prices in the Northeast U.S., and threatens the reliability of the region's electric grid.[8] National Grid received approval from the Massachusetts Department of Public Utilities to increase its customers electric rates by an

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[4] Jupia Consultants Inc. prepared for Atlantica Centre for Energy titled "Natural gas Supply and Demand Report, New Brunswick and Nova Scotia, 2015-2025, Spring 2015; ICF International (for Eversource Energy and Spectra Energy), *"Access Northeast Reliabiliity Project – Reliability Benefits and Energy Cost Savings to New England" (2.18.15);* Competitive Energy Services (for the Industrial Energy Consumer Group), *"Assessing Natural Gas Supply for New England for the Winter of 2013-14 and its Impact on Natural Gas and Electricity Prices" (4.5.13).*

[5] Ibid.

[6] ISO New England, 2014. "Wholesale Electricity Prices in New England Rose on Higher Natural Gas Prices: Pipeline Constraints and Higher Demand Pushed Up Prices for Both Natural Gas and Power" (March 18, 2014), available at http://www.iso-ne.com/nwsiss/pr/2014/2013_price%20release_03182014_final.pdf.

[7] U.S. EIA, 2014. High Prices Show Stresses in New England Natural Gas Delivery System dated February 7, 2014. Found at: http://www.eia.gov/naturalgas/review/deliverysystem/2013/pdf/newengland_natgas.pdf (accessed July 16, 2015).

[8] *See also* Massachusetts Office of The Attorney General, *Overview of Electricity & Natural Gas Rates,* available at http://www.mass.gov/ago/doing-business-in-massachusetts/energy-and-utilities/energy-rates-and-billing/electric-and-gasrates.html.

average of 37 percent for winter 2014-2015 due to "*continued constraints on the natural gas pipelines serving the region, which decrease natural gas availability at times of peak demand, causing some generators to buy gas on the spot market at higher prices, switch over to alternate fuels, or not run at all.*"[9] National Grid applied for approval to increase its customers' electric rates by approximately 21 percent for winter 2015-2016, siting electric supply volatility due to continued gas pipeline constraints. [10]

In the natural gas industry there are essentially two types of supply contracts; uninterruptable supply contracts and interruptible supply contacts. Generally, contracts with LDCs, which supply residential heating customers, hold uninterruptable contracts, while many electrical power generators and other industrial customers often hold interruptible supply contracts. As discussed above, New England's natural gas infrastructure is stressed during peak winter periods, when regional demand for natural gas is highest. The natural gas transmission capacity deficits disproportionately affect gas fired power generators because they hold interruptible supply contracts causing them to purchase more expensive fuels or curtail production during peak demand times, thus contributing to high electricity prices and power supply vulnerabilities in the winter months.

The New England electric system is becoming more dependent on natural gas generation as coal and fuel oil generating facilities are retired and replaced by natural gas generation facilities. Because of this situation DOER retained Synapse Energy Economics ("Synapse") to research this issue on behalf of the Commonwealth of Massachusetts and their results were published in January 2015[11]. Synapse utilized current forecasts of natural gas and electric power under a range of scenarios, taking into consideration environmental, reliability and cost answering two key questions:

- What is the current demand for and capacity to supply natural gas in Massachusetts?
- If all technologically and economically feasible alternative energy resources are utilized, is any additional natural gas infrastructure needed, and if so, how much?

Synapse evaluated eight scenarios from an economic and reliability perspective, which were then assessed for compliance with the Massachusetts Global Warming Solutions Act ("GWSA")[12] targets. Based on that analysis, Synapse concluded that for all scenarios evaluated increased natural gas transmission pipeline capacity into the Commonwealth was needed to meet the Commonwealth's natural gas needs,

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[9] National Grid, National Grid Files for Winter Rates in Massachusetts (September 24, 2014), available at https://www.nationalgridus.com/aboutus/a3-1_news2.asp?document=8764. Massachusetts DPU Docket No. 14-115, National Grid petition approved on 11/7/14. http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=14-115%2f14115approval11072014.pdf

[10] National Grid, New England's Winter Electricity Supply Prices Remain Volatile (September 15, 2015), available at https://www.nationalgridus.com/masselectric/a3-1_news2.asp?document=9743. Massachusetts DPU Docket No.15-BSF-D3. http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-BSF-D3%2finitial_filing.pdf

[11] Synapse Energy Economics, Inc. 2015. Massachusetts Low gas Demand Analysis: Final report (RFR-ENE-2015-12). Pg 118. Available at: http://www.synapse-energy.com/sites/default/files/Massachusetts%20Low%20Demand%20Final%20Report.pdf (accessed September 2, 2015)

[12] The Massachusetts GWSA, signed in August of 2008, created a framework for reducing heat-trapping emissions to levels that scientists believe give us a decent chance of avoiding the worst effects of global warming. It requires reductions from all sectors of the Massachusetts economy to reach a target of a 25% reduction of Greenhouse Gas ("GHG") emissions by 2020 and an 80% reduction by 2050. See http://www.mass.gov/eea/air-water-climate-change/climate-change/massachusetts-global-warming-solutions-act/global-warming-solutions-act-background.html.

and increased pipeline capacity needs ranged from 0.6 Bcf/day to 0.9 Bcf/day (three scenarios identified the need for 0.9 Bcf/day, one scenario 0.8 Bcf/day, two scenarios 0.7 Bcf/day, and two scenarios 0.6 Bcf/day). Whereas Tennessee has executed precedent agreements with LDCs for approximately 0.5 Bcf/day of long-term firm transportation capacity on the Market Path Component of the proposed NED Project, the Synapse estimates may underestimate actual market demand.

A recent study by the Interstate Natural Gas Association of America ("INGAA") Foundation and ICF International predicted that 6.0 Bcf/d of new natural gas pipeline capacity will be needed in the Northeast U.S. by 2020, and 10.1 Bcf/d of capacity will be needed by 2035.[13] Another recent study by the Competitive Energy Services ("CES") estimated that to provide the ISO-NE with natural gas to meet the needs of electric generators in the winter at competitive prices, New England needs an additional 2.4 Bcf/d of pipeline capacity, resulting in an annual economic value of $2.988 billion per year to the region's electricity consumers alone.[14]

Based on the Synapse analyses for the DOER and other studies referenced above, there is clearly a need for increased natural gas pipeline capacity to meet existing and future energy needs of the Commonwealth and the northeast U.S. Construction of the NED Project will help alleviate the natural gas pipeline capacity constraints in New England, and Massachusetts, by increasing pipeline transmission capacity in these high-demand markets. The NED Project is responding to the need for significant increase in natural gas transmission capacity into New England and will deliver sufficient incremental supplies that, based upon basic market forces of supply and demand, should put considerable downward pressure on energy commodity prices, which currently are among the highest in the U.S. This new natural gas pipeline transportation infrastructure will increase natural gas transmission capacity, currently a limiting factor, to ensure greater reliability and fuel certainty in the electric generation sector, resulting in lower energy commodity prices.

A more reliable supply of natural gas concomitantly supports the Commonwealth's desire to expand renewable energy sources to reduce GHG emissions. Increased reliance on natural gas for electricity does not come at the expense of increased use of renewables for electricity. The EIA projects a 5% increase in electricity generated by renewables from 2013 to 2040[15]. Natural gas fired generation more effectively integrates renewables, notably wind and solar, into the electrical grid than traditional fossil fuel fired plants. Natural gas fired generating plants can work synergistically with the fluctuating input from renewables especially during periods of peak demand. Additionally, emission of GHG and conventional air pollutants from natural gas combustion is lower than that from oil and coal. Therefore, increasing natural gas pipeline capacity into Massachusetts should:

1. Support expanded use of renewable energy by providing cleaner burning fuels for dispatchable electricity; and

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[13] The Interstate Natural Gas Association of America Foundation, *North American Midstream Infrastructure through 2035: Capitalizing on Our Energy Abundance* (March 18, 2014). Available at http://www.ingaa.org/File.aspx?id=21498.

[14] Silkman, Richard and Mark Isaacson. 2014. Assessing Natural Gas Supply Options for New England and their Impacts on Natural Gas and Electricity Prices (February 12, 2014). Prepared for the Industrial Energy Consumer Group. Available at: http://competitive-energy.com/docs/2014/02/CES_REPORT_NaturalGasSupply_20140131_FINAL.pdf

[15] U.S. EIA. 2015. Natural gas, renewables projected to provide larger shares of electricity generation, dated May 4, 2015.

2. Facilitate the replacement of oil and coal fired generating facilities with cleaner burning natural gas, both of which support the goal of decreased GHG emissions and reduced emissions of air pollution from electricity generation.

In summary, the Purpose and Need for the NED Project is to provide the natural gas pipeline capacity to meet the region's, and the Commonwealth's, growing energy demands, specifically natural gas demands. The increased use of natural gas will yield the additional benefits:

- Improve reliability of electricity in Massachusetts, especially during peak energy demand,
- Reduced price spikes and thus lower energy costs to consumers;
- Better integrate renewable energy into the power distribution system, by producing dispatchable electricity to work synergistically with non-dispatchable (intermittent) renewable energy sources; and
- Lastly, by replacing dirtier fossil fuels (coal and oil) and working synergistically with renewables, support goals for lower GHG emissions and lower air pollution emission from the power generation industry.

As proposed, the NED Project will provide additional as volumes that New England needs to reduce energy costs, enhance electric reliability, and stimulate economic growth in the New England region. It will provide New England with direct access to low-cost gas supplies on the large scale necessary to significantly lower energy costs to the region's homes and businesses. Tennessee's proposed route for the Project will disturb significantly fewer stakeholders and result in lower costs to consumers than it will have if Tennessee were to expand only along its existing 200 Line system corridor. The New York, Massachusetts, and New Hampshire route, which predominantly follows existing utility corridors, will provide economic service to several geographic areas in northern Massachusetts and southern New Hampshire that are not currently served by an interstate pipeline.

1.4 Water Dependency (B.3.b)

The 401 Water Quality Certification Regulations (314 CMR 9.00) defined water-dependent as:

> *"Uses and facilities which require direct access to, or location in, marine, tidal or inland waters and which therefore cannot be located away from those waters, including any uses and facilities defined as water-dependent in 310 CMR 9.00: Waterways."* [314 CMR 9.02]

The NED Project meets the referenced water dependency criteria primarily as it relates to the proposed crossings of the Merrimack and Connecticut Rivers; meaning, the activity associated with the discharge of dredged or fill material requires access and proximity to or siting within these waters to fulfill the basic project purpose.[16] The Market Path mainline route cannot avoid the Connecticut River which spans the Commonwealth in a north-south direction; and likewise of the Lynnfield Lateral which is needed to convey natural gas from the Market Path terminus in Dracut, Massachusetts north of the Merrimack River to consumers south of the Merrimack River, cannot avoid crossing the Merrimack River. Therefore, it is

[16] Alternatively, a crossing of these rivers and other similar water bodies using trenchless technology such as Horizontal Directional Drill would not necessarily result in a discharge of dredged or fill material triggering 401 review.

anticipated the standard established in the cross referenced Chapter 91 Waterways regulations [310 CMR 9.12(2)(d)] will be met allowing the NED Project, to be defined as a water-dependent activity relative to the Department's 401 Water Quality Certification review of the above referenced major river crossings.

2.0 PROJECT DESCRIPTION (B.4.a)

The general project description is presented above in the Introduction and Project Description. Within the Commonwealth of Massachusetts the NED Project consists of approximately 100 miles of gas pipeline, mainline and laterals, three new compressor stations, eight new meter station , three new regulator stations, and modifications at 11 existing meter stations plus appurtenant facilities; see Tables 2-1, 2-2 and 2-3 for summaries of these NED facilities. Of the approximately 100 miles of pipeline, approximately 86 miles, approximately 86 percent, is proposed to be co-located or directly adjacent to existing utility ROWs. Co-location concomitantly minimizes further environmental impacts and public disturbance. Siting pipeline facilities along existing corridors reduces the establishment of new corridors in previously undisturbed areas, while limiting environmental impacts.

The focus of this application are the facilities, impacts and mitigation located in the Commonwealth of Massachusetts; however, aspects of the Alternatives Analysis are project-wide and are not limited to work in Massachusetts. To put the project in perspective, the NED Project, Wright, New York to Dracut, Massachusetts is presented on Figures 1 and 2 on a USGS base at a sale of 1" = 17,000". Attachment 3 presents the pipeline alignments and other project facilities at the town/city scale for greater detail.

2.1 Pipeline Facilities

The mainline pipeline is comprised of approximately 64 miles of 30-inch-diameter mainline transmission pipeline in total. The majority of this, approximately 61 miles of pipeline, begins at the New York/Massachusetts border in Hancock, Massachusetts and extends to the Massachusetts/New Hampshire border in Warwick, Massachusetts. An additional approximately three miles of gas transmission main in Massachusetts is a portion of the mainline from the New Hampshire/Massachusetts border in Dracut, Massachusetts to the Market Path Tail Compressor Station in Dracut. Approximately 63 miles of this new proposed mainline pipeline will be co-located or directly adjacent to existing utility corridors to the extent practicable, feasible, and in compliance with existing law. The balance of the proposed mainline pipeline, approximately one mile, will be new pipeline corridor. See Table 2-1, for a breakdown of the mainline and lateral pipelines by municipality and length of co-located mainline by segment. The mainline will be constructed in 17 Massachusetts cities and towns. The entirety of the proposed mainline pipeline facilities in Massachusetts will be designed for a maximum allowable operating pressure ("MAOP") and maximum operating pressure ("MOP") of 1,460 pounds per square inch ("psig").

Additionally, Tennessee proposes to construct and operate approximately 36 miles of new laterals and connectors in Massachusetts. Laterals are pipelines that serve as interconnections between the transmission pipeline and the distributions pipeline systems of consumers (e.g., LDCs, gas-fired generators, industrial plants, and other consumers). The five proposed laterals in Massachusetts are summarized below, and in Table 2-1, which identifies length of co-located pipeline by segment. A total of 13 Massachusetts cities and towns will be crossed by the proposed laterals,

- The 30-inch diameter Maritimes Delivery Line is a 0.75 miles long connector in Dracut, the entirety (0.75 miles) will be co-located with a Massachusetts Electric ROW. This lateral will have a MAOP and MOP of 1,460 psig and extend from the Market Path Tail Station to an interconnect with the Maritimes and Northeast Pipeline System.
- The 24-inch diameter Lynnfield Lateral is 14.28 mile long lateral in Dracut, Tewksbury, Andover, Wilmington, North Reading, Reading and Lynnfield, of which approximately 8.95 miles is co-located with a New England Power transmission line right-of-way ("ROW"). The Lynnfield Lateral will have a MAOP and MOP of 1,460 psig.
- The 24-inch diameter Peabody Lateral is 5.32 mile long lateral in Lynnfield, Middleton and Peabody with a MAOP of 1,460 psig and MOP of 730 psig that will extend from the new Lynnfield Lateral proposed as part of the Project. Construction of this lateral will include a 0.4-mile take-up and relay of Tennessee's existing 8-inch-diameter Beverly-Salem Colonial Delivery Lateral pipeline. Approximately 2.32 miles of this lateral will be co-located with TGP, Spectra Energy and New England Power ROWs.
- The 20-inch diameter Haverhill Lateral (Massachusetts Portion) will be approximately 9.27 miles in length that will extend from Massachusetts through New Hampshire with a MAOP of 800 psig and a MOP of 730 psig. Construction of this lateral will include a partial take-up and relay of Tennessee's existing 10-inch diameter Haverhill Lateral pipeline. Approximately 7.23 miles of the 9.27 miles will be located in Massachusetts. The entire 7.23 miles in Massachusetts, will be a take-up and relay of the existing Haverhill Lateral within Tennessee's existing ROW.
- The 12-inch diameter Fitchburg Lateral Extension will be 13.97 miles long extending through the communities of Townsend and Lunenburg, Massachusetts into New Hampshire. The Fitchburg Lateral Extension will have a MAOP and MOP of 1,460 psig. This lateral will be an extension of Tennessee's existing Fitchburg Lateral which will connect to the Wright to Dracut Pipeline Segment in New Hampshire. Approximately 8.89 miles is located in Massachusetts, of which approximately 3.71 miles will be co-located with an existing Fitchburg Gas and Electric ROW in Massachusetts.

2.2 Proposed Compressor Stations and Meter Stations in Massachusetts

A compressor station is a facility which pressurizes the natural gas in the pipeline thus pushing, or transporting, the natural gas from one location to another. Internal pressure drops with distance and thus it needs to be constantly pressurized at intervals, and for the NED Project the calculated intervals between compressor stations are approximately 50 miles. The distribution of stations along a gas transmission pipeline is dependent on pipe diameter, terrain, elevation differences and quantity of gas to be transported through the pipeline; for example, greater elevation changes require more compressor stations. Gas compressor stations are normally pressurized by a gas fired turbine, which is similar to a large fan inside a case, which pumps the gas as the fan turns. Typically a small portion of natural gas from the pipeline is burned to power the turbine. Another design option is electric motor/centrifugal compressor stations. In these compressor units the centrifugal compressor is driven by an electric motor in lieu of a gas fired turbine. These stations need to be located in close proximity to a reliable source of electric power.

Table 2-1
Summary of NED Pipeline Facilities in Massachusetts

Municipality	Segment	Pipe Diameter (inches)	Mile Post Begin	Mile Post End	Pipeline Length (miles)	Co-Location (miles)	Co-Location (percent)	Co-Location ROW Owner/Operator	Co-Location Type
Wright to Dracut Pipeline Segment									
Hancock	G	30	0.00	2.53	2.53			Western Mass Electric	Powerline
Lanesborough	G	30	2.53	7.51	4.98			Western Mass Electric	Powerline
Cheshire	G	30	7.51	9.44	1.93			Western Mass Electric	Powerline
Dalton	G	30	9.44	12.85	3.41			Western Mass Electric	Powerline
Hinsdale	G	30	12.85	15.80	2.95			Western Mass Electric	Powerline
Peru	G	30	15.80	16.64	0.84			Western Mass Electric	Powerline
Windsor	G	30	16.64	21.39	4.75			Western Mass Electric	Powerline
Plainfield	G	30	21.39	26.94	5.55			Western Mass Electric	Powerline
Ashfield	G	30	26.94	32.67	5.73			Western Mass Electric	Powerline
Segment G Subtotal					**32.67**	**32.67**	**100**		
Ashfield	H	30	0.00	1.41	1.41			Western Mass Electric	Powerline
Conway	H	30	1.41	4.82	3.41			Western Mass Electric	Powerline
Shelburne	H	30	4.81	6.08	1.26			Western Mass Electric	Powerline
Deerfield	H	30	6.08	11.44	5.36			Western Mass Electric	Powerline
Montague	H	30	11.44	16.10	4.66			Western Mass Electric	Powerline
Erving	H	30	16.10	18.30	2.20			Western Mass Electric	Powerline
Northfield	H	30	18.30	19.53	1.23			Western Mass Electric	Powerline
Erving	H	30	19.53	20.13	0.60			Western Mass Electric	Powerline
Northfield	H	30	20.13	27.48	7.35			Western Mass Electric	Powerline
Warwick	H	30	27.48	28.61	1.13			Western Mass Electric	Powerline

Table 2-1
Summary of NED Pipeline Facilities in Massachusetts

Municipality	Segment	Pipe Diameter (inches)	Mile Post Begin	Mile Post End	Pipeline Length (miles)	Co-Location (miles)	Co-Location (percent)	Co-Location ROW Owner/Operator	Co-Location Type
Segment H Subtotal					**28.61**	**27.82**	**87.3**		
Dracut	K	30	0.00	2.44	2.44			Massachusetts Electric	Powerline
Segment K Subtotal					**2.44**	**2.44**	**100**		
Wright to Dracut Pipeline Segment Subtotal					**63.72**	**62.93**	**98.8**		
Maritimes Delivery Line									
Dracut	L	30	0.00	0.75	0.75			Massachusetts Electric	Powerline
Maritimes Delivery Line / Segment L Subtotal					**0.75**	**0.75**	**100**		
Lynnfield Lateral									
Dracut	N	24	0.00	1.33	1.33			New England Power	Powerline
Andover	N	24	1.33	2.34	1.01			New England Power	Powerline
Tewksbury	N	24	2.34	2.54	0.20			New England Power	Powerline
Andover	N	24	2.54	3.26	0.72			New England Power	Powerline
Tewksbury	N	24	3.26	3.70	0.44			New England Power	Powerline
Andover	N	24	3.70	4.01	0.31			New England Power	Powerline
Tewksbury	N	24	4.01	4.20	0.19			New England Power	Powerline
Andover	N	24	4.20	4.30	0.10			New England Power	Powerline
Tewksbury	N	24	4.302	4.97	0.67			New England Power	Powerline
Andover	N	24	4.97	5.92	0.95			New England Power	Powerline
Tewksbury	N	24	5.92	6.63	0.71			New England Power	Powerline
Andover	N	24	6.634	7.92	1.29			New England Power	Powerline
Wilmington	N	24	7.92	10.16	2.24			New England Power	Powerline

Table 2-1
Summary of NED Pipeline Facilities in Massachusetts

Municipality	Segment	Pipe Diameter (inches)	Mile Post Begin	Mile Post End	Pipeline Length (miles)	Co-Location (miles)	Co-Location (percent)	Co-Location ROW Owner/Operator	Co-Location Type
North Reading	N	24	10.16	13.45	3.29			-	-
Reading	N	24	13.45	13.83	0.38			-	-
Lynnfield	N	24	13.83	14.28	0.45			New England Power	Powerline
Lynnfield Lateral / Segment N Subtotal					**14.28**	**8.95**	**62.7**		
Peabody Lateral									
Lynnfield	O	24	0.00	2.46	2.46			TGP	Pipeline
Middleton	O	24	2.46	2.80	0.34			-	-
Peabody	O	24	2.80	4.60	1.80			New England	Powerline/Pi
Danvers	O	24	4.60	5.32	0.72			New England Power	Powerline
Peabody Lateral / Segment O Subtotal					**5.32**	**2.32**	**43.6**		
Haverhill Lateral									
Dracut	P	20	0.00	2.77	2.77			-TGP	-Pipeline
Methuen	P	20	2.77	6.95	4.18			TGP	Pipeline
Methuen	P	20	8.99	9.27	0.28			TGP	Pipeline
Haverhill Lateral / Segment P Subtotal					**7.23**	**7.23**	**100**		
Fitchburg Lateral Extension									
Townsend	Q	12	5.08	10.37	5.29			Fitchburg Gas & Electric	Powerline
Lunenburg	Q	12	10.37	13.97	3.60			Fitchburg Gas & Electric	Powerline
Fitchburg Lateral / Segment Q Subtotal					**8.89**	**3.71**	**41.7**		
Massachusetts Total					**100.19**	**85.89**	**85.7**		

Source: FERC Resource report 1, Tables 1.1-1 and 1.1-2

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Meter, or metering, stations are located along interstate natural gas pipelines so that the gas transmission company can monitor, manage, and account for the natural gas in their pipes. They are also located at connections with LDCs to distribute, monitor and account for the gas sold to LDCs. Essentially, these metering stations measure the flow of gas along the pipeline, allowing pipeline companies to track natural gas as it flows along the pipeline. Meter stations are generally constructed adjacent to the cleared ROW at each of the receipt and interconnect points to meter the flow and adjust the pressure of natural gas received from or delivered to those systems. A meter/regulator station typically includes meter and regulator equipment, a filter separator, odorant equipment, and a control building housed within a fenced perimeter.

The NED Project requires the construction of three compressor stations in Massachusetts:

- Market Path Mid Station 2 in Windsor and will include two Titan 130 Turbines, ISO-rated for a total of 41,000 hp;
- Market Path Mid Station 3 in Northfield and will also include two Titan 130 Turbines, ISO-rated for a total of 41,000 hp; and
- Market Path Tail Station in Dracut and will include one 8,000 and one 15,000 hp electric units for a total of 23,000 hp.

Table 2-2 presents a summary of these facilities in Massachusetts indicating their location and land area requirements for each.

In Massachusetts, the NED Project will require constructing eight new meter stations, two new regulator stations and modifying 11 existing TGP meter stations as summarized below and presented in Table 2-2:

- Six new meter stations are required along the Market Path mainline pipeline and lateral pipeline routes;
- Two new stations are needed at existing TGP Facilities, one each in Longmeadow, and Everett;
- Two new regulator stations are needed at existing TGP Facilities, one each in North Adams and Wilmington, and
- Eleven existing meter stations in Massachusetts need to be modified to fully integrate the new NED pipeline facilities with the existing TGP infrastructure.

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Table 2-2
Summary of Compressor and Meter Stations in Massachusetts

Facility ID	Municipality	Associated Pipeline	Segment	Milepost	New / Modified	Area Requirements (acres) Construction	Area Requirements (acres) Operations
Compressor Stations							
Market Path Mid Station 2	Windsor	Wright to Dracut	G	17.09	New	13.63	8.21
Market Path Mid Station 3	Northfield	Wright to Dracut	H	23.98	New	31.09	18.07
Market Path Tail Station	Dracut	Wright to Dracut	K	1.052	New	19.29	17.88
				Compressor Station Subtotal		**64.01**	**44.16**
Meter Stations							
North Adams Check	Lanesborough	Wright to Dracut	G	7.32	New	3.07	0.66
West Greenfield	Deerfield	Wright to Dracut	H	9.29	New	1.71	1.71
Maritimes	Dracut	Maritimes Delivery Line	L	0.75	New	2.07	1.34
200-1 Check	Lynnfield	Lynnfield Lateral	N	14.28	New	2.56	0.00
Haverhill Check	Dracut	Haverhill Lateral	P	1.53	New	3.10	3.10
Fitchburg Lateral Check	Lunenburg	Fitchburg Lateral Extension	Q	13.97	New	1.84	0.92
Longmeadow	Longmeadow	Existing TGP Line 200-2	N/A	Proposed Facility	New	0.66	0.66
Everett	Everett	Existing TGP Line 270C-1100	N/A	Proposed Facility	New	0.92	0.62
North Adams Custody (20103)	North Adams	Existing TCP Line 256A-100	N/A	Existing Facility	Modified	0.86	0.00
Lawrence (20121)	Methuen	Existing TGP Line 270B-400	N/A	Existing Facility	Modified	0.47	0.00
Southbridge (20108)	Southbridge	Existing TGP Line 264A-100	N/A	Existing Facility	Modified	1.50	0.00
Spencer (20191)	Spencer	Existing TGP Line 264B-100	N/A	Existing Facility	Modified	1.20	0.00
Lunenburg (20949)	Lunenburg	Existing TGP Line 268A-100	N/A	Existing Facility	Modified	1.82	0.00
Lexington (20192)	Lexington	Existing TGP Line 200-1	N/A	Existing Facility	Modified	0.51	0.00
Burlington (20341)	Burlington	Existing TGP Line 270A-100	N/A	Existing Facility	Modified	0.42	0.00
Arlington (20115)	Arlington	Existing TGP Line 270A-100	N/A	Existing Facility	Modified	0.30	0.00

Table 2-2
Summary of Compressor and Meter Stations in Massachusetts

Facility ID	Municipality	Associated Pipeline	Segment	Milepost	New / Modified	Area Requirements (acres) Construction	Operations
Reading (20136)	Reading	Existing TGP Line 270C-200	N/A	Existing Facility	Modified	0.96	0.00
Essex (20323)	Essex	Existing TGP Line 270C-500	N/A	Existing Facility	Modified	0.83	0.00
Pittsfield (20102)	Pittsfield	Existing TGP Line 256A-200	N/A	Existing Facility	Modified	3.24	0.00
North Adams Regulator	Pittsfield	Existing TGP Line 256A-100	N/A	Proposed Facility	New	0.52	0.00
Wilmington Regulator	Wilmington	Existing TGP Line 270C-200	N/A	Proposed Facility	New	0.88	0.00
					Meter Stations Subtotal	**29.44**	**9.01**
					Massachusetts Total	**93.45**	**53.17**

Source: FERC Resource Report 1, Tables 1.1-4 and 1.1-5

2.3 Appurtenant Facilities: Pig Launchers / Receivers, Mainline Valves and Cathodic Protection Facilities in Massachusetts

Construction of the NED Project mainline and lateral pipelines will require a number of appurtenant facilities along the alignment, namely pig launchers, pig receivers, mainline valves and cathodic protection facilities.

Tennessee also intends to install pig facilities to accommodate internal inspection of the pipeline segments in accordance with 49 CFR, Part 192, Subpart O, which provides requirements for gas transmission pipeline integrity management. At a minimum, these facilities will be installed at compressor stations and the beginning and end of each lateral. Pig facility site components include valves, actuators, piping and the launcher or receiver. Valves, piping, bends, fittings, and other pipeline components will be designed to allow the passage of inline tool inspection devices. Each pig facility outside a compressor station will consist of a 200-foot by 50-foot graveled fenced and locked area within the permanent ROW. Permanent access roads ("ARs") to these sites may also be required depending on existing access to the area, however Tennessee has sited these facilities near public roads to avoid the need for permanent ARs where practicable.

Locations of pig facilities (including pig launchers, pig receivers, pig barrels, and temporary barrels) are provided in Table 2-3.

Mainline valves ("MLV") work like gateways; they are usually open and allow natural gas to flow freely, but they can be used to stop gas flow along a certain section of pipe. Reasons to operate the valves include restricting gas flow in certain areas, emergency shutdown, and or maintenance shutdowns. For example, if a section of pipe requires replacement or maintenance, valves on either end of that section of pipe can be closed to allow engineers and work crews' safe access.

MLVs are integral operation and safety components in a transmission pipeline. Title 49 CFR, Part 192.179 of the U.S. Department of Transportation ("USDOT") regulations, outlines the requirements for MLV spacing. The guidelines are as follows:

a) Each transmission line, other than offshore segments, must have sectionalizing block valves spaced as follows, unless in a particular case the Administrator finds that alternative spacing will provide an equivalent level of safety:

   (1) Each point on the pipeline in a Class 4 location must be within 2.5 miles (4 kilometers) of a valve.

   (2) Each point on the pipeline in a Class 3 location must be within 4 miles (6.4 kilometers) of a valve.

   (3) Each point on the pipeline in a Class 2 location must be within 7.5 miles (12 kilometers) of a valve.

   (4) Each point on the pipeline in a Class 1 location must be within 10 miles (16 kilometers) of a valve.

(b) Each sectionalizing block valve on a transmission line, other than offshore segments, must comply with the following:

(1) The valve and the operating device to open or close the valve must be readily accessible and protected from tampering and damage.

(2) The valve must be supported to prevent settling of the valve or movement of the pipe to which it is attached.

(c) Each section of a transmission line, other than offshore segments, between MLVs must have a venting valve with enough capacity to allow the transmission line to be blown down as rapidly as practicable. Each venting discharge must be located so the gas can be blown to the atmosphere without hazard and, if the transmission line is adjacent to an overhead electric line, so that the gas is directed away from the electrical conductors.

For the Project, Tennessee proposes that MLVs will generally be installed and operated within the proposed permanent ROW associated with the applicable pipeline segment(s). MLV site components include valve, actuator, piping and communications equipment. Each MLV will generally consist of a 60-foot by 50-foot graveled area and will be fenced within the permanent ROW. Where practicable, Tennessee has sited appurtenant facilities closest to public roads to limit the number of permanent ARs, however some permanent ARs to these sites will be required. Tennessee has conducted a class study on each proposed pipeline segment and designed MLV locations that meet or exceed the federal spacing requirements.

Locations of MLVs are provided in Table 2-3.

Requirements for pipeline corrosion control are provided in 49 CFR, Part 192, Subpart I. Tennessee intends to design cathodic protection for the Project in accordance with these regulations. For pipeline segments that are proposed to be co-located with Tennessee's pipeline system, the new segments will be interconnected to the existing cathodic protection system and have been evaluated for compliance with USDOT regulations. Enhancements have been provided as required to comply with the regulations. On new segments, a new cathodic protection system will be designed and installed. This will include aboveground rectifiers and buried ground beds. The rectifiers will generally be installed on poles within the permanent ROW. These rectifiers will require low voltage power and are typically located at road crossings or other facility sites. These sites may be graveled so that future maintenance can be performed in a safe manner. The locations of these rectifiers and ground beds are provided in Table 2-3.

Tennessee anticipates the need to install buried ground beds that will generally extend perpendicular from the pipeline. Deep well ground beds will be considered if subsurface conditions permit.

A portion of the proposed pipeline segments will be co-located with high voltage electric powerlines. Tennessee will design an alternating current ("AC") and direct current ("DC") mitigation system that will protect the pipeline facilities and operations personnel. It is anticipated that the design will include zinc ribbon, grounding mats, and other equipment, most of which will be buried.

Table 2-3, presents a listing of pig receiving ("PR"), pig launching ("PL") and mainline valves ("MLV") to be constructed including location by town, segment and milepost.

Table 2-3
Summary of Appurtenant NED Facilities in Massachusetts

Municipality	Segment	Facility ID	Nearest Milepost
Pig Launchers / Pig Receivers			
Windsor	G	PR-G-01	17.09
Windsor	G	PL-G-01	17.09
Northfield	H	PR-H-01	23.97
Northfield	H	PL-H-01	23.98
Dracut	K	PR-K-01	2.44
Dracut	L	TB-L-01	0.00
Dracut	L	TB-L-02	0.75
Dracut	N	PL-N-01	0.00
Lynnfield	N	PR-N-01	14.28
Lynnfield	O	PB-O-01	0.00
Lynnfield	O	PB-O-02	0.41
Lynnfield	O	PL-O-01	0.41
Danvers	O	PR-O-01	5.32
Dracut	P	PB-P-01	0.00
Methuen	P	PB-P-02	9.27
Lunenburg	Q	PR-Q-01	13.97
Mainline Valves			
Dalton	G	MLV-G-01	12.10
Windsor	G	MLV-G-02	17.09
Conway	H	MLV-H-01	2.28
Conway	H	Remote Blowoff (MLV-H-01)	2.28
Montague	H	MLV-H-02	15.60
Montague	H	Remote Blowoff (MLV-H-02)	15.60
Northfield	H	MLV-H-03	23.98
Dracut	K	MLV-K-01	2.44
Dracut	L	MLV-L-01	0.75
Dracut	N	MLV-N-01	0.00
Andover	N	MLV-N-02	6.90
Lynnfield	N	MLV-N-03	14.28

Table 2-3
Summary of Appurtenant NED Facilities in Massachusetts

Municipality	Segment	Facility ID	Nearest Milepost
Lynnfield	O	MLV-O-01	0.00
Danvers	O	MLV-O-02	5.32
Dracut	P	MLV-P-01	0.00
Methuen	P	MLV-P-02	2.94
Methuen	P	MLV-P-03	9.27
Townsend	Q	MLV-Q-02	7.50
Lunenburg	Q	MLV-Q-03	13.97
Cathodic Protection Areas			
Hancock	G		1.83
Dalton	G		12.03
Plainfield	G		21.54
Ashfield	G		31.78
Conway	H		4.56
Shelburne	H		5.95
Deerfield	H		7.79
Deerfield	H		8.48
Montague	H		13.96
Montague	H		14.67
Northfield	H		18.81
Northfield	H		23.88
Dracut	K		0.49
Dracut	N		0.61
Tewksbury	N		4.85
Wilmington	N		9.12
Lynnfield	N		14.04
Dracut	P		2.54
Methuen	P		6.91
Lunenburg	Q		13.36

Source: FERC Resource Report 1, Table 1.1-6 and 1.4-1

2.4 Access Roads

Construction access to the Project areas and ancillary facilities will be by way of the construction ROW and existing and new public and private roads. Tennessee anticipates utilizing temporary and permanent access roads ("ARs") during the construction of each portion of the Project with permanent ARs to be used during operation of the Project. Where public road access is unavailable, Tennessee will identify private ARs.

Where possible, Tennessee has proposed to use existing roads as ARs for the Project; if no existing road is available for use, Tennessee has sited new ARs away from sensitive resources to the extent practicable. Temporary soil erosion and sediment control measures will be installed along the proposed ARs in accordance with the Massachusetts Environmental Construction Plan ("ECP") found in Attachment 8.

2.5 Contractor Yards

Tennessee has identified locations to be utilized for contractor yards for the Project. These areas will be used for equipment, pipe, and material storage and staging, as well as temporary field offices and pipe preparation/field assembly areas. Locations of proposed contractor yards are depicted on the USGS topographic maps and aerial maps provided in Attachment 3. Tennessee continues to evaluate locations of proposed contractor yards for the Project in consultation with appropriate regulatory agencies, landowners, and other stakeholders. Tennessee notes that certain contractor yards included in this application will be excluded from the Project scope due to environmental and land use constraints, and impacts associated with these contractor yards will be removed in the updated WQC application filing.

Contractor yards that are proposed to be used for the Project include those located in previously disturbed areas such as open fields, sand and gravel pits, parking lots and industrial facilities. Although certain wetland impacts for these previously disturbed areas are included in this application, Tennessee will select contractor yard sites considering these environmental impacts identified during environmental field surveys and obtain the appropriate regulatory permits prior to utilizing these sites.

2.6 Additional Temporary Workspace (B.4.a.6)

Additional Temporary Workspace ("ATWS") areas typically are required at road, railroad, wetland, and waterbody crossing locations (including horizontal directional drilling ["HDDs"]) and for areas requiring specialized construction techniques, including steep slopes and agricultural land. The configurations and sizes of ATWS areas will be based on site-specific conditions and vary in accordance with the construction methodology, crossing type, and other construction needs.

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3.0 SUMMARY OF WATERWAYS AND WETLAND IMPACTS (B.5)

3.1 Waterway And Wetland Determinations

Identification of regulated wetland and waterbody boundaries occurred within a 400-foot wide survey corridor centered over the proposed pipeline (200 feet either side of the pipe centerline) when traversing greenfield, and a 250-foot wide survey corridor where the proposed pipeline is co-located with an existing utility (50 feet on the utility side and 200 feet on the non-utility side). Field investigations were conducted from October 13, 2014, through September 15, 2015 (Study Area) on parcels where survey access permission was granted by landowners. Therefore, many field delineations of wetlands identified within the Study Area are incomplete. For purposes of this application where survey access has been denied, wetland and water course boundaries were determined using remote sensing data, which included a combination of photo interpreted high resolution aerial photos in stereo, LiDAR data, and publically available data. The publically available data is from the USFWS - NWI (2014). As of September 15, 2015, field surveys have been completed on approximately 28.54 miles (28 percent) of the Study Area in Massachusetts.

3.1.1 Field Wetland Delineation Procedures

The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3(b)). Under 33 CFR 328.4(c), the limits of federal jurisdiction for non-tidal waters of the United States extend to:

1. the ordinary high water mark In the absence of adjacent wetlands; or
2. beyond the ordinary high water mark to the limit of the adjacent wetlands when adjacent wetlands are present; or
3. to the limit of the wetland when the water of the United States consists only of wetlands

The wetland delineation methods (“1987 Corps Manual”, USACE, Environmental Laboratory 1987 and “NC/NE Regional Supplement”; USACE 2012), were used to identify and delineate wetlands along the proposed Project alignment in Massachusetts.

3.1.2 Waterbody Delineation Procedures

Under 33 CFR 328.4(c), the “limits of federal jurisdiction for non-tidal waters of the United States, in the absence of adjacent wetlands, is the ordinary high water mark.”

Waterbody types were classified as perennial or intermittent. Perennial streams (“P”) were categorized as waterbodies that flow throughout the year and are supplied by ground water. Intermittent streams (“I”) were categorized as waterbodies that carry water during wet times of year and are supplied by ground water part of the year. Ephemeral streams (“E”) were categorized as those that flow only during, or subsequent to, a rain event. Preliminary waterbody classifications were made during initial field surveys

and were confirmed based on a desktop analysis of USGS hydrographic dataset (US Department of the Interior, 2014). Additionally, each waterbody was reviewed for the water quality standard and classification assigned by the MassDEP to surface waters as described in 314 CMR 4.00 Surface Water Quality Standards.

3.1.3 Pre-Survey Desktop Investigations

Prior to the commencement of field surveys, information from multiple sources was reviewed to determine the potential extent of wetlands within the survey areas. Pre-survey information reviewed included: USGS topographical quadrangles, National Wetland Inventory Maps, Natural Resource Conservation Service – Web Soil Surveys, Mass GIS Resource Mapping that includes Massachusetts Natural Heritage Endangered Species Program ("NHESP") datalayers.

3.1.4 Field Surveys

During the field investigations along the ROWs, the boundary between the water resource (wetland and/or watercourse) and non-regulated area were delineated and marked with survey flagging hung on vegetation at approximately 15 to 30-foot intervals. For wetlands, vegetation, soils, and hydrology data were assessed during the field surveys to determine if the wetland parameters were satisfied. The "top of bank" was used to demarcate the limits of a watercourse when no wetlands were adjacent to the channel. Data plots documenting the wetland boundaries were established at specific locations within each wetland series. Field data summary sheets were completed at each data plot for the wetland and watercourse resource surveys. Each wetland and waterbody was given a unique alphanumeric designation to assist in field survey location and documentation using the feature identification nomenclature (Town, team, feature, and feature number). The Boundary Line and Flag Number are identified in one number representing both features. For example, CS-B-W003-101 is interpreted as "Chesire, Team B, Wetland Feature 003, Boundary Line 100, Flag Number 101.

The Massachusetts Wetland Report is found in Attachment 6 of this WQC application, describes the wetland field delineation procedures and results. As described therein, wetlands were identified and boundaries were determined using a combination of field investigations (where access was available) as well as photo interpreted high resolution aerial photos in stereo, LiDAR data, and publically available data.

3.1.5 Wetland Classification

Wetlands and watercourses were classified according to the "Cowardin system" as Palustrine Forested ("PFO"), Palustrine Emergent ("PEM"), Palustrine Scrub-Shrub ("PSS") and Palustrine Open Water ("POW"), as further described below. In some cases, a wetland complex contained more than one wetland classification type. In those situations, each wetland type is listed and the first classification type represents the more dominant characteristic. For this WQC application all vegetated wetlands are classified as Bordering Vegetated Wetlands ("BVW") pursuant to the WPA. Wetland units will be reevaluated and identified as either BVW or isolated vegetated wetlands ("IVW") for the updated WQC application to be submitted after MEPA review is completed.

- Palustrine Forested Wetlands (PFO): Forested wetlands are characterized by woody vegetation that is six meters (approximately 20 feet) tall or taller and normally includes an overstory of trees, an understory of young trees and/or shrubs and an herbaceous layer.
- Palustrine Scrub-Shrub Wetlands (PSS): Scrub-shrub wetlands are typically dominated by woody vegetation less than six meters (approximately 20 feet) tall. Scrub-shrub land types may represent a successional stage leading to a forested wetland and includes shrubs, saplings, and trees or shrubs that are small and/or stunted due to environmental conditions.
- Palustrine Emergent Wetlands (PEM): Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes not including mosses and lichens. These wetlands maintain the same appearance year after year, and are typically dominated by perennial plants that are present for the majority of the growing season.
- Palustrine Open Water (POW): Areas of permanent open water that border on palustrine systems are referred to as POW. Areas of open water may exist as man-made or natural waterbodies.

3.1.6 Post-Survey Desktop Analysis

The wetland and watercourse boundaries were plotted on aerial imagery and subsequently reviewed and confirmed. The aerial-based wetland plans in Attachment 3, show the locations of the delineated resources relative to the proposed pipeline route in Massachusetts. Water quality designations were determined using Massachusetts mapping resources.

3.1.7 Results

Please see Attachment 5 (copy of Resource Report 2 Table 2.4-3) for a detailed presentation of wetlands identified along the NED project corridor in Massachusetts. Table 3-1 summarizes the areas of wetlands impacts in each Massachusetts city or town for pipeline facilities, contractor yards, and access roads; while Table 1-3, presented above in response to WQC Form item B.1, lists the rivers and streams crossed by the project in Massachusetts and quantifies estimated area of Land Under Water temporary impacts.

Temporary vegetated wetland impacts may include soil disturbance, temporary alteration of hydrology, and loss of vegetation during construction. Upon completion of construction, topsoil, contour elevations, and hydrologic patterns will be restored, and all disturbed areas will be reseeded or replanted to promote the re-establishment of native hydrophytic vegetation.

All vegetated wetlands that are temporarily disturbed by construction will be substantially restored in situ to their pre-construction grades, contours, and drainage patterns. Permanent vegetated wetland alteration associated with the Project consists of converting portions of PFO wetlands to PEM and PSS wetlands; and portions of PSS wetlands to PEM wetland communities through routine vegetative clearing for safety inspections. Woody vegetation within the new permanent ROW will be allowed to regenerate within ROW except for a 10-foot wide strip centered over the pipeline that will be maintained as an herbaceous/low scrub-shrub community to facilitate pipeline inspection and maintenance once the Project is in-service. In addition, trees within approximately 15 feet of the pipeline that could damage the pipeline coating may be selectively cut and removed from the new permanent ROW.

Vegetated wetland and water course restoration procedures to be implemented for the NED Project are presented in the Environmental Construction Plan ("ECP") for Massachusetts, see Attachment 8. The procedures presented in the draft ECP include in situ restoration and is a baseline from which more detailed vegetated wetland and watercourse mitigation plans will be developed as the project design is advanced.

Table 3-1
Summary of Temporary and Permanent Impacts by Municipality for Massachusetts

Municipality	Pipeline Impacts (acres)		Aboveground Facility Impacts (acres)		Pipeyard / Contractor Yard Impacts (acres)		Access Roads in Wetlands (acres)		Wetland Vegetation Removal (acres)[2]		Non-wetland Tree Removal (acres)[3]	
	Temporary	Permanent[1]	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Hancock	1.36	0.18	0.00	0.00	0.25	0.00	0.00	0.00	1.29	0.18	23.01	9.78
Lanesborough	3.85	0.73	0.00	0.00	1.12	0.00	0.04	0.00	3.69	0.73	40.28	17.11
Cheshire	1.42	0.04	0.00	0.00	0.00	0.00	0.10	0.00	0.75	0.04	13.58	5.78
Dalton	1.51	0.15	0.00	0.00	0.14	0.00	1.05	0.00	2.38	0.15	27.47	9.57
Hinsdale	2.61	0.58	0.00	0.00	0.00	0.00	0.50	0.00	2.63	0.58	36.63	14.37
Peru	1.43	0.55	0.00	0.00	0.00	0.00	0.09	0.00	1.45	0.55	15.80	4.00
Windsor	2.50	0.74	0.01	0.00	0.97	0.00	0.68	0.00	2.86	0.74	56.40	22.81
Plainfield	5.31	1.41	0.00	0.00	0.00	0.00	0.32	0.00	4.79	1.41	52.72	23.89
Ashfield	7.25	2.41	0.00	0.00	0.13	0.00	0.74	0.00	7.47	2.41	66.21	29.78
Conway	0.63	0.18	0.00	0.00	0.00	0.00	0.39	0.00	1.01	0.18	37.21	18.12
Deerfield	1.80	0.37	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.37	45.63	22.69
Montague	0.92	0.30	0.00	0.00	0.00	0.00	0.05	0.00	0.84	0.30	52.42	21.45
Erving	0.48	0.11	0.00	0.00	0.00	0.00	0.01	0.00	0.49	0.11	40.94	15.97
Northfield	2.40	0.51	0.04	0.00	0.00	0.00	0.31	0.00	2.15	0.51	124.67	56.80
Warwick	0.21	0.06	0.00	0.00	0.00	0.00	0.02	0.00	0.22	0.06	16.72	6.51
Dracut	10.91	2.09	0.62	0.61	6.08	0.00	0.14	0.00	14.26	2.70	104.31	32.76
Tewksbury	3.04	1.09	0.00	0.00	0.00	0.00	0.04	0.00	2.99	1.09	20.88	9.19
Wilmington	4.26	0.30	0.00	0.00	11.23	0.00	0.35	0.00	10.23	0.30	10.80	3.39
North Reading	11.76	2.85	0.00	0.00	0.00	0.00	0.28	0.00	9.95	2.85	19.43	8.60
Reading	3.54	0.86	0.00	0.00	0.00	0.00	0.00	0.00	3.51	0.86	0.00	0.00
Townsend	10.84	2.04	0.00	0.00	0.08	0.00	3.68	0.00	13.71	2.04	28.88	18.93
Andover	4.43	1.26	0.00	0.00	0.46	0.00	0.12	0.00	3.30	1.26	32.69	15.35
Lynnfield	3.34	1.11	0.01	0.00	0.00	0.00	0.00	0.00	3.00	1.11	28.60	11.73
Peabody	5.66	0.30	0.00	0.00	0.00	0.00	0.01	0.00	4.08	0.30	4.26	1.89
Danvers	1.51	0.44	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.44	4.25	2.22
Methuen	6.34	0.03	0.00	0.00	0.63	0.00	0.00	0.00	4.50	0.03	13.69	0.68
Lunenburg	7.52	2.48	0.00	0.00	0.00	0.00	0.72	0.00	7.99	2.48	30.60	17.28
Middleton	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.47	2.01
Shelburne	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.60	5.83
Athol	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.89	0.00
Massachusetts Total[4]	**106.83**	**23.17**	**0.68**	**0.61**	**21.09**	**0.00**	**9.64**	**0.00**	**111.88**	**23.78**	**967.04**	**408.49**

*Note: Impact areas are of federal wetlands and do not include impacts to the state-regulated upland review areas, buffer areas or floodplains.

1 These impacts include numbers of acres converted from forested wetland to scrub-shrub or emergent wetland and from scrub-shrub to emergent during operation of the pipeline.

2 These impacts represent the number of acres of wetland forest and scrub-shrub impacted during construction and operation. These wetland forest and scrub-shrub impacts are a total of all Project facilities (pipeline, access roads, pipeyards) constructed and operated as part of the Project.

3 These impacts represent numbers of acres of secondary upland impacts due to vegetation removal.

4 Minor apparent discrepancies between totals and sums of individual impacts are a result of rounding.

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4.0 OUTSTANDING RESOURCE WATERS (B.6.a)

4.1 Findings

Outstanding Resource Waters ("ORW") are those waters designated as public water supplies and tributaries thereto including vegetated wetlands bordering on them, certified vernal pools ("CVP") and other high quality waters so designated by the MassDEP. The MassDEP definition of ORW is provided below.

Review of Table 3-1 above, reveals that four water ways along the Fitchburg lateral are designated as ORWs, discussed further below. Although a section of the Wright to Dracut mainline is proposed to cross the Cheshire Reservoir, this reservoir is not an ORW. The Cheshire Reservoir (all three ponds, South, Middle and North) is not identified as a drinking water reservoir; thus, it is not a Class A water nor an ORW as defined in 314 CMR 4.06. Therefore, according to 314 CMR 4.06(4) it is an "other waters" meaning by default it classified as Class B High Quality Water. Additionally, the Hudson River Watershed 2002 Water Quality Assessment Report also identified the Cheshire Reservoir as a Class B water.

The Squannacook River and 16 tributary streams are classified as cold water fisheries that support trout, including brown, brook and rainbow and designated as an ORW for these fisheries pursuant to the Massachusetts Rivers Sanctuary Act of 1975 and the Massachusetts Surface Water Quality Standards (310 CMR 4.00). The proposed Fitchburg Lateral extension crosses the Squannacook River tributaries Walker Brook, Locke Brook, Willard Brook, and Pearl Hill Brook. The subbasin protected under Squannacook-Nissitissit Rivers Sanctuary Act (MGL 132A:17) passed in 1975 and was intended to protect the ORWs of these two river basins from degradation by new discharges of pollution. The Squannacook River is located within the Squannassit ACEC, which extends from the New Hampshire border at Fitchburg Lateral Extension (Massachusetts Portion), Segment Q, MP 5.08 through MP 11.33. There are highly significant drinking water resources present within the ACEC, which include portions of several medium and high-yield aquifers.

Review of MassGIS data layers showed 64 CVPs and 91 potential vernal pools ("PVPs") located within 750 feet of the proposed Project, based on MassGIS data. CVPs are considered ORWs in Massachusetts. CVPs and PVPs were surveyed for evidence of breeding by obligate vernal pool species during the spring of 2015 on parcels where access was available. Tennessee biologists followed survey and documentation guidelines outlined by the USACE-New England District, *Vernal Pool Assessment Guidelines* and completed the USACEs *Vernal Pool Characterization Form* for each pool encountered. Additional studies will be conducted as access to more properties is made available.

The town based constraints maps in Attachment 3 depict CVP and PVP, and review of those figures suggests that pipeline construction may occur through or adjacent to CVPs. The locations of mapped CVPs are based on the MassGIS database and are not based on field delineated CVP boundaries. Tennessee will conduct field work in the Spring of 2016 to field check and delineate the boundaries of mapped CVPs pursuant to Massachusetts NHESP and USACE protocols. Those field delineated CVP boundaries will be added to project design drawings to determine the locations where pipeline

construction may occur within CVPs. Based on that mapping effort, Tennessee will evaluate alternative construction methods to avoid the discharge of dredged or fill material into CVPs. That level of detail will be provided to the MassDEP when it is available.

4.2 ORW Definition

The MADEP regulations, 314 CMR 4.00: *Massachusetts Surface Water Quality Standards* define ORWs in various subsections as presented below:

314 CMR 4.05 (3) which reads in part,

> *"(a) Class A. These waters include waters designated as a source of public water supply and their tributaries. They are designated as excellent habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation, even if not allowed. These waters shall have excellent aesthetic value. These waters are protected as Outstanding Resource Waters."*

314 CMR 4.06(1)(d)(2) which reads:

> *"Outstanding Resource Waters - denotes those waters, other than Class A Public Water Supplies and their tributaries, that are designated for protection as Outstanding Resource Waters under 314 CMR 4.04(3). Outstanding Resource Waters are assigned at the discretion of the Department, as appropriate. An application to nominate a waterbody as an Outstanding Resource Water must be submitted in accordance with applicable Department application procedures and requirements."*

314 CMR 4.06(1)(d)12 which reads;

> *"Vernal Pools. No point source discharge shall be allowed to a vernal pool certified by the Massachusetts Division of Fisheries and Wildlife; and no discharge of dredged or fill material shall be allowed to a vernal pool certified by the Massachusetts of Division of Fisheries and Wildlife, unless a variance is granted under 314 CMR 9.08"*

314 CMR 4.06 (2) which reads:

> *"Wetlands. Wetlands bordering Class A Outstanding Resource Waters are designated Class A Outstanding Resource Waters. Vernal pools are designated Class B Outstanding Resource Waters. All wetlands bordering other Class B, SB or SA Outstanding Resource Waters are designated as Outstanding Resource Waters to the boundary of the defined area. All other wetlands are designated Class B, High Quality Waters for inland waters and Class SA, High Quality Waters for coastal and marine waters."*

314 CMR 4.06 (3) which reads:

> *"Active and Inactive Reservoirs. All active and inactive reservoirs approved by the Department's Drinking Water Program after December 29, 2006 as a source of public water supply are designated Class A, Outstanding Resource Waters, regardless of whether they are listed in the tables to 314 CMR 4.00."*

5.0 ALTERNATIVES CONSIDERED (B.7)

This section of the WQC application describes the process that TGP used to identify and evaluate alternative means of addressing the Project Purpose and Need as described above (i.e., to increase natural gas pipeline capacity to meet existing and growing natural gas demand in Massachusetts, and New England in general). The analysis presented in the balance of this Section concludes that construction of a new natural gas pipeline facility is the preferred Project Alternative to meet the identified need. The NED Project brings a reliable supply of natural gas to address the region's energy crisis. Other Project Alternatives considered by TGP that did not meet the Project Need included No Action, Energy Conservation, Alternative Energy, and System Alternatives.

Having identified the preferred Project Alternative, Tennessee evaluated a number of potential alignments that could be used to route the needed 30-inch diameter natural gas pipeline and locate related pipeline laterals, compressor stations and meter stations. As explained in further detail above, the preferred mainline route is approximately 64 miles long through Massachusetts; the majority of which, approximately 63 miles, will be generally co-located with existing utility corridors to avoid, minimize and mitigate to the extent practicable damage to the environment. The routing analysis was prepared using "desk top" evaluation of potential impacts relying on publicly available information, e.g., geographic information system ("GIS") data, remote sensing data, maps, and etc., for the length of the project. To date, "on-the-ground" data is not available for the entire length of the project corridor, thus using a consistent level of data to evaluate alternatives, relative to each other, is a valid and appropriate technique to compare potential environmental impacts associated with each alternative. The environmental impact analysis will be refined as necessary through the NEPA and MEPA review processes, in consultation with the FERC and other local, state and Federal resource agencies, as access to the route becomes available to conduct field surveys.

Additional detail is provided in the sections below and in the FERC Resource Report 10-Alternatives incorporated by reference to this WQC application.

5.1 No-Action Alternative

The "No-Action" Alternative for the Project would avoid the temporary and permanent environmental impacts associated with constructing and operating the currently proposed Project, but would not meet the purpose and need of the Project. By not constructing the proposed Project, Tennessee will be unable to provide the necessary natural gas transportation service required to meet growing energy needs in the Northeast U.S., specifically New England and Massachusetts. The Project, upon completion, will provide up to 1.3 Bcf/d of additional natural gas transportation capacity to meet the growing energy needs of LDCs, gas-fired power generators, electric distribution companies, industrial plants, natural gas producers and other New England consumers. Tennessee has executed precedent agreements for approximately 552,262 dekatherms per day ("Dth/d") of long-term firm transportation capacity on the Market Path Component of the proposed NED Project with:

- seven New England LDCs,
- a municipal light department,

- an industrial end-user, and

a holding corporation.
Tennessee is confident that the significant demand for natural gas and pipeline capacity in the northeast U.S., particularly the demand from the electric power generation market as a result of the initiatives underway with five of the six states in New England to facilitate the ability of electric distribution companies to contract for pipeline capacity and recover the costs in their rates, will result in additional contract commitments for the full Project capacity. Tennessee is in ongoing negotiations with other additional potential Project shippers and as additional precedent agreements are executed, Tennessee will supplement the record with FERC

Additional natural gas pipeline capacity is required to meet the growing natural gas needs of LDCs, gas-fired power generators, electric distribution companies, industrial plants, natural gas producers and other New England consumers. Given the constrained pipeline transportation capacity situation in the Northeast U.S., without the proposed Project, other natural gas transmission companies would be required to increase their capacity and construct new facilities to meet the existing and growing demand for the additional natural gas transportation capacity. Such actions would only result in the transference of environmental impacts from one project to another and would not eliminate such impacts in their entirety.

The No-Action Alternative was not found to be a feasible alternative for the Project because it does not meet the purpose and need for the Project as described in response to section B.3.a, above. Furthermore, the No-Action Alternative will not provide the potential economic benefits associated with the proposed Project, including increased jobs, secondary spending, and tax revenues during construction, as well as increased property tax revenues to local governments during operations.

5.2 Energy Conservation

Energy conservation measures have and will continue to play an important role in reducing energy demand in the U.S. The Energy Policy Act of 2005 ("EPAct 2005") includes guidelines to diversify America's energy supply and reduce dependence on foreign sources of energy, increase residential and commercial energy efficiency and conservation (e.g., U.S. Environmental Protection Agency ["USEPA"] Energy Star Program), improve vehicular energy efficiency, and modernize domestic energy infrastructure (U.S. Congress 2005). While the EPAct 2005 and state and municipal programs promote increased energy efficiency and conservation by supporting new energy efficient technologies and increasing funds for energy efficiency research, and will most likely minimize energy use, they are not expected to eliminate the steadily increasing demand for energy or natural gas. Additionally, the implementation and success of energy conservation in curtailing energy use is a long-term goal, extending well beyond the timeframe of the proposed Project.

Reducing the need for additional energy usage is the preferred option wherever possible. Conservation of energy reduces the demand for limited and over-utilized fossil fuel reserves. Energy conservation also is advocated by both federal and state authorities. The Independent System Operator-New England ("ISO-NE") has forecasted savings stemming from state-sponsored energy efficiency programs and the

anticipated growth of the states' programs,[17] ISO-NE estimated that the six New England states will invest $1 billion per year in energy efficiency programs between 2019 and 2024, resulting in average annual savings of 1,616 gigawatt hours ("GWh") and an average annual peak reduction of about 212 megawatts ("MW"). These savings resulting from the state-sponsored programs can be expected to slow the growth in energy usage and peak demand across the region. However, even with these programs, there remains an existing and growing need for additional natural gas capacity that will be provided with the construction of this Project.[18] Energy conservation alone is not a viable alternative to the proposed Project. While energy conservation reduces demand for energy sources such as natural gas, and may be a long-term alternative or partial alternative for the Project, implementation of sufficient energy conservation measures to eliminate the need for the proposed Project is not feasible in the short-term.

5.3 Alternative Energy

In general, alternative energy sources for natural gas consumers include wind, solar, geothermal, coal, oils, nuclear, hydroelectric, and fuel cells. Use of alternative hydrocarbon-based fuels (e.g., oil and coal) to supply the needs of the market would result in adverse environmental impacts due to increased air pollutant emissions that will be otherwise minimized through the use of natural gas. State and federal air pollution control regulations indirectly promote the use of clean fuels to minimize adverse air quality impacts. These regulations are intended to improve both air quality and the quality of life. Use of alternative hydrocarbon energy sources will unnecessarily increase adverse air quality impacts, and these increased impacts will conflict with federal and state long-term energy environmental policies aimed toward attaining ambient air quality standards. While renewable alternative energy sources contribute to a diverse energy portfolio for users, they ultimately cannot provide for the energy needs that the Project will support and supply to the Northeast U.S. market. In 2012, the ISO-NE identified likely retirements of older coal- and oil-fired power plants/generators located in New England as of 2020, representing approximately 8,300 MW of capacity, and the need for replacement of these resources to meet the needs of power generators, including natural gas generation.[19] While nuclear power is a possible alternative to natural gas in New England, the 620 MW Vermont Yankee Nuclear power plant retired in December 2014. In October 2015, it was announced that the Pilgrim Nuclear Power Station, a 680 MW electric generating plant located in Plymouth, Massachusetts, would also retire, earlier than expected, by June 2019. Clean-burning natural gas will continue to be part of a diverse energy portfolio for users in the

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[17] See ISO-NE, Energy-Efficiency Forecast for 2019 to 2024, dated May 1, 2015, available at http://www.iso-ne.com/static-assets/documents/2015/05/eef-report-2019-2024.pdf

[18] See the U.S. Department of Energy/Energy Information Administration's ("DOE/EIA") Annual Energy Outlook 2014 table data (Natural Gas Transmission and Distribution Model Regions), which projects sectors driving growth in U.S. natural gas consumption. U.S. total natural gas consumption is projected to grow from 25.6 trillion cubic feet (tcf) in 2012 to 31.6 tcf in 2040 in the AEO2014 Reference case. Natural gas production from the Marcellus Shale area is projected to grow from 1.9 tcf in 2012 to a peak production volume of approximately 5.0 tcf per year from 2022 through 2025. Natural gas produced from the Marcellus Shale area is projected to provide up to 39 percent of the natural gas needed to meet demand in markets east of the Mississippi River during that period (up from 16 percent in 2012). Although Marcellus Shale area production is projected to decline after 2024, it will provide enough natural gas to meet at least 31 percent of the region's total demand for natural gas through 2040. See U.S. Energy Information Administration, Annual Energy Outlook 2014, Report #DOE/EIA-0383 (2014), available at http://www.eia.gov/forecasts/aeo/ (DOE/EIA 2014). Even with energy conservation, additional natural gas pipeline capacity to transport gas in this region is needed.

[19] See ISO-NE, Strategic Transmission Analysis: Generation Retirements Study, dated December 13, 2012, available at http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2012/dec132012/retirements_redacted.pdf.

northeast region and also serves a bridge to renewables by providing a reliable energy supply while these alternative energy sources are further refined and developed.

5.3.1 Renewable Energy

5.3.1.1 Wind

Wind power technology has improved over the last 20 years, including reductions in installation costs, improved turbine performance, and reduced maintenance costs. Wind power provides electrical output that is considered an intermittent power source and a non-dispatchable source of electrical generation. Currently there is no technology to store electricity on an industrial scale. The Project will have the capability to provide fuel supplies and services to gas-fired generators to operate on short notice when renewable resources, such as wind, are not generating due to the intermittability associated with renewable generation.

Electricity demand also varies during the day in ways that the supply from wind and solar generation may not match, thus requiring ISO-NE to balance the variable renewables by dispatching other wholly-dispatchable non-intermittent units, such as natural gas-fired generating units. While renewable resources provide some level of energy supply diversity, they are weather dependent and require hydropower or thermal resources to accommodate their variability, and pose both operational and interconnection challenges.

According to the ISO-NE,[20] wind power supplies about 1 percent of New England's annual electricity needs, but almost half of proposed generation in New England is wind power. According to the ISO-NE, developers are proposing to develop more than 5 megawatt ("MW") of gas-fired generation and approximately 4 GW of wind generation, located mostly onshore in northern New England and offshore in southern New England. Many of these projects are proposed to be built in areas where the electrical transmission system is already constrained, and some in areas where there is no transmission at all. Therefore, if the New England states intend to improve the deliverability of existing wind resources, develop new wind resources then those states will need to invest in additional electric transmission facilities to deliver that energy, which is largely sourced in the north, to where it is consumed, which for the most part is in southern New England. ISO-NE has identified a number of transmission proposals by private developers vying to move clean energy supplies from Newfoundland and Labrador, Québec, and northern New England, particularly Maine, to southern New England.

Publicly available information, as of September 2015, regarding proposed wind projects in the New England area is provided below. This is not intended to be a comprehensive listing and description of the proposed wind proposals in the New England regions, but is intended to be representative of the types of projects emerging both inside and outside the region in response to the New England states' clean energy goals. Further, it is important to note that there is risk associated with the successful development of these proposed projects and they are unlikely to be developed in sufficient quantity in the timeframe needed for the Project.

[20] Northeast Forum on Regional Energy Solutions. Remarks by Gordon Van Welie, President & CEO, ISO New England, April 23, 2015.

Anbaric (Green Line Infrastructure Alliance)[21] is an independent transmission development company headquartered in Wakefield, Massachusetts. In 2014, Anbaric teamed with National Grid to create the "Green Line Infrastructure Alliance" ("GLIA"), which proposes to build an underground clean energy transmission system sufficient to bring 2,800 MW of wind from northern New England and hydroelectric power from Eastern Canada into southern New England. The GLIA is developing large-scale, high-voltage direct-current ("HVDC") transmission projects that combine wind and hydropower to address regional energy issues.

The proposed GLIA projects are in the early stages of development and are slated (if selected in forthcoming competitive procurements) to come on-line as follows: the first 400 MW phase of the Vermont Green Line (2019); the first 1,000 MW phase of the Maine Green Line (2021); the second 400 MW phase of the Vermont Green Line (2023); the second 1000 MW phase of the Maine Green Line (2025). Each of these projects has been engineered to provide a transmission path for wind and hydroelectric power into the bulk transmission system of New England. The proposed Maine Green Line is a hybrid land-and-sea HVDC project that will initially deliver 1,000 MW of wind from northern Maine, firmed up by imports of hydropower from eastern Canada, via a submarine cable to Massachusetts. The proposed Vermont Green Line, from northern New York to Vermont, will deliver 400 MW (expandable to 800 MW) of wind and hydropower under Lake Champlain. The 60-mile connection will be entirely buried underground or underwater. The Vermont Green Line will be a path for cost-effective renewables from New York and Canada to Vermont and the rest of New England. The Vermont projects terminate at the 345 kilovolts ("kV") bus at New Haven, Vermont. The first Maine Green Line will terminate at the 345 kV bus at Wakefield, Massachusetts.

Deepwater Wind Block Island, LLC is a wholly owned indirect subsidiary of Deepwater Wind Holdings, LLC ("Deepwater Wind"), headquartered in Providence, Rhode Island. In 2015, Deepwater Wind Block Island, LLC, began construction on the first offshore windfarm in the United States, a 30 MW, five-turbine windfarm located in the Atlantic Ocean, approximately 3 miles southeast of Block Island, Rhode Island. The project includes approximately 21.8 miles of 34.5 kV submarine transmission cable from Block Island to mainland Rhode Island capable of delivering power to and from the Rhode Island mainland. The project is expected to be in service in 2016. Deepwater Wind is also developing the Deepwater ONE project, located approximately 30 miles off the coast of Long Island, New York. The initial phase of the project will include 35 turbines, producing enough power for 120,000 households on Long Island. If approved, the project will begin construction in 2017, and be in service in 2018. Over time, the project will grow to 200 or more turbines generating 1,000 MW of clean energy for multiple power markets in the region

Wind power cannot meet the specific purpose and need of the Project and provide the required natural gas pipeline transportation capacity provided by the Project. Under these circumstances, wind energy will not be able to provide the projected heating and electric generation needs for the region as reliably and in the quantity that will be provided by the proposed Project facilities.

[21] http://greenlineinfrastructurealliance.com/.

5.3.1.2 Solar

Photovoltaic solar power systems convert sunlight directly into electricity. These systems generally are not well-suited for use as large-scale generation in the proposed Project area due to relatively low direct insulation, higher capital costs, potential reliability issues, and lower efficiencies. Solar power likewise generates electrical output that is considered an intermittent and non-dispatchable source of electricity. Electricity demand also varies during the day in ways that the supply from solar generation may not match, thus requiring the ISO-NE to balance the variable renewables by dispatching other wholly-dispatchable, non-intermittent units, such as natural gas-fired generating units. While renewable resources provide some level of energy supply diversity, they are weather dependent and require other more conventional resources to accommodate their variability, and pose both operational and interconnection challenges. Finally, solar power cannot meet the specific purpose and need of the Project and provide the required natural gas pipeline transportation capacity provided by the Project.

For these reasons, renewable resources, such as solar power, even with the efforts to increase solar power capacity in certain states impacted by the Project, are not being developed at a pace fast enough to provide for the projected energy needs in the region.

5.3.1.3 Geothermal

Large scale geothermal energy is available only at tectonic plate boundaries or at geothermally active hotspots. Due to a lack of these features in the Project area, geothermal energy is not be available for development as an alternative to natural gas. Although geothermal energy systems are available in the Project area, they are on smaller scales at individual homes and businesses. For example, systems installed at Harvard University in Boston, Massachusetts, Nichols College in Dudley Massachusetts, and St. Josephs Hospital in Hudson, New Hampshire, each producing 90 tons, or 316 kilowatts (kW), of energy.[22] Geothermal heat pumps are used to circulate groundwater or other fluids through piping to be used for heat exchange. The system typically has a higher up-front cost compared to other traditional gas and oil heating and cooling systems, but may be paid back within three to seven years, based on energy savings, tax savings, and rebates.[23] While this renewable resource may provide some level of energy supply diversity, it is not available on a large enough scale to meet the specific purpose and need of the Project and provide the required natural gas pipeline transportation capacity provided by the Project.

5.3.1.4 Hydroelectric

Hydroelectric generation is fully commercialized with both large impoundment-type and run-of-river type projects in operation in the Northeast U.S. ranging from one MW to hundreds of MWs in capacity. There are a number of proposed electric transmission line projects designed to import hydroelectric power from Canada to New England that will require the construction of possibly three transmission lines linking Canadian hydroelectric generating facilities to southern New England load centers. These aboveground transmission line projects require exhaustive review and extensive siting approval from northern New

[22] See Geothermal Drilling of New England, http://www.geothermalma.com/projects

[23] See New England Renewable Energy Systems, http://www.nerenewable.com/economical-advantages-commercial-geothermal-installation-services-company-contractors.html#

England states, such as New Hampshire and Maine. Historically, given the strong opposition to recently proposed electric transmission projects in New England, it is likely that a large electric transmission line project designed to import hydroelectric power from Canada will face similar siting difficulties. In addition, use of domestic and imported hydroelectric power cannot meet the specific purpose and need of the Project and provide the required natural gas pipeline transportation capacity provided by the Project. For this reason, use of proposed hydroelectric power projects is precluded from being a viable alternative to the natural gas to be supplied by the proposed Project.

5.3.2 Alternative Fuels

5.3.2.1 Coal and Fuel Oil

Coal is used for energy generation and is particularly suited for generating base load power needs, and is an alternative fuel to natural gas. However, relative to natural gas, burning coal results in greater emissions of pollutants such as nitrogen oxides ("NOx"), sulfur dioxide ("SO_2"), greenhouse gases ("GHG"), and mercury.[24] In 2010, coal comprised 46 percent of total U.S. electric power generation.[25] Certain coal-fired power plants in Massachusetts that produce base load electric power were identified by the ISO New England in 2012 as "at-risk" for retirement by 2020, including: the Brayton Point Station located in southeast Massachusetts (this plant is coal- and oil-fired and is scheduled to close in 2017); the Mount Tom Station in western Massachusetts (closed in October 2014); and the Salem Harbor Station in northeast Massachusetts (in the process of being converted to a quick-start combined-cycle gas turbine).[26] Due to the greater environmental impacts associated with emissions from coal-burning power generation, it is unlikely that coal will displace the need for natural gas in the target market areas in the foreseeable future. Finally, coal cannot meet the specific purpose and need of the Project and provide the required natural gas pipeline transportation capacity provided by the Project. Therefore, coal does not represent a preferred alternative for replacing the natural gas to be supplied by the proposed Project.

Fuel oil is commonly transported by pipeline which may require construction of other pipeline systems to transport the fuel oil, which will likely have similar impacts as the proposed Project, but in a different location. Additionally, if increased fuel oil demand is met by foreign imports, additional development of bulk storage capacity, and refining facilities will be required. Reliance on fuel oil as an alternative to natural gas will increase the potential for environmental impacts such as oil spills; land development to construct or modify import, storage, and refining facilities; and pollution from air emissions. Alternatively, natural gas burns cleaner than other fossil fuels, is relatively inexpensive compared to other fossil fuels, and is domestically produced. While fuel oil is an alternative energy source for meeting future power generation needs in the Project area, fuel oil has no advantage over natural gas, and fuel oil necessitates increased environmental impacts in transportation and at the burner. Finally, use of fuel oil cannot meet the specific purpose and need of the Project and provide the required natural gas pipeline

[24] USEPA. 2005. National Emissions Inventory Data & Documentation. Last updated April 30, 2012. Available URL: http://www.epa.gov/ttn/chief/net/2005inventory.html. [Accessed September 22, 2014].

[25] DOE/EIA. 2011. U.S. Coal Supply and Demand: 2010 Review. Available URL http://www.eia.gov/coal/review/. [Accessed September 22, 2014].

[26] See ISO-New England, Strategic Transmission Analysis: Generation Retirements Study, dated December 13, 2012, available at: http://www.iso-ne.com/static-assets/documents/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2012/dec132012/retirements_redacted.pdf.

transportation capacity provided by the Project. For these reasons, particularly for facilities designed to use natural gas, fuel oil will not be a preferable alternative to the natural gas to be supplied by the proposed Project.

Coal and fuel oil cannot meet the specific purposes and needs of all project shippers, and those fuels generate greater emissions of NOx, SO_2 and GHG compared to natural gas; therefore, these alternatives fuels are not reasonable alternative to replace the natural gas to be supplied by the NED Project.

5.3.2.2 Nuclear Energy

Energy from nuclear power is important nationally and accounted for approximately nine percent of annual energy consumption nation-wide in 2011, while in New England nuclear energy accounted for approximately 12 percent of total energy consumption in 2012.27 Although use of nuclear power may avoid GHG emissions, the environmental and regulatory challenges concerning safety and security, the disposal and long-term storage of toxic and radioactive materials, (i.e., spent fuel), and potential alterations to hydrological/biological systems will need to be addressed before any new nuclear power generation facilities are constructed. Nuclear power remains problematic given those factors.

The use of nuclear energy is not considered to be an option for meeting the existing and projected energy demand for New England. The Vermont Yankee Nuclear Power Plant was shut down as of the end of 2014, further reducing available nuclear power in New England[28] and as of 2015 this facility is slated for decommissioning. Due to the lengthy lead time to site a new nuclear facility and controversy with such projects, power generated from a new nuclear facility would not be available as an alternative to natural gas to be supplied by the NED Project. The retirement of the 600 MW Vermont Yankee plant in late 2014 has increased the reliance of this region on natural gas-fired power generation and will lead to higher gas and electricity prices without the Project. Further increasing reliability on natural gas-fired power generation, on October 12, 2015, Entergy Nuclear Power Marketing submitted a formal request to ISO-NE to retire its Pilgrim Nuclear Power Station by June 1, 2019. The Pilgrim Nuclear Power Station is a 680-MW electric generating plant located in Plymouth, Massachusetts and is among the region's largest power plants and is one of three remaining nuclear stations in New England. Finally, use of nuclear power cannot meet the specific purpose and need of the NED Project and provide the required natural gas pipeline transportation capacity provided by the NED Project. For these reasons, particularly for facilities designed to use natural gas, nuclear power is not a feasible alternative to the natural gas to be supplied by the NED Project.

[27] DOE/EIA. 2013. Annual Outlook 2013 with Projections to 2040. DOE/EIA-0383(2010). April 2013. Available URLs: http://www.eia.gov/forecasts/aeo/ and http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=2-AEO2013&table=2-AEO2013&region=1-1&cases=ref2013-d102312a. [Accessed October 6, 2014].

[28] DOE/EIA. 2013. Vermont Yankee Nuclear Plant Closure. Available URL http://www.eia.gov/todayinenergy/detail.cfm?id=12851. [Accessed September 26, 2014].

5.3.2.3 Fuel Cells

Fuel cells are a developing alternative for generating electricity more directly and cleanly from fossil fuels or hydrogen; however, fuel cell technology is in the early phases of development. Small-scale fuel cell research and development is active, but reliable fuel cell systems representing an equivalent magnitude to the proposed Project are not expected to be available or cost-effective in the near future.

5.3.2.4 Other Energy Sources

Alternative fuel sources available include using liquefied natural gas ("LNG") and propane/air storage and vaporization. Although both alternatives have the potential to meet the Project objectives, Tennessee determined that these alternatives were not viable due to such factors as siting constraints, increased environmental impacts, and the time required to develop them. Therefore, supplying adequate volumes of natural gas through the construction of the proposed Project is the preferred alternative.

5.3.2.5 Energy Alternatives Conclusion

As increasing demand for electricity continues to rise, energy efficiency and conservation measures, along with more diversified renewable energy portfolios, will reduce the need to meet the growing demand by fossil-fueled power plants. In recognition of the need to diversify, the states in the Project area have all adopted policies, programs, and projects to reduce their state's dependence on fossil-fuel electric generation. While these measures will impact the overall demand for electricity from fossil fuel generation, the energy conservation and renewable alternatives do not meet the purpose and need of the Project, which will provide additional natural gas pipeline transportation capacity to its customers, including LDCs that will ultimately provide additional natural gas supplies to their customers for residential and commercial heating, drying and cooking, and industrial uses. Even with energy conservation and the growth of renewable energy resources, additional natural gas pipeline capacity to transport gas in this region is needed. The implementation of energy efficiency measures and the use of wind, solar, geothermal, coal, fuel oil, nuclear, hydroelectric, fuel cells, and other energy sources were analyzed and determined that, although they will provide a level of energy diversity and may slow the growth in energy usage and peak demand across the region, they are not sufficient to allow the Project's need to be met. Accordingly, energy conservation and renewable resources would not be sufficient to meet the Project's need.

5.4 System Alternatives

System alternatives are alternatives to the Project that will make use of other existing, modified, or proposed natural gas pipeline systems, or existing compression to meet the stated purpose and need for a proposed Project. System alternatives involve the transportation of the equivalent amount of incremental natural gas volumes by expanding existing pipeline systems or by constructing and operating other new pipeline systems. A viable system alternative would make it unnecessary to construct all or part of the proposed NED Project, and will involve the transportation of all or a portion of the additional natural gas volumes by expansion of another existing pipeline system or construction of a new pipeline system. As explained in further detail below, such modifications or additions would likely result in environmental impacts; and those impacts will in all likelihood be similar to, and potentially greater than, impacts associated with the NED Project.

Although system alternatives that will result in less environmental impacts might be preferable to the proposed NED Project, only those alternatives that are reasonable, consistent with existing law, and consistent with the underlying purpose and need are considered. Consequently, a viable system alternative must be technically and economically feasible, and practicable to satisfy the Project's purpose, including meeting the market needs of the project shippers, as evidenced by executed precedent agreements, supporting the NED Project. The NED Project, at full capacity, will provide up to 1.3 Bcf/d of additional natural gas transportation capacity to meet the growing energy needs of LDCs, gas-fired power generators, industrial plants, and other New England consumers.

5.4.1 Existing TGP Pipeline Systems

Tennessee currently has no available firm capacity on its existing 300 Line and 200 Line systems, see Figure 1-1 TGP 300 Line and 200 Line System, from the anticipated Project receipt points on the Pennsylvania to Wright, New York Pipeline Segment (the Supply Path Component of the Project). Tennessee considered capacity expansion along its existing 200 Line via looping and compression; however, given the large project volumes, the looping option became a contiguous new line.

Tennessee has no available firm capacity on its existing 200 Line system from Wright, New York to Dracut, Massachusetts, see Figure 1-1 TGP 300 Line and 200 Line System (the Market Supply Component of the Project) the subject of this application. When Tennessee evaluated the market need in New England and the facilities that will be required to provide the infrastructure that New England needs, it conducted extensive evaluation of options to either:

1) Loop the pipeline along its 200 Line pipeline corridor in southern Massachusetts; or
2) Construct a new pipeline along a route across northern Massachusetts, utilizing existing electric transmission line corridors where feasible.

Tennessee determined that developing a route parallel for the entire length of its existing 200 Line would not be feasible, due to the level of urban congestion, constructability issues, environmental impact, and overall pipeline length. Because the route paralleling Tennessee's entire existing 200 Line is not feasible, Tennessee is proposing the second option for the Market Path Component of the Project, (referred to as Wright to Dracut Pipeline Segment), with a portion of the route from Wright, New York, to Dracut, Massachusetts (Wright to Dracut Pipeline Segment, New York Portion), making use use of the TGP existing system where practicable and feasible.

As part of the NED Project, Tennessee also proposes to construct pipeline laterals and looping segments to accommodate delivery point requests of project shippers. The existing Haverhill Lateral, Fitchburg Lateral, Beverly Salem Colonial Delivery Line, and the 200 and 300 Line systems are proposed to be modified as part of the Project to accommodate the delivery point requests.

A system analysis of the proposed Haverhill Lateral was completed and it was determined that the Haverhill Lateral will be a combination of new pipeline and take-up and relay (removing the existing 10-inch diameter line and replacing it with a 20-inch-diameter line within the existing ROW). Additionally, the Peabody Lateral will be a combination of new pipeline and take-up and relay (replacing the existing 8-inch Beverly Salem Colonial Delivery Line with a 24-inch diameter line).

5.4.2 Other Natural Gas Pipeline Systems

To provide the necessary natural gas transmission capacity required to meet the growing energy needs in the Northeast U.S. that the NED Project will otherwise provide, other pipeline systems in the vicinity of the Project area would need to be expanded and/or modified to transport up to 1.3 Bcf/d to Massachusetts. To be considered a viable system alternative to the proposed NED Project, expansions or modifications of those pipeline systems would need to serve the same purpose and demand of the Project and create less environmental impacts than anticipated from the proposed Project. Figure 1-3 System Alternatives, depicts other gas transmission lines serving Massachusetts and New England.

Tennessee does not have access to proprietary information concerning the flow characteristics of the other existing interstate pipeline systems. However, based on publicly available information from open season notices and filings submitted to FERC, as well as through access to other publically available sources, Tennessee believes that these existing pipeline systems are at or near capacity. In particular, Tennessee relied on the following public filings, reports, and studies to draw that conclusion:

- Portland Natural Gas Transmission System's ("PNGTS") Open Season Notice for Firm Service from December 3, 2013 to January 24, 2014 for its proposed Continent-to-Coast ("C2C") Expansion Project.
- ICF International: Gas-Fired Power Generation in Eastern New York and its Impact on New England's Gas Supplies, submitted to ISO-NE, November 18, 2013.
- ICF International: Access Northeast Project – Reliability Benefits and Energy Cost Savings to New England., dated February 18, 2015.
- ICF International: New England Energy Market Outlook – Demand for Natural Gas Capacity and Impact of the Northeast Energy Direct Project, dated September 9, 2015.
- Competitive Energy Services: Assessing Natural Gas Supply Options for New England and their Impacts on Natural Gas and Electricity Prices.
- Filings made by Spectra Energy Partners in its Algonquin Incremental Market ("AIM") Project proceeding (Docket No. CP14-96-000), Resource Report 10 Alternatives, dated February 2014.
- Filings made by Spectra Energy Partners in its proposed Atlantic Bridge Project proceeding (Docket No. PF 15-12), Resource Report 10 Alternatives, dated July 2015.
- Open Season Notice for Firm Service for Spectra Energy Partners', Eversource Energy's, and National Grid's proposed Access Northeast Project.
- Filings made by Iroquois Gas Transmission System, L.P. ("Iroquois") in its Market Access Project proceeding (Docket Nos. CP07-457-000 et al.).
- New Hampshire Public Utilities Commission's ("NHPUC") Report on Investigation into Potential Approaches to Mitigate Wholesale Electricity Prices.

For the Supply Path Component of the proposed NED Project, several existing pipelines serve or traverse the region, including:

- Tennessee (discussed above);
- Transcontinental Gas Pipe Line Company LLC ("Transco");

- Columbia Gas Transmission;
- Millennium Pipeline Company ("Millennium"); and
- Dominion Transmission ("Dominion").

Tennessee anticipates these systems are near or fully subscribed based on documents filed with the FERC for Transco's New York Bay Expansion Project (Docket No. CP15-527), Rockaway Lateral Project (Docket No. CP13-36), and Northeast Connector Project (Docket No. CP13-132); Dominion's "New Market Project" (Docket No.CP14-497-000); as well as the certificated Constitution Pipeline Project (Docket No.CP13-499-000).

For the Market Path Component of the proposed Project, six interstate pipelines, including Tennessee, supply New England with natural gas via the delivery infrastructure depicted on Figure 1-3 and described below:

- Tennessee owns and operates an interstate natural gas transmission system that extends from the states of Texas, Louisiana, and the Gulf of Mexico area, through the states of Texas, Louisiana, Arkansas, Mississippi, Alabama, Tennessee, Kentucky, West Virginia, Ohio, Pennsylvania, New Jersey, New York, Connecticut, Massachusetts, Rhode Island, and New Hampshire. To highlight the inadequate pipeline capacity into and within the New England region, Tennessee receives requests on an almost daily basis requesting transportation service to or within the New England region that greatly exceed Tennessee's available operating capacity. In the winter months (i.e., November through March), Tennessee is required each day to restrict its shippers' requested volumes for non-firm transportation service in this region. The extent of these restrictions over the past three winters ranges from an average low of approximately 0.7 Bcf/d, to an average high of 1.4 Bcf/d, with sustained periods of significantly greater restrictions (e.g., restricting up to 2.6 Bcf/d of shipper requests during the winter 2014/2015). These required restrictions on requested service that are affecting the New England region occur at multiple locations along Tennessee's system. Regardless of whether the restriction is made at a point in New England or into the New England region, these restrictions impact all priorities of Tennessee's various interruptible transportation services and limit Tennessee's ability to deliver gas in New England.

- Spectra Energy's Algonquin Gas Transmission Pipeline ("AGT") originates from southern New Jersey, Connecticut, and Massachusetts. The AGT system's proposed AIM Project, Atlantic Bridge Project, and Access Northeast Project will provide more transportation capacity on the AGT systems, but based on the public information about these projects, will not be capable of providing service to Tennessee's Project Shippers in New York, Massachusetts, northern Connecticut, and New Hampshire, unless AGT were to build an entirely new pipeline system that will essentially duplicate the Tennessee system. Such a project will involve the construction of hundreds of miles of new pipeline facilities, presumably resulting in significantly greater environmental impacts than the proposed NED Project facilities, which includes pipeline looping and co-location with existing facilities to the extent practicable and feasible. AGT has indicated[29]

[29] AGT comments to the Massachusetts Department of Public Utilities Staff titled "Investigation by the Department of Public Utilities Into the Means By Which New Natural Gas Delivery Capacity May Be Added to the New England Market, Docket No. D.P.U. 15-37" (June 15, 2015).

that its pipeline system in the New England region is as highly utilized as Tennessee's system throughout the year, with little to no transportation service available to shippers that have not contracted for firm service or are not able to acquire firm service released from another shipper that is not utilizing its contracted pipeline capacity. For example, AGT states that it has operated at essentially 100 percent load factor through its Southeast and Cromwell compressor stations for the past four to five years. Requests for transportation pursuant to interruptible contracts has been consistently rejected by AGT, i.e., only firm contracts have been able to be scheduled for delivery. AGT consistently has winter season timely cycle (NAESB) nominations for West to East transportation on its system that are 400 to 500 million dekatherms per day ("Mdth/d") higher than its current capacity.[30]

- The Iroquois system originates from Waddington, New York delivering Canadian supplies to the New York City, New York region. The Iroquois system currently serves southwestern Connecticut and Long Island, New York, but is not capable of serving Tennessee's Project Shippers in New York, Massachusetts, northern Connecticut, New Hampshire, Rhode Island, Maine, and Atlantic Canada, without significant expansions or constructing new pipeline facilities.

- The PNGTS system originates from Eastern Canada and provides Canadian supplies to the Boston, Massachusetts region**.** The PNGTS system's proposed C2C Expansion Project will provide additional transportation capacity on the TransCanada/Trans-Québec and Maritimes and Northeast pipeline ("M&NP"), but the PNGTS system is not capable of serving Tennessee's Project Shippers in New York, Massachusetts, northern Connecticut, Rhode Island, New Hampshire, Maine, and Atlantic Canada without building an entirely new pipeline resulting in significantly greater environmental impacts than the proposed Project.

- The M&NP originates from the Atlantic Canada Provinces and delivers Canadian production and LNG imports from Repsol Canaport LNG in New Brunswick to the New England region. These supply sources have diminished in recent years, which means that New England will need to replace these sources to preserve the current supply/demand status. The Canaport Terminal has the option of delivering natural gas to New England from the offshore natural gas production fields of the Sable Offshore Energy Project ("SOEP") and Deep Panuke in Nova Scotia, Canada. However, SOEP has experienced significant declines in production in the past few years and is fully expected to cease production completely within a decade.[31] Deep Panuke commenced production in the third quarter of 2013, but has experienced a number of "shut-ins" of production, and has had higher than expected operating costs. A number of energy analysts have indicated that future gas exploration and production activity around Deep Panuke and other Nova Scotia gas fields is uncertain.[32] If these fields continue to decline as analysts have projected, gas

[30] Ibid.

[31] Jupia Consultants Inc. report prepared for Atlantica Centre for Energy titled "Natural Gas Supply and Demand Report, New Brunswick and Nova Scotia, 2015-2025", Spring 2015; ICF International (for Eversource Energy and Spectra Energy), "Access Northeast Reliability Project – Reliability Benefits and Energy Cost Savings to New England" (2.18.15) (ICF International 2015); Competitive Energy Services (for the Industrial Energy Consumer Group), "Assessing Natural Gas Supply for New England for the Winter of 2013-14 and its Impact on Natural Gas and Electricity Prices" (4.5.13).

[32] Ibid.

consumers in New England will need to replace this portion of their fuel supplies, which will increase the competition for already scarce pipeline capacity serving New England. Another source of competition for scarce pipeline capacity is the existing gas consumers in the Canadian provinces that are in the process of seeking gas imports from New England to meet their heating and power generation needs. Additionally, New England's access to gas supplies has become further constrained by the reduced frequency of firm cargoes at the regions' LNG import terminals. Since the price of imported LNG is typically a function of world oil prices, the cost of imported LNG also is much higher than the cost of pipeline natural gas delivered to New England in an unconstrained market. Thus, when oil or LNG have been utilized as fuel to produce electricity in the past few years, the resulting cost has been substantially higher than if unconstrained natural gas had been utilized to produce the electricity. The U.S. Energy Information Administration projects that the price spread between natural gas and oil-based fuels in New England is expected to continue through 2040, and in fact, increase over time[33]. As LNG is a global commodity, New England consumers must not only compete with the rest of the world to have LNG spot cargoes available on peak days, which have resulted in extremely high gas prices, but they may not be able to secure gas at all, depending on the availability of spot cargoes. Even during the 2013-2014 winter, when spot prices spiked to $78/MMBtu, very few spot cargoes were delivered into New England terminals. Finally, bringing gas supplies from other production areas, including the Marcellus area, to the Project's markets will necessitate the construction of an entirely new pipeline that will essentially duplicate the Tennessee system from east to west. Such a project will involve the construction of hundreds of miles of new pipeline facilities, presumably resulting in significantly greater environmental impacts than the proposed NED Project facilities, which includes pipeline looping and co-location with existing facilities to the extent practicable and feasible.

- The Granite State Gas Transmission ("GSGT") system is located in New Hampshire and does not transport natural gas from supply areas outside New England into New England. This pipeline only distributes natural gas within the region. Therefore, in order to serve the Project Shippers, the GSGT will be required to construct an entirely new pipeline. Such a project will involve the construction of hundreds of miles of new pipeline facilities, presumably resulting in significantly greater environmental impacts than the proposed NED Project facilities, which includes pipeline looping and co-location with existing facilities to the extent practicable and feasible.

Other pipeline operators in the Project area have marketed transportation service moving natural gas into eastern New York and New England, including Spectra, AGT, Iroquois, and Millennium, who have each offered projects for shippers to consider through open seasons. Based on publicly available information, AGT's AIM Project was successful in attracting binding shipper commitments and is moving forward in the regulatory process. A certificate order for the AIM Project was issued by the Commission on March 3, 2015 in Docket No. CP14-96-000. The AIM Project began construction in June 2015 and is anticipated to be placed in-service in November 2016.

[33] AGT comments to the Massachusetts Department of Public Utilities Staff titled "Investigation by the Department of Public Utilities Into the Means By Which New Natural Gas Delivery Capacity May Be Added to the New England Market, Docket No. D.P.U. 15-37", June 15, 2015.

AGT's Atlantic Bridge Project was also successful in attracting binding shipper commitments and has initiated the FERC pre-filing process in Docket No. PF15-12-000. The Atlantic Bridge Project is anticipated to be placed in service in November 2017. Spectra's Access Northeast Project, which will include approximately 125 miles of pipeline replacement, looping, and laterals, as well as LNG storage, liquefaction, and vaporization facilities, expects to initiate the FERC pre-filing process in the fourth quarter of 2015. Tennessee understands that other similar projects, such as Iroquois' South-to-North Project (linked with the PNGTS C2C Expansion Project and M&NP Joint Facilities) and Millennium's Corning to Ramapo Project have not been successful in securing sufficient shipper interest to move forward at the time of this filing. A summary of the proposed capacities of these projects is provided in Table 5-1.

Table 5-1
Proposed Capacity of Alternate Systems

Sponsor	Project	Capacity (Dth/d)(Status)
Williams	Constitution	650,000 (Approved)
Transco	New York Bay Expansion	230,000 (Proposed)
Transco	Rockaway Lateral & Northeast Connector	647,000 (In-service)
Dominion	New Market	112,000 (Proposed)
PNGTS	Continent to Coast	132,000 to 182,000 (Proposed; open season completed)
Spectra	AIM	up to 342,000 (Approved)
Spectra	Atlantic Bridge	up to 132,705 (Proposed; in pre-filing)
Spectra	Access Northeast	200,000 to 1,000,000 (Proposed; open season completed)
Millennium	Corning to Ramapo	not available (Proposed; open season completed)

While the projects identified above share the general common goal with Tennessee's NED Project, of transporting natural gas to Northeast U.S. markets, including New York and New England, there are significant differences. While Tennessee's market area does partially overlap with AGT's and Millennium's market areas, e.g., in southeastern New York, there also are many other areas where only one or two of the pipeline systems have existing infrastructure, or where one pipeline can offer a more economical solution to transport incremental gas supplies. In general, Tennessee's existing system serves more of western and northern Massachusetts, while AGT serves southeast Massachusetts. While either pipeline company would serve growing markets in Massachusetts, each company is typically better positioned to serve certain geographic areas due to the location of each company's existing pipeline infrastructure. The NED Project however, uniquely enables service to all areas of

Massachusetts given its ability to serve the Tennessee 200 Line system as well as various markets on the AGT system. The NED Project has the potential to provide high pressure volumes to AGT through the Joint Facilities, M&NP, and AGT's HubLine Pipeline system, which are needed to replace the rapidly declining imports from Canada. Additionally, via a backhaul, the NED Project significantly increases the capacity of Tennessee's 200 Line system and will increase deliverability at an important supply feed to AGT's system via an existing Tennessee-AGT interconnect at Mendon, Massachusetts.

Tennessee believes that the NED Project is designed to provide the transformativesolution that New England needs to bring low-cost, abundant and environmentally clean natural gas to New England, which will lower and stabilize energy costs for gas and electric customers, will serve other regional pipelines, and help stimulate economic growth, providing the opportunity for New England to benefit similarly to other regions of the U.S. where low-cost natural gas is transforming the economy. As a new path for gas into New England, the NED Project will create a large bi-directional pipeline system that will fundamentally improve natural gas flows, relieve existing bottlenecks, and enhance gas supply diversity and reliability for decades to come. The NED Project is designed to provide New York and New England with direct access to low-cost gas supplies in the "scale" necessary to significantly lower energy costs. Combined, the existing Tennessee system and the proposed NED Project are, among all pipeline systems serving New England, best situated and designed to serve the areas specifically identified by ISO-NE where additional generation is required to replace substantial amounts of oil and coal-fired generation retiring in the next few years without triggering electric transmission constraints.

5.4.3 Pipeline Routing Analysis

Several alternative routes to the proposed NED Project pipeline facilities were evaluated during Project planning. Tennessee started by identifying a geographic study area. After identifying the routing study area, Tennessee then used a variety of mapping and survey data, plus field reconnaissance of the area to identify existing linear corridors that could potentially support construction of a new natural gas pipeline, or portions thereof. The existing corridors included transmission line ROWs, railroad corridors, roadway and highway layouts and other pipeline ROWs. Direct routes were preferred to more circuitous routes. Tennessee also determined that established ROWs should be used wherever possible although new cross country or "greenfield" ROWs within the routing study area were also considered.

The pipeline route alternatives analysis presented in FERC Resource Report 10 was based on environmental and land use impacts, as well as permanent easement acquisitions, and overall Project costs. Through these analyses it was determined that the preferred route for the proposed Market Path segment of the NED Project is one which starts in Hancock, Massachusetts at the New York border and continues westerly, co-located with the existing Western Massachusetts Electric Company ROW, through the towns of Hancock, Lanesborough, Cheshire, Dalton, Hinsdale, Peru, Windsor, Plainfield, Ashfield, Conway, Shelburne, Deerfield, Montague, and thence turning northerly and remaining co-located with the Western Massachusetts Electric ROW through the towns of Erving, Northfield and Warwick, where it continues into New Hampshire. The alignment continues easterly through the southern tier of New Hampshire, and in Rockingham, New Hampshire the alignment turns southerly terminating in Dracut, Massachusetts, at the proposed Market Path Tail Compressor Station in Dracut.

A route alternative is a linear segment of pipeline that deviates from the route of the proposed pipeline facilities for the Project. Tennessee analyzed, and will continue to analyze, three types of route alternatives:

- **Major Route Alternatives** - these are pipeline routes that deviate significantly from the proposed route in both length and distance.
- **Minor Route Alternatives** - these are pipeline routes which deviate from the proposed route of the pipeline facilities but within the same general area as the proposed route.
- **Minor Deviations** - these involve minor adjustments to the proposed route to avoid specific features e.g., topography, sensitive habitat, and structures, or to address landowner requests.

Tennessee evaluated 16 major alternative routes for the entire NED Project, Pennsylvania to Massachusetts; of which nine major alternative routes affect Massachusetts. Comparisons of nine routes in Massachusetts, the proposed route to the eight alternative routes are summarized in Table 5-2.

As stated above, the alternatives analysis was performed using desktop data to present a comprehensive, reliable, and consistent data set for alternatives analysis. The factors considered in the selection of the proposed route for the Project's pipeline facilities, rather than the alternative routes and deviations, include landowner concerns, minimize the number of affected landowners, minimize adverse environmental impacts, ensuring constructability, promoting safety, and meeting Tennessee's goal to minimize the extent of potential disruption to communities during construction.

When identifying routing options for the Project's pipeline facilities, Tennessee attempted to co-locate the new pipeline with its own existing pipeline facilities and ROW, and other existing ROWs to the extent practicable, feasible, and consistent with existing law. The use of co-location as a principle design element is consistent with FERC guidelines, and minimizes impacts as described above in the introductory section.

5.4.3.1 Major Route Alternatives

Major route alternatives include those that deviate from the proposed route and which provide a substantially different pathway. For routes affecting Massachusetts, Tennessee evaluated the proposed pipeline route to nine other alternative alignments listed below, and depicted in Figures 1-4 through 1-12. The following sections summarize the alternatives and how they differ from the proposed alignment, while Table 5-2 compares eight of the alternatives to the NED Project. In Table 5-2 the NED Project is the baseline against which alternatives are compared. Note, in Table 5-2 only the portion of the major route alternative and corresponding portion of the NED Project are compared, because that represents the difference between the major route alternative and the baseline, i.e., the NED Project. The Article 97 Avoidance and Co-Location Alternatives are discussed below in comparison to the NED Project, but are not included in Table 5-2. Tennessee initially identified an alignment which was wholly within Massachusetts, and upon further analysis selected the proposed alignment through Massachusetts and New Hampshire. That initial alignment is identified herein as the Massachusetts Alternative, listed below and compared to the proposed alignment below. The major route alternatives include:

- New York Alternative (Figure 1-4);
- Massachusetts Alternative (Figure 1-5);
- Existing 200 Line Alternative (Figure 1-6);
- Massachusetts Route 2 Alternative (Figure 1-7);

- Massachusetts Turnpike (I-90) Alternative (Figure 1-8);
- Massachusetts Powerline Alternative (Figure 1-9);
- Combined New York and Existing 200 Line Alternative (Figure 1-10);
- Combined New York and Massachusetts Turnpike (I-90) Alternative (Figure 1-11); and
- Article 97 Land Avoidance and Co-Location Alternatives (Figure 1-12).

Table 5-2

Comparison of Major Route Alternatives to the Proposed NED Project

	New York Alternative			Massachusetts Alternative			Existing 200 Line Alternative			Route 2 Alternative			Massachusetts Turnpike Alternative			Massachusetts Powerline Alternative			Combined NY & 200 Line Alternative			Combined NY & Mass. Turnpike Alt.		
Factor	**Baseline (NED Project)**	**New York Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Massachusetts Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Existing 200 Line Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Route 2 Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Mass. Turnpike Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Mass. Powerline Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Combined NY & 200 Alt.**	**Difference[1]**	**Baseline (NED Project)**	**Combined NY & Turnpike Alt.**	**Difference[1]**
Length of corresponding segment (miles)	34.43	35.98	+1.55	80.31	67.44	-12.87	126.94	164.99	+38.05	126.94	128.6	+1.66	126.94	163.17	+36.23	153.78	153.88	+0.1	187.64	203.92	+16.28	187.64	201.38	+13.74
Type of ROW																								
New ROW (miles)	0	14.21	+14.21	11.12	59.5	+48.38	12.85	1.54	-11.31	12.85	28.83	+15.98	12.85	0	-12.85	12.85	23.28	+10.43	14.45	3.15	-11.3	14.45	1.61	-12.84
Length of existing utility ROW (electric/pipeline/road/rail) (miles)	34.43	21.77	-12.66	69.18	7.94	-61.24	114.09	163.45	+49.36	114.09	99.78	-14.31	114.09	163.17	+49.08	140.93	130.6	-10.33	173.2	200.78	+27.58	173.2	199.77	+26.57
ROW Requirements																								
Pipeline construction requirements (acres)[2]	417.51	436.26	+18.75	973.41	817.35	-156.06	1,538.60	1,999.55	+460.95	1,538.60	1,558.83	+20.23	1,538.60	1,977.78	+439.18	1,863.89	1,864.82	+0.93	2,274.33	2,471.4	+197.07	2,274.33	2,440.85	+166.52
Pipeline operation requirements (acres)[2]	208.71	218.09	+9.38	486.67	408.69	-77.98	769.27	999.84	+230.57	769.27	779.41	+10.14	769.275	988.89	+219.615	931.92	932.49	+0.57	1,137.16	1,235.79	+98.63	1,137.16	1,220.45	+83.29
Wetlands																								
Total wetland complexes crossed (number)	33	38	+5	80	88	+8	129	311	+182	129	189	+60	129	206	+77	148	285	+137	159	302	+143	159	167	+8
Total wetlands crossed (linear ft)	7,284.5	10,542.6	+3,258.1	21,038.8	23,363	+2,324.2	27,691.9	85,213.9	+57,522	27,691.9	48,854.5	+21,162.6	27,691.9	59,107.5	+31,415.6	33,493.2	64,619.1	+31,125.9	36,347.7	78,669.8	+42,322.1	36,347.7	42,124.3	+5,776.6
PFO wetland complexes crossed (construction/operation acres)	7.82 / 3.91	15.05 / 7.53	+7.23 / +3.62	17.80 / 8.90	34.35 / 17.17	+16.55 / +8.27	22.50 / 11.25	66.90 / 33.45	+44.4 / +22.2	22.50 / 11.25	42.79 / 21.39	+20.29 / +10.14 /	22.50 / 11.25	45.81 / 22.91	+26.31 / +11.66	29.09 / 14.54	56.08 / 28.04	+26.99 / +13.5	33.17 / 16.59	69.49 / 34.75	+36.32 / +18.16	33.17 / 16.59	37.02 / 18.51	+3.85 / +1.92
PSS wetland complexes crossed (construction/operation acres)	5.40 / 2.70	2.03 / 1.02	-3.37 / -1.68	13.49 / 6.74	8.64 / 4.32	-4.85 / -2.42	17.91 / 8.95	36.04 / 18.02	+18.13 / +9.07	17.91 / 8.95	35.27 / 17.64	+17.36 / +8.69 /	17.91 / 8.95	36.81 / 18.41	+18.9 / +9.46	22.59 / 11.30	34.54 / 17.27	+11.95 / +5.97	23.72 / 11.86	38.29 / 19.14	+14.57 / +7.28	23.72 / 11.86	29.43 / 14.71	+5.71 / +2.85
PEM wetland impacts (construction/operation acres)	3.46 / 1.73	7.06 / 3.53	+3.6 / +1.8	16.89 / 8.45	10.51 / 5.26	-6.38 / -3.19	23.01 / 11.50	92.21 / 46.10	+69.2 / +34.6	23.01 / 11.50	33.81 / 16.91	+10.80 / +5.41	23.01 / 11.50	52.73 / 23.37	+29.72 / +11.87	25.02 / 12.51	57.36 / 28.68	+32.34 / +16.17	26.35 / 13.17	72.37 / 36.18	+46.02 / +23.01	26.35 / 13.17	30.02 / 15.01	+3.67 / +1.84

Table 5-2

Comparison of Major Route Alternatives to the Proposed NED Project

Factor	New York Alternative			Massachusetts Alternative			Existing 200 Line Alternative			Route 2 Alternative			Massachusetts Turnpike Alternative			Massachusetts Powerline Alternative			Combined NY & 200 Line Alternative			Combined NY & Mass. Turnpike Alt.		
	Baseline (NED Project)	New York Alt.	Difference[1]	Baseline (NED Project)	Massachusetts Alt.	Difference[1]	Baseline (NED Project)	Existing 200 Line Alt.	Difference[1]	Baseline (NED Project)	Route 2 Alt.	Difference[1]	Baseline (NED Project)	Mass. Turnpike Alt.	Difference[1]	Baseline (NED Project)	Mass. Powerline Alt.	Difference[1]	Baseline (NED Project)	Combined NY & 200 Alt.	Difference[1]	Baseline (NED Project)	Combined NY & Turnpike Alt.	Difference[1]
Waterbodies																								
Waterbodies crossed (number)	42	33	-9	61	63	+2	99	184	+85	99	113	+14	99	156	+57	134	139	+5	162	217	+55	163	186	+23
Perennial waterbodies (number)	32	28	-4	36	56	+20	56	100	+44	56	75	+19	56	91	+35	85	99	+14	113	138	+25	114	130	+16
Major river crossings (number >100 ft)	0	0	0	1	5	+4	4	5	+1	4	8	+4	4	8	+4	4	8	+4	6	6	0	6	9	+3
Intermediate stream crossings (number 10-100 ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	6	+6	0	5	+5
Coldwater fisheries crossings (number)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	32	+5	27	31	+4
Warmwater fisheries crossings (number)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	281	+206	75	221	+146
Designated natural and scenic rivers (number)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	-2	1	0	-1
Waterbodies crossed with drinking water use designation (number)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish, Wildlife, and Vegetation																								
T & E Species critical habitat crossed (miles)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.41	30.07	+19.66	10.41	15.27	+4.86
T & E Species critical habitat within ¼ mile of the ROW (number of polygons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	126	+86	40	128	+88

Table 5-2

Comparison of Major Route Alternatives to the Proposed NED Project

Factor	New York Alternative			Massachusetts Alternative			Existing 200 Line Alternative			Route 2 Alternative			Massachusetts Turnpike Alternative			Massachusetts Powerline Alternative			Combined NY & 200 Line Alternative			Combined NY & Mass. Turnpike Alt.		
	Baseline (NED Project)	New York Alt.	Difference[1]	Baseline (NED Project)	Massachusetts Alt.	Difference[1]	Baseline (NED Project)	Existing 200 Line Alt.	Difference[1]	Baseline (NED Project)	Route 2 Alt.	Difference[1]	Baseline (NED Project)	Mass. Turnpike Alt.	Difference[1]	Baseline (NED Project)	Mass. Powerline Alt.	Difference[1]	Baseline (NED Project)	Combined NY & 200 Alt.	Difference[1]	Baseline (NED Project)	Combined NY & Turnpike Alt.	Difference[1]
Important Bird Areas/Audubon Forest Blocks (miles)	3.22	0.29	-2.93	0.78	0	-0.78	2.82	27.38	+24.56	2.82	13.52	+10.7	2.82	10.36	+7.54	5.9	29.59	+23.69	5.9	26.75	+20.85	5.9	9.71	+3.81
Cultural Resources																								
National Historic Landmarks within 0.50 mile (number)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRHP eligible or potentially eligible cultural resources sites within 0.50 mile (number)	0	1	+1	2	3	+1	4	34	+30	4	28	+24	4	32	+28	4	19	+15	8	39	+31	8	36	+28
Land Use																								
Contiguous forest tracts greater than 100 feet long (number)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,006	714	-292	1,048	295	-753
Forested lands crossed (construction/operation acres)[2]	20.5	22.7	+2.2	52.9	49.8	-3.1	84.7	87.8	+3.1	84.7	44.6	-40.1	84.7	22.2	-62.5	102.1	78	-24.1	1,375.8 / 687.9	1,254.5 / 627.3	-121.3 / -60.6	1,375.8 / 687.9	441.2 / 220.6	-934.6 / -467.3
Agricultural lands crossed(construction/operation acres)[2]	5.7	6.2	+0.5	3.4	3	-0.4	8.7	17.6	+8.9	8.7	9.2	+0.5	8.7	8	-0.7	13.2	19	+5.8	361.2 / 180.6	446.1/ 223	+84.9 / +42.4	361.2 / 180.6	321.2 / 160.6	-40 / -20
Open (meadow, recreation, historic districts, etc.) (construction/operation acres)[2]	7.9	6.8	-1.1	18.9	11.7	-7.2	27.6	45.5	+17.9	27.6	43.6	+16	27.6	65.2	+37.6	32.3	45.9	+13.6	228.5 / 304.2	457 / 608.5	+228.5 / +304.3	457 / 228.5	770.9 / 385.5	+313.9 / +157
Developed (residential, commercial/industrial) (construction/operation acres)[2]	0.2	0.2	0	4.4	2.6	-1.8	5.1	13.3	+8.2	5.1	30.3	+25.2	5.1	67.1	+62	5.8	9.8	+4	34.5 / 149.1	69.1 / 223.6	+34.6 / +74.5	69.1 / 34.5	898.2 / 449.1	+829.1 / +414.6
Property Owners																								
Parcels Crossed (number)	213	220	+7	919	607	-312	1,241	1,811	+570	1,237	902	-335	1,237	882	-355	1,397	1,243	-154	1,666	2,061	+395	1,480	1,024	-456

Table 5-2

Comparison of Major Route Alternatives to the Proposed NED Project

Factor	New York Alternative			Massachusetts Alternative			Existing 200 Line Alternative			Route 2 Alternative			Massachusetts Turnpike Alternative			Massachusetts Powerline Alternative			Combined NY & 200 Line Alternative			Combined NY & Mass. Turnpike Alt.		
	Baseline (NED Project)	New York Alt.	Difference[1]	Baseline (NED Project)	Massachusetts Alt.	Difference[1]	Baseline (NED Project)	Existing 200 Line Alt.	Difference[1]	Baseline (NED Project)	Route 2 Alt.	Difference[1]	Baseline (NED Project)	Mass. Turnpike Alt.	Difference[1]	Baseline (NED Project)	Mass. Powerline Alt.	Difference[1]	Baseline (NED Project)	Combined NY & 200 Alt.	Difference[1]	Baseline (NED Project)	Combined NY & Turnpike Alt.	Difference[1]
Federal and State Land																								
Federal lands crossed (number/miles)	0	0	0	0 / 0	0 / 0	0 / 0	0	1 / 1.72	+1 / +1.72	0	1 / 2.91	+1 / +2.91	0	0	0	0	1 / 1.17	+1 / +1.17	0	1 / 1.72	+1 / +1.72	0	0	0
State forests/parks (number/miles)	5 / 2.03	5 / 2.32	0 / +0.29	6 / 1.52	26 / 6.90	+20 / +5.38	7 / 1.94	33 / 12.38	+26 / +10.44	7 / 1.94	17 / 10.15	+10 / +8.21	7 / 1.94	12 / 2.50	+5 / +0.56	11 / 3.54	9 / 5.94	+2 / +2.4	11 / 3.54	31 / 11.77	+20 / +8.23	11 / 3.54	11 / 2.45	0 / -1.09
WMAs (number/miles)	1 / 0.82	2 / 0.76	+1 / -0.06	0	9 / 2.01	+9 / +2.01	9 / 3.74	16 / 3.63	+7 / -0.11	9 / 3.74	1 / 1.00	-8 / -2.74	9 / 3.74	5 / 0.91	-4 / -2.83	9 / 3.74	17 / 7.09	+8 / +3.35	9 / 3.74	14 / 3.00	+5 / -0.74	9 / 3.74	3 / 0.22	-6 / -3.52
Trails																								
National & State Trails (number)	5	5	0	1	5	+4	6	12	+6	6	6	0	6	7	+1	6	6	0	6	12	+6	6	7	+1
Other Environmental Features																								
Landfills, quarries (count within 0.50 mile)	3	1	-2	0	2	+2	2	15	+13	2	14	+12	2	10	+8	5	8	+3	1	8	+7	1	7	+1
Environmental hazards (count within 0.50 mile)3	38	454	+416	382	133	-249	433	1,081	+648	433	1,172	+739	433	2,063	+1,630	468	856	+388	338	494	+156	338	1,095	+757
Compressor Stations																								
Number	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	6	+1	5	6	+1
Combined horsepower (HP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	187,000	203,000	+16,000	187,000	302,000	+16,000

1. Details the difference of the alternative compared to the proposed route. + = the alternative route contains an increase from the proposed route. - = the alternative route contains a decrease from the proposed route.
2. Construction ROW impacts calculated using a 100-foot-wide corridor. Permanent ROW acreages based on a 50-foot-wide permanent ROW. These acreages are overestimates as reduced construction ROW widths in areas of wetlands & waterbodies were not incorporated.
3. Information on environmental hazards taken from USEPA Facility Registry Service, which contains data sources from various federal entities such as federal cleanup programs or small waste generators. Facilities contained include those identified as "majors" or "special interest" and Brownfield properties from http://www2.epa.gov/enviro/geospatial-data-download-service.

5.4.3.1.1 New York Alternative

The New York alternative is depicted on Figure 1-4, and begins at approximately Segment F, MP 34.08 of the Wright to Dracut Pipeline Segment in New York, travel in a south/southeast direction, eventually turning east/northeast to interconnect with the mainline proposed route at approximately Segment G, MP 14.91 in Hinsdale, Massachusetts, where the proposed route follows Tennessee's existing 200 Line. This alternative is located due south of the now proposed Wright to Dracut Pipeline Segment. This alternative would not require rerouting Project laterals. This alternative routing would locate the Wright to Dracut Pipeline Segment in both undeveloped and developed areas in New York and Massachusetts and would not require rerouting of the Project laterals.

This alternative route minimizes impacts to state-owned land; however, it would require approximately 14.21 miles of new ROW, and the impacts resulting from the new ROW do not outweigh the advantages of co-locating the proposed pipeline route with a powerline corridor. The New York Alternative would also cross the Upper Housatonic River Area of Critical Environmental ("ACEC"), as well as the Hinsdale Flats Watershed ACEC, neither of which are crossed by the proposed Route. In addition, the proposed route will avoid the congested populated areas of Pittsfield and Dalton, Massachusetts. Both the proposed and alternative routes cross the Appalachian Trail while co-located with an existing electric transmission line utility corridor, so this is a neutral factor in the analysis of this alternative. See Table 5-2 for a comparison of the New York Alternative to the NED Project.

Tennessee has rejected this New York Alternative for the Project because, when compared to the now-proposed route for the Wright to Dracut Pipeline Segment, this alternative would have: (1) a longer overall route length and land requirements for new ROW; (2) more extensive cultural and environmental impacts; (3) greater number of wetland crossings; and (4) greater impacts to forest and agricultural areas.

5.4.3.1.2 Massachusetts Alternative

The Massachusetts Alternative would deviate from the proposed route in Massachusetts at approximately Segment H, MP 21.20 in Northfield and continues in an easterly direction across the northern tier of Massachusetts into Dracut, where it will rejoin the proposed route at Segment K, MP 2.45, see Figure 1-5. This alternative would require alternative routing of the Fitchburg Lateral Extension from what is currently proposed, and also would require the addition of another lateral to provide the contract volumes to the Merrimack meter station.

While the Massachusetts Alternative is 12.87 miles shorter than the proposed Project, it requires approximately 48 miles of new ROW, and would result in greater environmental impacts when compared to co-locating with an existing linear utility corridor. The information in Table 5-2 compares impacts of the Massachusetts Alternative to the NED Project route.

While both routes will cross state-owned properties, the Massachusetts Alternative crosses a larger amount of wetland footage and two additional perennial waterbodies than the proposed route. The Massachusetts Route would also cross more of the Squannassit ACEC than the proposed route, and would also cross the Petapawag ACEC, which is not crossed by the proposed route. Although the Massachusetts Alternative impacts approximately 156.06 less acres of land for construction, and 77.98 less acres of land for operation, Tennessee determined that routing the alignment in New Hampshire (referred to in the FERC alternatives analysis as the New Hampshire Powerline Alternative) as proposed will minimize

overall environmental impacts, such as habitat fragmentation, by co-locating the majority of the route along an existing powerline corridor. For these reasons, the New Hampshire Powerline Alternative was incorporated into the proposed Wright to Dracut Pipeline Segment in place of the original routing (now referred to as the Massachusetts Alternative).

The proposed NED Project route takes advantage of a greater percentage of co-located facilities with existing power utilities, and will provide economic service to several areas in northern Massachusetts and southern New Hampshire that are not currently served by an interstate pipeline.

5.4.3.1.3 Existing 200 Line Alternative

Co-locating a pipeline with Tennessee's existing 200 Line was considered a major alternative to the proposed Project. This alternative would be co-located with Tennessee's existing 200 Line beginning at the New York/Massachusetts border to Dracut, Massachusetts, see Figure 1-6. This alternative would deviate from the proposed Wright to Dracut Pipeline Segment at Segment G, MP 7.31 and extend southeast, crossing the Connecticut border, and rejoin the proposed route at Segment K, MP 2.45. Although the Existing 200 Line Alternative would be largely co-located with existing pipeline corridors, this alternative route is approximately 38.05 miles longer than the proposed route, traverses significantly more densely populated areas, and traverses approximately 24.56 additional miles of Important Bird Areas/Audubon blocks of importance. Also, the Existing 200 Line Alternative route along the existing pipeline system also would require the re-routing and addition of certain proposed delivery laterals in order to meet required delivery points (e.g., Fitchburg Lateral Extension, West Greenfield meter station, and Merrimack meter station), The re-routing of required laterals would occur through highly populated areas which would significantly increase environmental impacts. See Table 5-2 for a comparison of this alternative to the NED Project.

The proposed route for the Wright to Dracut Pipeline Segment results in shorter delivery laterals that will disturb significantly fewer stakeholders and environmental resources than if Tennessee were to route the pipeline along its existing 200 Line system corridor. The Existing 200 Line Alternative would also cross the Upper Housatonic River ACEC and the Miscoe, Warren and Whitehall Watersheds ACEC, neither of which is crossed by the proposed route. The proposed route includes one crossing of the Appalachian Trail in Dalton, Massachusetts, but the Existing 200 Line Alternative crosses the Appalachian Trail three times and parallels within 500 feet of the Trail for approximately 1.1 miles in Tyringham, Massachusetts. Although the proposed route does traverse one National Wild and Scenic River ("NWSR") and includes one crossing of the Appalachian Trail, Tennessee will use construction methods to minimize the temporary impact to these resources during construction. The Existing 200 Line Alternative would also require an additional compressor station (Market Path Mid Station 5) or increases in line diameters for several pipe segments due to the additional 38 miles of pipeline length.

Tennessee did not select the Existing 200 Line Alternative because, when compared to the proposed route for the Wright to Dracut Pipeline Segment, this alternative would have: (1) a much longer overall route length and land requirements for the construction ROW; (2) significantly more extensive cultural and environmental impacts; (3) a greater number of stream and wetland crossings; (4) greater impacts to residences and developed areas; (5) greater impacts to Important Bird Areas; and (6) greater impacts to the Appalachian Trail.

5.4.3.1.4 Massachusetts Route 2 Alternative

Co-locating the gas transmission pipeline with Massachusetts Route 2 is considered a major alternative, and the route is depicted on Figure 1-7. This alternative deviates from the proposed route for the Wright to Dracut Pipeline Segment at Segment G, MP 7.3 and travels north of the proposed route for approximately 40 miles before running south of the proposed alignment where it turns north and crosses into New Hampshire, and then rejoins the proposed route at Segment K, MP 2.45. This alternative would require rerouting of the Fitchburg Lateral Extension, along with the addition of a lateral to serve the Merrimack meter station.

This alternative is approximately 1.66 miles longer than the Project route, resulting in more construction and operation impacts. This alternative crosses 14 more streams, 60 more wetland complexes and has greater wetland impacts than the NED Project route; see Table 5-2 for a comparison of these two routes.

In addition, constructing and operating a pipeline co-located with a major state highway (Route 2) and through densely developed areas, presents challenges both during construction, as well as during operation and maintenance of the active pipeline due to restricted access, restricted workspace, restricted construction timeframes, vehicular traffic impacts, and potential for lane and/or road closures. Working within or adjacent to a major state highway poses potential traffic management and access issues during installation, operation, and maintenance activities.

The Massachusetts Route 2 Alternative would also cross the Central Nashua River Valley ACEC, which is not crossed by the proposed route. The proposed route traverses one NWSR and includes one crossing of the Appalachian Trail. Since the alternative route also crosses the Appalachian Trail while co-located with an existing electric transmission line utility corridor, this was a neutral factor in the alternatives analysis. Tennessee will utilize construction methods to minimize the temporary impact to these resources during construction, such as providing continuous access around the construction area for hikers or recreational users.

Tennessee did not select this Massachusetts Route 2 Alternative because, when compared to the proposed Project route, this alternative: (1) is longer with greater land requirements for construction and operations; (2) has significantly more extensive cultural and environmental impacts; (3) crosses a greater number of wetlands; and (4) impacts a greater length of pipeline through developed areas.

5.4.3.1.5 Massachusetts Turnpike (I-90) Alternative

Co-locating the gas transmission pipeline with the Massachusetts Turnpike (I-90), is considered a major alternative to the proposed Project, see Figure 1-8 which depicts this alternative route alignment. This alternative leaves the proposed route at Segment G, MP 7.31 and travels south of the Proposed Route within the southern tier of the state and ties back into the proposed route at Segment K, MP 2.45. This alternative will require rerouting of the Fitchburg Lateral Extension, as well as laterals to serve the West Greenfield meter station and Merrimack meter stations.

The Massachusetts Turnpike Alternative: 1) is approximately 36.23 miles longer, resulting in significantly more construction and operation related impacts; and 2) crosses 57 more water bodies and 77 more wetland units than the proposed NED Project route. A comparison of impacts is provided in Table 5-2. Additionally, constructing and operating a pipeline co-located with the Massachusetts

Turnpike and within densely developed areas presents challenges both during construction, as well as during operation and maintenance due to traffic management, restricted access, restricted workspace, restricted construction timeframes, vehicular traffic impacts, and potential for lane and/or road closures. Working within or adjacent to a state roadway easement poses potential traffic management, and access issues, during installation, operation, and maintenance.

The Mass Turnpike Alternative would also cross the Upper Housatonic River ACEC, the Miscoe, Warren and Whitehall Watersheds ACEC, and the Cedar Swamp ACEC, none of which are crossed by the proposed route. Both the alternative and the proposed route traverse the Appalachian Trail while co-located with an existing electric transmission line utility corridor, which is a neutral factor in the comparison analysis, while the proposed route also traverses one NWSR. Tennessee will utilize construction methods to minimize the temporary impact to these resources during construction of the proposed route, such as providing continuous access around the construction area for hikers or recreational users. The Mass Turnpike Alternative would also require an additional compressor station (Market Path Mid Station 5) or increases in line diameters for several pipe segments due to the additional 36 miles of pipeline length.

Tennessee did not select this Mass Turnpike Alternative because, when compared to the proposed route for the Wright to Dracut Pipeline Segment, this alternative has: (1) a much longer overall route length and land requirements for construction ROW; (2) significantly more extensive cultural and environmental impacts; (3) greater number of stream and wetland crossings; and (4) impacts a greater number of residences and developed areas.

5.4.3.1.6 Massachusetts Power Alternative

This alternative route would be co-located with an existing Massachusetts powerline corridor, and would begin at approximately Segment F, MP 34.08 traveling south of the proposed route and then returning to run in close proximity in the western portion of the state. Where the proposed route continues northeast into New Hampshire, this alternative would travel south, paralleling an existing powerline easement before finally returning at Segment K, MP 2.45 in Dracut, see Figure 1-9. This alternative would require rerouting of the Fitchburg Lateral Extension, as well as new laterals to serve the North Adams Custody (20103) meter station, West Greenfield meter station, and Merrimack meter station.

Although the Massachusetts Powerline Alternative is less than one mile longer, it crosses 137 more wetland complexes and 5.9 miles more of wetland than the proposed Project route. See Table 5-2 for a comparison of these two alignments.

The Massachusetts Powerline Alternative would cross the Upper Housatonic River Watershed ACEC, the Hinsdale Flats Watershed ACEC, Central Nashua River Valley ACEC, Squannassit ACEC, and Petapawag ACEC, none of which are corssed by the proposed Wright to Dracut Pipeline Segment (only the Squannassit is crossed by the proposed Fitchburg Lateral Extension). Both the alternative route and the proposed route traverse the Appalachian Trail while co-located with an existing electric transmission line utility corridor. Tennessee will utilize construction methods to minimize the temporary impact to these resources during construction of the proposed route, such as providing continuous access around the construction area for hikers or recreational users.

This Massachusetts Powerline Alternative was not selected by Tennessee as it crosses a greater number of environmental resources and does not avoid the sensitive land features that the Commonwealth of Massachusetts requested be avoided (state-owned lands and lands with conservation restrictions). This alternative route also would cross numerous areas of congested construction and difficult construction. Furthermore, this alternative would move the Wright to Dracut Pipeline Segment further from the service areas of the Project Shippers, which will necessitate construction of longer laterals to provide service to the Project Shippers, resulting in additional environmental and landowner impacts.

5.4.3.1.7 Combined New York and Existing 200 Line Alternative

This alternative route would cross both undeveloped and developed areas within New York and Massachusetts and would then be co-located with Tennessee's 200 Line and extend southeast, cross the Connecticut border, and rejoin the proposed route at Segment K, MP 2.45 (Figure 1-10). Significant rerouting of proposed laterals, and additional new laterals, would be required for this alternative.

The Existing 200 Line Alternative would require the re-routing of proposed laterals and the addition of proposed delivery laterals to transport gas to the required delivery points of the Project Shippers. These re-routed and new laterals would include a 12.65-mile North Adams Loop, a 24.54-mile Greenfield Extension, a 8.58-mile Northampton Loop, three segments of Fitchburg Lateral Extenstion looping totaling 9.07 miles, 8.3 miles of Concord Take-up and Relay, a 3.67-mile Nashua Loop, and a 6.16-mile West Nashua Extension. These re-routed and new laterals, totaling 72.97 miles, would be in addition to the proposed Maritimes Delivery Line, Haverhill Lateral, Lynnfield Lateral, and Peabody Lateral. These additional laterals would be routed through highly populated areas and would significantly increase environmental impacts due to their length. The impacts associated with the re-routed and new laterals are not included in Table 5-2 as Tennessee assumes that adding 72.97 miles of pipeline laterals to the Project would result in a significant increase in impacts, including additional crossings of sensitive resources, such as waterbodies, wetlands, and forested areas, and likely increased impacts to state-owned lands

This alignment is approximately 16.28 miles longer than the proposed Project route and has similar constraints and shortcomings as described individually for both the Existing 200 Line Alternative and New York Alternative; and therefore, was rejected for further consideration. See Table 5-2 for a comparison of this major alignment alternative to the proposed NED Project route.

5.4.3.1.8 Combined New York and Massachusetts Turnpike (I-90) Alternative

This alternative crosses both undeveloped and developed areas within New York and Massachusetts and would be co-located with the existing Massachusetts Turnpike, see Figure 1-11. The alternative for the Wright to Dracut Pipeline Segment would deviate from the proposed route at Segment F, MP 34.08 in New York, travel in a south/southeast direction until tying into the Mass Turnpike Alternative where the route would travel south of the proposed route in the southern tier of the state and ties back into the proposed route at Segment K, MP 2.45. This alternative would require re-routing of the Fitchburg Lateral Extension, as well as new laterals to serve the North Adams Custody meter station, West Greenfield meter station, and Merrimack meter stations.

The Combined New York and Mass Turnpike Alternative will require the re-routing of proposed laterals and the addition of certain new delivery laterals in order to transport gas to the required delivery points of the Project Shippers. These re-routed/new laterals would include a 12.65-mile North Adams Loop, a

24.54-mile Greenfield Extension, a 1.84-mile Northampton Loop, two segments of Fitchburg Lateral Extension looping totaling 4.88 miles, 8.3 miles of Concord Take-up and Relay, a 3.67-mile Nashua Loop, and a 6.16-mile West Nashua Extension. These re-routed and new laterals, totaling 62.04, miles would be in addition to the proposed Maritimes Delivery Line, Haverhill Lateral, Lynnfield Lateral, and Peabody Lateral. These re-routed and new laterals would be routed through highly populated areas and would significantly increase environmental impacts due to their length. Impacts from re-routed and new laterals are not included in Table 5-2 as Tennessee assumes that adding 62.04 miles of pipeline laterals to the Project would result in a significant increase in landowner and environmental impacts, including additional crossings of sensitive resources, such as waterbodies, wetlands, and forested areas, and likely increased impacts to state-owned lands.

This alternative has the similar constraints and shortcomings as described individually for both the New York and Massachusetts Turnpike Alternatives; and therefore, was rejected from further consideration; see Table 5-2.

5.4.3.1.9 Article 97 Land Avoidance and Co-Location Alternatives

Within the Commonwealth of Massachusetts, the Wright to Dracut Pipeline Segment (Massachusetts Portion), prior to entering into New Hampshire, crosses a number of open space Article 97 Lands, which are under the ownership and control of the Commonwealth of Massachusetts or its political subdivisions. As a result of changing the proposed route in December 2014 (to the current New Hampshire Powerline Alternative) from the route filed with FERC on November 5, 2014 in Docket No. PF14-22-000 (the route across the northern tier of Massachusetts), the proposed Wright to Dracut Pipeline Segment now avoids the large majority of Article 97 Lands in Massachusetts. For the portion of the route remaining within the Commonwealth, Tennessee evaluated two alternatives to determine if it can avoid, minimize or mitigate crossing Article 97 properties. One of the alternative routes would avoid crossing identified Article 97 properties (Article 97 Avoidance Route Alternative) and the other alternative route would significantly avoid crossing such properties and would be co-located within or adjacent to existing utility corridors (Article 97 Co-location Route Alternative). Both routes are depicted on Figure 1-12. Both of these alternatives would require re-routing of certain of the proposed Project laterals. The western terminus of these alternatives does not connect to the proposed route. The alternatives would begin at the New York/Massachusetts border, and would require the construction of the New York Alternative (described above) in New York. Because the Article 97 provisions are only applicable to Massachusetts, only the Massachusetts portions of the Article 97 Avoidance and Co-Location Alternatives are shown in Figure 1-12 and discussed in this section.

Tennessee has and continues to coordinate with the MassDEP and the MADCR and has engaged with key state agencies including the MAEEA Division of Fisheries and Wildlife, and Department of Agricultural Resources regarding the Project and alternative routing to avoid, minimize, or mitigate impacts to Article 97 Lands. During these agency meetings, Tennessee has endeavored to engage and understand the agencies' areas of concerns as Tennessee continues to evaluate routing alternatives for the Project, including areas with sensitive resources. As requested by these agencies, Tennessee has identified areas where it can utilize existing ROWs and/or co-locations with linear corridors as part of the routing of the Project pipeline.

5.4.3.1.10 Article 97 Avoidance Route

For the Article 97 Avoidance Route Alternative, Tennessee attempted to avoid the identified Article 97 Lands known to exist at that time based on the November 5, 2014 route submitted to FERC. Tennessee used GIS-based resource modeling was used to map a route that would avoid Article 97 Lands in Massachusetts. GIS modeling was utilized to formulate and produce a route that would avoid the identified properties. This alternative route would require a major shift from locating the proposed route in rural/forested areas (which areas include the majority of Article 97 Lands whether owned by the state or its political subdivisions or encumbered with conservation easements) to urban areas, which are more congested. Avoiding the Article 97 Lands also would create a route with constructability issues such as restricted access, restricted workspace, and restricted construction timeframes, as the alternative route would be located in highly developed areas.

The Article 97 Avoidance Route would be approximately 4 miles longer than the proposed Project route, would require approximately 126 miles of new ROW with only approximately 12 miles of co-location, as compared to the proposed Project route as compared to the proposed route which incorporates 120 miles of co-location with existing utility easements. This alternative would impact 2,444 parcels, as compared to the 1,291 parcels located along the proposed route.

Tennessee did not select the Article 97 Avoidance Route due to the following: (1) less co-location with existing pipeline, powerline and road ROWs; and (2) impacts to a much greater number of residences and developed areas.

5.4.3.1.11 Article 97 Co-location Route Alternative

The Article 97 Co-location Route Alternative significantly avoids identified Article 97 Lands and, where feasible, co-locates with existing powerline easements where traversing identified properties. By locating this alternative adjacent to an existing utility corridor, impacts to the environment would be minimized. In western Massachusetts, this alternative route would utilize approximately 6.50 miles of existing powerline easements which cross Article 97 Lands. While minimizing impacts to Article 97 properties, this Article 97 Co-location Route Alternative does not entirely avoid all Article 97 properties. The alternative route also would cross more densely developed urban areas, increasing construction difficulties such as restricted access during construction and operation/maintenance, restricted workspace during construction, and restricted construction timeframes.

The Article 97 Co-location Route would be 136 miles in length, which is 2 miles longer than the proposed Project. The alternative route would require 107 miles of new ROW with 29 miles of co-location, as compared to the proposed route which incorporates 120 miles of co-location with existing utility easements. This alternative will impact 2,398 parcels, as compared to the 1,291 parcels located along the proposed route. The Article 97 Co-Location Route Alternative would also cross the Upper Housatonic River ACEC, the Hinsdale Flats Watershed ACEC, Squannassit ACEC, and the Petapawg ACEC, non of which are corssed by the proposed Writght to Dracut Pipeline Segment (only the Squannassit is crossed by the propsoed Fitchburg Lateral Extension).

Tennessee did not select the Article 97 Co-location Route for the following reasons: (1) significantly less co-location with existing pipeline, powerline, and road easements; and (2) impacts to a much greater number of landowners, residences, and developed areas.

5.4.3.2 Minor Route Alternatives

Minor route alternatives deviate from the proposed route less substantially than major route alternatives, are often designed to avoid significant environmental resources or alleviate engineering constraints, and typically remain within the same general area as the proposed route. Four minor route alternatives were considered for the proposed laterals in Massachusetts.

- Lynnfield Lateral;
- Haverhill Lateral;
- Fitchburg Lateral; and
- Wheeler Road Alternative.

5.4.3.2.1 Alternatives to the Lynnfield Lateral

The Lynnfield Lateral starts at the proposed Tail Station in Dracut, Massachusetts and extends southeasterly through Dracut, into Andover along the Andover – Tewksbury corporate boundary, Wilmington, North Reading, Reading and into Lynnfield where it connects to an existing TGP pipeline. The "Andover Alternatives" are alignments examined to avoid or minimize impacts in the town of Andover, Massachusetts. Six minor route alternatives to the proposed Lynnfield Lateral were evaluated, see Figure 1-13. These six alternative routes are compared to the proposed project route in Table 5-3 Comparison of the Proposed Lynnfield lateral to Minor Route Alternatives. In summary, these alternatives: are longer than the proposed Project; require greater construction and operation land requirements; and result in greater wetland impacts than the proposed lateral route. Thus, these were rejected in favor of the proposed Project route.

Table 5-3
Comparison of the Proposed Lynnfield Lateral to Minor Route Alternatives

Factor	Proposed Lynnfield Lateral	Alternative Lynnfield Lateral (A)	Difference[1] A	Andover Lateral Alt. Route 1	Difference[1] 1	Andover Lateral Alt. Route 2	Difference[1] 2	Andover Lateral Alt. Route 3	Difference[1] 3	Andover Lateral Alt. Route 4	Difference[1] 4	Andover Lateral Alt. Route 5	Difference[1] 5
Length of corresponding segment (miles)	14.28	17.72	+3.44	16.69	+2.41	16.23	+1.95	17.06	+2.78	16.25	+1.97	26.85	+12.57
Type of Row													
New ROW (miles)	5.06	11.17	+6.11	6.02	+0.96	3.66	-1.4	4.1	-0.96	3.53	-1.53	0	-5.06
Length of existing utility ROW (electric/pipeline/ road/rail) (miles)	9.22	6.55	-2.67	10.66	+1.44	12.58	+3.36	12.96	+3.74	12.72	+3.5	26.85	+17.63
ROW Requirements													
Pipeline construction requirements (acres)[2]	173.23	214.86	+41.63	202.33	+29.1	196.88	+23.65	206.7	+33.47	196.94	+23.71	325.52	+152.29
Pipeline operation requirements (acres)[2]	86.58	107.42	+20.84	101.13	+14.54	98.43	+11.85	103.34	+16.76	98.47	+11.89	162.75	+76.17
Wetlands													
Total wetland complexes crossed (number)	36	52	+16	44	+8	57	+21	55	+19	55	+19	84	+48
Total wetlands crossed (linear ft)	14,262	16,348.6	+2,086.6	16,139.9	+1,877.9	21,641.1	+7,379.1	24,302.6	+10,040.6	22,083.6	+7,821.6	22,399.7	+8,137.7
PFO wetland complexes crossed (construction/ operation acres)	15.16 / 7.58	22.22 / 11.11	+7.06 / +3.53	21.65 / 10.82	+6.49 / +3.24	23.49 / 11.74	+8.33 / +4.16	22.62 / 11.31	+7.46 / +3.73	24.52 / 12.26	+9.36 / +4.68	29.48 / 14.74	+14.32 / +7.16
PSS wetland complexes crossed (construction/ operation acres)	5.15 / 2.57	4.34 / 2.17	-0.81 / -0.4	2.90 / 1.45	-2.25 / -1.12	8.28 / 4.14	+3.13 / +1.57	15.42 / 7.71	+10.27 / +5.14	9.75 / 4.88	+4.6 / +2.31	7.34 / 3.67	+2.19 / +1.1
PEM wetland impacts (construction/operation acres)	12.36 / 6.18	10.88 / 5.44	-1.48 / -0.74	12.42 / 6.21	+0.06 / +0.03	17.79 / 8.90	+5.43 / +2.72	17.60 / 8.80	+5.24 / +2.62	16.30 / 8.15	+3.94 / +1.97	14.47 / 7.23	+2.11 / +1.05
Waterbodies													
Waterbodies crossed (number)	18	21	+3	18	0	16	-2	17	-1	16	-2	21	+3
Perennial waterbodies (number)	6	6	0	5	-1	7	+1	9	+3	8	+2	10	+4
Major river crossings (number > 100 ft)	1	1	0	1	0	2	+1	2	+1	2	+1	1	0
Designated natural and scenic rivers (number)	0	0	0	0	0	0	0	0	0	0	0	0	0
Waterbodies crossed with drinking water use designation (number)	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish, Wildlife, and Vegetation													
Important Bird Areas/ Audubon forest blocks of importance (miles)	0	0	0	0	0	0	0	0	0	0	0	0.64	+0.64

Cultural Resources													
National Historic Landmarks within 0.50 mile (number)	0	0	0	0	0	0	0	0	0	0	0	0	0
NRHP eligible or potentially eligible cultural resources sites within 0.50 mile (number)	5	4	-1	8	+3	4	-1	5	0	4	-1	20	+15
Land Use													
Forested lands crossed (construction/operation acres)[2] (miles)	3.6	7	+3.4	3.3	-0.3	3.2	-0.4	2.9	-0.7	3	-0.6	10.2	+6.6
Agricultural lands crossed(construction/operation acres)[2] (miles)	0.1	0.3	+0.2	0.3	+0.2	0.4	+0.3	0.7	+0.6	0.4	+0.3	1.8	+1.7
Open (meadow, recreation, historic districts, etc.) (construction/operation acres)[2] (miles)	6.9	7	+0.1	4.9	-2	8.5	+1.6	8	+1.1	8.4	+1.5	9	+2.1
Developed (residential, commercial/industrial) (construction/operation acres)[2] (miles)	3.4	3.3	-0.1	8.1	+4.7	4.1	+0.7	5.3	+1.9	4.3	+0.9	5.5	+2.1
Property Owners													
Parcels crossed (number)	180	242	+62	143	-37	195	+15	211	+31	170	-10	334	+154
Federal and State Land													
Federal lands crossed (number/miles)	0	0	0	0	0	0	0	0	0	0	0	0	0
State forests/parks (number/miles)	0	1 / 0.01	+1 / +0.01	0	0	0	0	0	0	0	0	3 / 0.33	+3 / +0.33
WMAs (number/miles)	0	0	0	0	0	0	0	0	0	0	0	0	0
Trails													
National & State Trails (number)	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Environmental Features													
Landfills, quarries (count within 0.50 mile)	1	1	0	2	+1	1	0	1	0	1	0	2	+1
Environmental hazards (count within 0.50 mile)[3]	430	522	+92	577	+147	448	+18	460	+30	448	+18	226	-204

1 Details the difference of the alternative compared to the proposed route. + = the alternative route contains an increase from the proposed route. - = the alternative route contains a decrease from the proposed route.

2 Construction ROW impacts calculated using a 100-foot-wide corridor. Permanent ROW acreages based on a 50-foot-wide permanent ROW. These acreages are overestimates as reduced construction ROW widths in areas of wetlands and waterbodies were not incorporated.

3 Information on environmental hazards taken from USEPA Facility Registry Service, which contains data sources from various federal entities such as federal cleanup programs or small waste generators. Facilities contained include those identified as "majors" or "special interest" and Brownfield properties from http://www2.epa.gov/enviro/geospatial-data-download-service.

5.4.3.2.2 Alternative to the Haverhill Lateral

One alternative route was evaluated for the Haverhill Lateral, as depicted on Figure 1-14. This alternative route leaves the proposed route between Segment P, MP 2.44 and MP 3.20, between Segment P, MP 5.46 and MP 6.07, between Segment P, MP 6.64 and MP 7.80, and between Segment P, MP 8.41 and MP 9.00. As compared to the proposed lateral route, this alternative is 0.35 mile longer, crosses nine more wetlands and three more waterways, and impacts approximately 4.19 more acres of land during construction and 2.1 more acres during operation, see Table 5-4. Due to these issues, this alternative was not selected over the proposed Haverhill Lateral route.

Table 5-4
Comparison of the Proposed Haverhill Lateral to Minor Route Alternative

Factor	Proposed Haverill Lateral	Alternative Haverill Lateral	Difference[1]
Length of corresponding segment (miles)	9.27	9.62	+0.35
Type of ROW			
New ROW (miles)	0.44	2.73	+2.29
Length of existing utility ROW (electric/pipeline/road/rail) (miles)	8.83	6.89	-1.94
ROW Requirements			
Pipeline construction requirements (acres)[2]	112.55	116.74	+4.19
Pipeline operation requirements (acres)[2]	56.23	58.33	+2.1
Wetlands			
Total wetland complexes crossed (number)	19	28	+9
Total wetlands crossed (linear ft)	5,650.7	7,644.8	+1,994.1
PFO wetland complexes crossed (construction/operation acres)	6.26 / 3.13	12.66 / 6.33	+6.4 / +3.2
PSS wetland complexes crossed (construction/operation acres)	2.06 / 1.03	2.06 / 1.03	0 / 0
PEM wetland impacts (construction/operation acres)	4.26 / 2.31	2.79 / 1.39	-1.47 / -0.92
Waterbodies			
Waterbodies crossed (number)	12	15	+3
Perennial waterbodies (number)	8	10	+2
Major river crossings (number > 100 ft)	0	0	0
Designated natural and scenic rivers (number)	0	0	0
Waterbodies crossed with drinking water use designation (number)	0	0	0

Table 5-4
Comparison of the Proposed Haverhill Lateral to Minor Route Alternative

Factor	Proposed Haverill Lateral	Alternative Haverill Lateral	Difference[1]
Fish, Wildlife, and Vegetation			
Important Bird Areas/ Audubon forest blocks of importance (miles)	0	0	0
Cultural Resources			
National Historic Landmarks within 0.50 mile (number)	0	0	0
NRHP eligible or potentially eligible cultural resources sites within 0.50 mile (number)	4	4	0
Land Use			
Forested lands crossed (miles)	2.3	2.5	+0.2
Agricultural lands crossed (miles)	0.7	0.7	0
Open (meadow, recreation, historic districts, etc.) (miles)	3.9	4.3	+0.4
Developed (residential, commercial/industrial) (miles)	2.3	2	-0.3
Property Owners			
Parcels crossed (number)	245	211	-34
Federal and State Land			
Federal lands crossed (number/miles)	0	0	0
State forests/parks (number/miles)	0	0	0
WMAs (number/miles)	0	0	0
Trails			
National and State Trails (number)	0	0	0
Other Environmental Features			
Landfills, quarries (count within 0.50 mile)	0	0	0
Environmental hazards (count within 0.50 mile)[3]	94	98	+4

[1] Details the difference of the alternative compared to the proposed route. + = the alternative route contains an increase from the proposed route. - = the alternative route contains a decrease from the proposed route.

[2] Construction ROW impacts calculated using a 100-foot-wide corridor. Permanent ROW acreages based on a 50-foot-wide permanent ROW. These acreages are overestimates as reduced construction ROW widths in areas of wetlands and waterbodies were not incorporated.

[3] Information on environmental hazards taken from USEPA Facility Registry Service, which contains data sources from various federal entities such as federal cleanup programs or small waste generators.

5.4.3.2.3 Alternative to the Fitchburg Lateral

The Fitchburg Lateral Alternative leaves the proposed Fitchburg Lateral route at Segment Q, MP 8.24 in Townsend, Massachusetts extends northward to co-locate with Highway 31 and returns at Segment J, MP 7.49, see Figure 1-15 for the route layout. As compared to the proposed lateral route, this alternative is 2.15 miles longer, and crosses three fewer wetland complexes and one fewer waterway (Table 5-5). Due to the longer length, the alternative impacts approximately 26.13 more acres of land during construction and 13.07 more acres during operation than the proposed route.

The Fitchburg Lateral Alternative will cross approximately 7.46 miles of the Squannassit ACEC, while the proposed route will cross approximately 6.35 miles of the ACEC. Both the alternative route and the proposed route will cross approximately 6,815 linear feet of the Willard Brook State Forest. Tennessee has co-located the Project with an existing utility corridor through this area to minimize the impacts to the forest. Any changes to the existing landscape will be minor and confined to minimal widening of the existing cleared ROW as necessary for safe construction and operation of the pipeline. Tennessee will continue to coordinate with the MADCR and Massachusetts NHESP with regards to impact assessment, mitigation, and protection of state-listed plants and wildlife.

While this alternative is co-located and requires less new ROW than the proposed route, constructing and operating a pipeline co-located with a state highway presents challenges both during installation of the pipeline and operation and maintenance of the installed pipeline due to vehicular traffic and potential for lane and/or road closures. Working within or adjacent to a state roadway easement poses potential traffic management and access issues, during installation, operation, and maintenance.

In addition to the added length and constraints associated with construction in more developed areas, the alternative has additional impacts to ACEC and Critical Natural Landscape; thus this alternative was not selected over the proposed Fitchburg Lateral.

5.4.3.3 Minor Route Deviations

A minor route deviation makes minor adjustments to the proposed route of the pipeline facilities to avoid minor issues such as topographic and man-made features. Because route deviations are considered to resolve localized resource issues (e.g., wetlands, residences, cultural resource sites), they are normally much shorter than major route alternatives or deviations. As proposed, the pipeline route minimizes impacts to the environment and optimizes Project constructability and economics. The deviations were evaluated based on direct stakeholder discussions, on-site evaluations where the landowner has granted permission, and desktop evaluations where landowner access has not been allowed. Because the consultation process is ongoing, additional landowner- and agency-requested minor route deviations will continue to be evaluated and updated. Each of the minor route deviations analyzed by TGP are described below.

Table 5-5
Comparison of the Proposed Fitchburg Lateral to Minor Route Alternative

Factor	Proposed Fitchburg Lateral	Alternative Fitchburg Lateral	Difference[1]
Length of corresponding segment (miles)	13.97	16.12	+2.15
Type of ROW			
New ROW (miles)	10.28	10.97	+0.69
Length of existing utility ROW (electric/pipeline/road/rail) (miles)	3.69	5.15	+1.46
ROW Requirements			
Pipeline construction requirements (acres)[2]	169.43	195.56	+26.13
Pipeline operation requirements (acres)[2]	84.67	97.74	+13.07
Wetlands			
Total wetland complexes crossed (number)	6	3	-3
Total wetlands crossed (linear ft	1,384.8	493.8	-891
PFO wetland complexes crossed (construction/operation acres)	2.76 / 1.38	0.59 / 0.29	-2.17 / -1.09
PSS wetland complexes crossed (construction/operation acres)	0.41 / 0.20	0.41 / 0.20	0
PEM wetland impacts (construction/operation acres)	0	0.13 / 0.07	+0.13 / +0.07
Waterbodies			
Waterbodies crossed (number)	12	11	-1
Perennial waterbodies (number)	12	10	-2
Major river crossings (number > 100 ft)	0	0	0
Designated natural and scenic rivers (number)	0	0	0
Waterbodies crossed with drinking water use designation (number)	0	0	0
Fish, Wildlife, and Vegetation			
Important Bird Areas/ Audubon forest blocks of importance (miles)	0	0	0
Cultural Resources			

Table 5-5
Comparison of the Proposed Fitchburg Lateral to Minor Route Alternative

Factor	Proposed Fitchburg Lateral	Alternative Fitchburg Lateral	Difference[1]
National Historic Landmarks within 0.50 mile (number)	0	0	0
NRHP eligible or potentially eligible cultural resources sites within 0.50 mile (number)	0	0	0
Land Use			
Forested lands crossed (miles)	10.8	8.5	-2.3
Agricultural lands crossed (miles)	0.7	0.7	0
Open (meadow, recreation, historic districts, etc.) (miles)	2.1	2.3	+0.2
Developed (residential, commercial/industrial) (miles)	0.4	4.7	+4.3
Property Owners			
Parcels crossed (number)	134	147	+13
Federal and State Land			
Federal lands crossed (number/miles)	0	0	0
State forests/parks (number/miles)	2 / 1.31	3 / 1.36	+1 / +0.05
WMAs (number/miles)	0	0	0
Trails			
National and State Trails (number)	0	0	0
Other Environmental Features			
Landfills, quarries (count within 0.50 mile)	1	2	+1
Environmental hazards (count within 0.50 mile) [3]	26	68	+42

[1] Details the difference of the alternative compared to the proposed route. + = the alternative route contains an increase from the proposed route. - = the alternative route contains a decrease from the proposed route.

[2] Construction ROW impacts calculated using a 100-foot-wide corridor. Permanent ROW acreages based on a 50-foot-wide permanent ROW. These acreages are overestimates as reduced construction ROW widths in areas of wetlands and waterbodies were not incorporated.

[3] Information on environmental hazards taken from USEPA Facility Registry Service, which contains data sources from various federal entities such as federal cleanup programs or small waste generators.

5.4.3.3.1 Landowner Requested Minor Route Deviations

Tennessee has been reviewing, considering, and incorporating landowner requests for minor route deviations as the proposed route is further evaluated and refined. These requests have been provided as comments filed with FERC or presented during scoping meetings conducted by FERC, comments provided informally directly to Tennessee, and comments from open houses conducted by Tennessee. Tennessee will continue to assess requests as they are received.

Table 5-6 presents the requests and deviations evaluated as of September 4, 2015, some of which have been incorporated into the proposed route. It is acknowledged that Table 5-6 may not include all requests that were provided informally prior to the initiation of the FERC pre-filing process. Tennessee will continue to work with landowners to evaluate additional deviation requests.

5.4.3.3.2 Agency Requested Minor Route Deviations

Within Massachusetts, Tennessee evaluated routes which avoid or minimize traversing ACECs located either within or adjacent to Article 97 Lands, which are under the ownership and control of the Commonwealth and its political subdivisions, or which have conservation easements in place. Tennessee will work with Massachusetts agencies to evaluate other agency-requested alternatives, Table 5-7 presents the agency requested route deviations evaluated as of September 4, 2015, some of which have been incorporated into the proposed route.

Table 5-6
Landowner-Requested Minor Route Deviations in Massachusetts

Minor Route Deviation ID	Associated Pipeline	Segment[1]	Nearest Milepost[2]		Affected Parcel Numbers	Length (ft.)	Status[3]	Reason for Minor Deviation
			Begin	End				
02-BER-0038.00-02	Wright to Dracut Pipeline Segment	G	6.90	8.41	MA WD 37.01, MA WD 38.00, MA WD 40.00, MA WD 51.00	8,000	Approved	Deviation to avoid landowner's peach orchard.
02-BER-0051.00-01	Wright to Dracut Pipeline Segment	G	8.18	10.00	MA WD 51.00, MA WD 57.02, A WD 57.02	10,300	Approved	Deviation to avoid location of future development of a retention pond: The proposed retention pond is already being avoided as part of Minor Route Deviation ID: 02-BER-0038.00-02
02-BER-0144.00-01	Wright to Dracut Pipeline Segment	G	N/A	N/A	N/A	2,700	N/A	Deviation to avoid landowner's well and house; The proposed pipeline no longer traverses area due to a major route deviation.
02-HAM-0213.00-01	Wright to Dracut Pipeline Segment	G	24.31	24.77	MA WD 158.03, MA WD 158.00	2,500	Approved	Deviation to avoid hunting camp.
01-HAM-0160.00-01	Wright to Dracut Pipeline Segment	G	24.95	25.31	MA WD 160.00, MA WD 162.00, MA WD 163.00, MA WD 165.00, MA WD 167.00	2,000	Approved	Deviation to avoid landowner's future house by moving the route to the north side of the powerline easement.
02-FRA-0338.00-01	Wright to Dracut Pipeline Segment	H	N/A	N/A	N/A	1,900	N/A	Deviation to avoid landowner's apple orchard, irrigation lines, and wetlands; The proposed pipeline no longer traverses area due to a major route deviation.
02-FRA-0240.00-01	Wright to Dracut Pipeline Segment	H	0.68	1.94	MA WD 235.00, MA WD 236.00, MA WD 238.00, MA WD 239.00, MA WD 241.00	6,800	Approved	Deviation to avoid landowner's lot that will be used for the development of a house.
02-FRA-0243.00-01	Wright to Dracut Pipeline Segment	H	2.10	2.62	MA WD 243.00, MA WD 245.01, MA WD 246.00	2,700	Approved	Deviation to avoid landowner's septic system and pet burial site.
02-MID-0420.00-01	Wright to Dracut Pipeline Segment	K	N/A	N/A	N/A	9,700	N/A	Deviation to avoid landowner's property; Not adopted due to a reduction in co-location and increased landowner impacts; The proposed pipeline no longer traverses area due to a major route deviation.
16-MID-0005.01-01	Maritimes Delivery Line	L	N/A	N/A	N/A	9,800	N/A	Deviation to avoid landowner's property; Not adopted due to constructability issues and increased landowner impacts; The proposed pipeline no longer traverses area due to a major route deviation.
16-MID-0434.00-02	Maritimes Delivery Line	L	N/A	N/A	N/A	6,800	N/A	Deviation to avoid landowner's property; Not adopted due to constructability issues and increased landowner impacts; The proposed pipeline no longer traverses area due to a major route deviation.

Table 5-6
Landowner-Requested Minor Route Deviations in Massachusetts

Minor Route Deviation ID	Associated Pipeline	Segment[1]	Nearest Milepost[2]		Affected Parcel Numbers	Length (ft.)	Status[3]	Reason for Minor Deviation
			Begin	End				
08-MID-0137.00-01	Lynnfield Lateral	N	N/A	N/A	N/A	400	N/A	Deviation to move route farther away from a house; The proposed pipeline no longer traverses this area due to a major route deviation.
08-MID-0024.00-02	Lynnfield Lateral	N	N/A	N/A	N/A	1,000	N/A	Deviation to move route farther away from a house; The proposed pipeline no longer traverses area due to a major route deviation.
08-MID-0024.00-01	Lynnfield Lateral	N	N/A	N/A	N/A	500	N/A	Deviation within powerline easement to move route farther away from landowner's house; The proposed pipeline no longer traverses area due to a major route deviation.
08-MID-0078.00-02	Lynnfield Lateral	N	4.86	4.97	MA LL 81.01, MA LL 81.00, MA LL 86.00	700	Not Adopted	Deviation to avoid landowner's parcel. Not adopted due to increased impacts to adjacent landowner.
08-ESS-XXXX.XX-05	Lynnfield Lateral	N	N/A	N/A	N/A	N/A	N/A	Deviation to avoid landowner's backyard and protected lands in Andover, MA; The proposed pipeline no longer traverses area due to a major route deviation.
08-ESS-XXXX.XX-06	Lynnfield Lateral	N	N/A	N/A	N/A	N/A	N/A	Deviation to move route farther away from Fish Brook and Andover Schools; The proposed pipeline no longer traverses area due to a major route deviation.
07-ESS-0046.12-01	Haverhill Lateral	P	N/A	N/A	N/A	900	N/A	Deviation to avoid a wetland buffer surrounding the adjacent neighborhood; The proposed pipeline no longer traverses area due to a major route deviation.
07-ESS-0039.00-01	Haverhill Lateral	P	N/A	N/A	N/A	1,500	N/A	Deviation to avoid bisecting undeveloped land that is intended to be subdivided in the future; The proposed pipeline no longer traverses area due to a major route deviation.
04-WOR-0019.00-01	Fitchburg Lateral Extension	Q	11.93	12.33	MA FL 70.00, MA FL 71.00	2,100	Approved	Deviation to avoid an approved subdivision plan.
04-MID-0007.00-01	Fitchburg Lateral Extension	Q	5.75	6.54	MA FL 11.00, MA FL 12.00	4,200	Approved	Deviation to avoid landowner's two planned buildings.
04-MID-0015.00-01	Fitchburg Lateral Extension	Q	N/A	N/A	MA FL 12.00, MA FL 18.00, MA FL 19.00	1,500	Approved	Deviation to avoid landowner's future gravel pit. Route was already moved farther away from landowner's planned gravel pit as part of Minor Route Deviation ID: 04-MID-XXXX.XX-01.

NOTE: This table includes all landowner requested minor route deviations received as of 9/4/2015.

[1] Each segment is associated with its own set of MPs beginning at MP 0.00.

[2] N/A - "Not Applicable." N/A indicates that the landowner requested minor route deviation is no longer in the vicinity of the preferred pipeline route and has no corresponding mileposts.

[3] The status of each landowner requested minor route deviation are defined below:

Approved = deviation was incorporated.

Pending = deviation is still under review.

Not Adopted = deviation is not incorporated.

N/A = deviation is no longer applicable due to a major route deviation causing the pipeline to move away from the area.

Table 5-7
Agency-Requested Minor Route Deviations in Massachusetts

Minor Route Deviation ID	Associated Pipeline	Segment[1]	Nearest Milepost[2]		Affected Parcel Number	Length (ft)	Status[3]	Reason for Minor Deviation
			Begin	End				
02-BER-0188.00-01	Wright to Dracut Pipeline Segment	G	9.95	20.10	MA WD 57.03 & 58.00, MA WD 127.00	50,800	Not Adopted	Deviation to avoid watershed area; Not Adopted due to significant reduction in co-location with powerline and increased impacts to Article 97 properties.
02-BER-0072.00-01	Wright to Dracut Pipeline Segment	G	13.20	14.50	N/A	39,600	N/A	Deviation to avoid protected watershed area; The proposed pipeline no longer traverses this area due to a major route deviation.
02-BER-0135.00-01	Wright to Dracut Pipeline Segment	G	13.20	14.50	N/A	15,700	Approved	Deviation to avoid the Cleveland Brook Reservoir; The Cleveland Brook Reservoir is already being avoided as part of the approved NY/MA powerline route.
02-BER-0135.00-02	Wright to Dracut Pipeline Segment	G	13.20	14.50	N/A	15,500	Approved	Deviation to avoid the Cleveland Brook Reservoir; The Cleveland Brook Reservoir is already being avoided as part of the approved NY/MA powerline route.
02-BER-XXXX.XX-00	Wright to Dracut Pipeline Segment	G	N/A	N/A	N/A	N/A	Approved	Deviation to avoid routing adjacent to the Cleveland Reservoir watershed; The current route avoids impacting the Cleveland Brook Reservoir and minimizes impacts to the Cleveland Reservoir Watershed. No specific route was provided to further reduce impacts to the area.
02-FRA-0399.00-01	Wright to Dracut Pipeline Segment	H	10.67	12.08	MA WD 309.00, MA WD 311.00, MA WD 326.00	7,400	Approved	Deviation to avoid Mt. Grace Land Conservation Trust property.
02-FRA-XXXX.XX-01	Wright to Dracut Pipeline Segment	H	N/A	N/A	N/A	2,800	Pending	Deviation to avoid impact to the New England National Scenic Trail (NET) between Alexander Hill Road and Old Turnpike Road.
02-FRA-XXXX.XX-02	Wright to Dracut Pipeline Segment	H	27.48	28.61	N/A	N/A	N/A	Deviations to avoid potential environmentally sensitive areas within Town of Warwick. Requests have been made to assess route alternatives to assure selection of the most ideal route in relation to environmental and public impacts; The project pipeline currently traverses 1.13 miles of land in the Town of Warwick. A portion of the proposed route in Warwick is co-located with a powerline. Various environmental surveys are currently being conducted to identify and located environmentally sensitive features. No specific route was provided by the Town of Warwick and no specific avoidance area was clearly defined.
02-MID-0006.00-01	Wright to Dracut Pipeline Segment	K	N/A	N/A	N/A	N/A	N/A	Deviation to avoid religious statue; The proposed pipeline no longer traverses this area due to a major route deviation.
16-MID-0006.00-01	Maritimes Delivery Line	L	N/A	N/A	N/A	N/A	N/A	Deviation to avoid religious statue; The proposed pipeline no longer traverses this area due to a major route deviation.

Table 5-7
Agency-Requested Minor Route Deviations in Massachusetts

Minor Route Deviation ID	Associated Pipeline	Segment[1]	Nearest Milepost[2]		Affected Parcel Number	Length (ft)	Status[3]	Reason for Minor Deviation
			Begin	End				
08-MID-1135.00-01	Lynnfield Lateral	N	N/A	N/A	N/A	59,800	Not Adopted	Deviation to avoid congested residential neighborhoods along the Tewksbury and Andover town lines. The suggested deviation is referred to as, "Alternative 1- Haverhill Lateral Co-localization" and requests that the Lynnfield Lateral co-locate with Haverhill Lateral until it reaches the crossing of Forest Street in Methuen. At that point, the Lynnfield Lateral would deviate from Haverhill Lateral and continue southeast until it connects with Interstate 93. The Lynnfield Lateral would continue to parallel I-93 until it connects with the current route at MP 7.8; Not Adopted due to reduced co-location with powerline and constructability issues. The constructability issues include inadequate space to implement a Horizontal Directional Drill (HDD) across the Merrimack River and utility congestion within the I-93 Right of Way.
08-MID-0031.00-02	Lynnfield Lateral	N	N/A	N/A	N/A	43,400	Not Adopted	Deviation to avoid congested residential neighborhoods along the Tewksbury and Andover town lines. The deviation is referred to as, "Alternative 2 - High Plain Crossing" and requests that the Lynnfield Lateral be relocated to a less populated area located near High Plain Road in Andover, MA; Not Adopted due to reduced co-location with powerline and constructability issues. The constructability issues include inadequate space to implement a Horizontal Directional Drill (HDD) across the Merrimack River and utility congestion within the I-93 ROW.
08-ESS-0051.00-01	Lynnfield Lateral	N	N/A	N/A	N/A	27,500	Not Adopted	Deviation to avoid congested residential neighborhoods along the Tewksbury and Andover town lines; the deviation is referred to as, "Alternative 3 - 495 Co-localization" and includes a request that the Lynnfield Lateral be co-located with I-495; not adopted due to reduced co-location with powerline, increased impacts to Article 97 properties, and constructability issues, including utility congestion within the I-495 ROW.
08-MID-0128.00-01	Lynnfield Lateral	N	7.40	8.70	MA LL 117.00, MA LL 130.00	7,100	Approved	Deviation to avoid conservation land, Article 97 property and vernal pools.
08-MID-0133.00-01	Lynnfield Lateral	N	8.78	10.70	MA LL 133.00, MA LL 166.00 & 168.00 & 164.00	9,000	Approved	Deviation to avoid impacting the 400' radius protection area surrounding the town's potable water wells; The potable water wells are already being avoided as part of Minor Route Deviation ID: 08-MID-0133.00-02.
08-MID-0133.00-02	Lynnfield Lateral	N	8.78	10.70	MA LL 133.00, MA LL 166.00 & 168.00 & 164.00	10,300	Approved	Deviation to avoid impacting the 400' radius protection area surrounding the town's potable water wells.
08-ESS-XXXX.XX-02	Lynnfield Lateral	N	0.87	2.48	MA PL 215.00, MA PL 240.00	8,600	Approved	Deviation to avoid town's potable water wells.

Table 5-7
Agency-Requested Minor Route Deviations in Massachusetts

Minor Route Deviation ID	Associated Pipeline	Segment[1]	Nearest Milepost[2]		Affected Parcel Number	Length (ft)	Status[3]	Reason for Minor Deviation
			Begin	End				
07-ESS-0048.00-01	Haverhill Lateral	P	N/A	N/A	N/A	41,000	Not Adopted	Deviation to avoid Town of Salem, NH by co-locating with existing Maritimes and Northeast Pipeline (M&NP) and Highway 213; Not Adopted due to construction issues. The construction issues includes limited space adjacent to M&NP due to development along the easement, underground utilities along the proposed deviation, and rock ledges along Highway 213.
04-MID-XXXX.XX-01	Fitchburg Lateral Extension	Q	5.08	13.97	N/A	Being Evaluated	Pending	Deviation requested to avoid the headwaters of the Squannacook River, an Aquifer Protection District, and the Squannassit Area.
02-BER-XXXX.XX-01	Fitchburg Lateral Extension	Q	5.08	13.97	N/A	Being Evaluated	Pending	Requests have been made to assess route alternatives to assure selection of the best route with the least environmental and public impacts.
02-BER-XXXX.XX-02	All Pipeline Segments in Massachusetts	N/A	N/A	N/A	N/A	Being Evaluated	Pending	Several deviations to avoid areas MACC sites as being environmentally sensitive. MACC also requests that route alternatives be assessed to assure selection of the best route with the least environmental and public impacts.
02-BER-XXXX.XX-03	Entire Project	N/A	N/A	N/A	N/A	N/A	On Going	Possible deviations to avoid critical habitats containing endangered/protected species. Also requests for wildlife survey to be completed in order to determine if the current proposed route impacts any such habitats and to adjust routing accordingly.
02-MID-1013.00-01	Wright to Dracut Pipeline Segment	N/A	N/A	N/A	N/A	1,400	N/A	Deviation to move route farther away from school buildings and sports facilities; The proposed pipeline no longer traverses this area due to a major route deviation.
02-MID-1077.00-01	Wright to Dracut Pipeline Segment	N/A	N/A	N/A	N/A	1,200	N/A	Deviation to avoid Dracut High School's planned development of future sports facilities, parking lot, and stormwater infrastructure; The proposed pipeline no longer traverses this area due to a major route deviation.
02-WOR-0629.01-01	Wright to Dracut Pipeline Segment	N/A	N/A	N/A	N/A	12,100	N/A	Deviation to impact fewer landowners; The proposed pipeline no longer traverses this area due to a major route deviation.

NOTE: This table includes all agency requested minor route deviations received as of 9/4/2015.

[1] Each segment is associated with its own set of MPs beginning at MP 0.00.

[2] N/A - "Not Applicable." N/A indicates that the agency requested minor route deviation is no longer in the vicinity of the preferred pipeline route and has no corresponding mileposts.

[3] The status of each landowner requested minor route deviation are defined below:

Approved = deviation was incorporated.

Pending = deviation is still under review.

Not Adopted = deviation is not incorporated.

N/A = deviation is no longer applicable due to a major route deviation causing the pipeline to move away from the area OR no clear deviation or avoidance area identified.

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5.4.4 Compressor Station Alternatives

As explained above, three compressor stations are proposed in the following locations within Massachusetts:

- Market Path Mid Station 2 in Windsor Massachusetts;
- Market Path Mid Station 3 in Northfield Massachusetts; and
- Market Path Tail Station in Dracut, Massachusetts.

In selecting the preferred sites TGP evaluated a number of alternate compressor stations sites, each of which are described and analyzed in Tables 5-8, 5-9, and 5-10.

Table 5-8
Market Path Mid Station 2 Alternatives (Windsor, MA)

Alternative	Parcel Size	Parcel ID	Reason for Dismissal
Alternative 1	60 acres	3450140000000040	Not selected because: 1) although parcel has access to East Windsor Road, the landowner is unwilling to allow an access road to be built; to obtain access from Peru Road, easements would be required from three landowners and Western Massachusetts Electric, and 2) there is a 140-foot elevation difference between the western and eastern boundaries of the parcel. The side of the hill would have to be carved out to provide a flat surface for the compressor station site, which would require significant rock removal and potentially would require blasting.
Alternative 2	18 acres 21 acres	3450100000000150 3450130000000160	Not selected because: 1) the parcels are owned by Western Massachusetts Electric, who still actively uses the property for staging and maintenance activities, and 2) the property owner is unwilling to sell.
Alternative 3	90 acres	3450130000000140	This is the site shown in the July 2015 second draft ER filing. The site was not selected due to the existence of multiple wetlands and creeks. The land across the street became available during the assessment of this site.

Table 5-9
Market Path Mid Station 3 Alternative (Northfield, MA)

Alternative	Parcel Size	Parcel ID	Reason for Dismissal
Alternative 1	50 acres	60 6 1	Not selected because: 1) there is a 280-foot elevation difference between the northern and southern boundaries of the parcel; conceptual layouts were prepared placing the facilities on the flat areas at the top and bottom of the hill (the top of the hill was dismissed because it was too small; the bottom of the hill was dismissed because of lack of access), 2) the parcel is landlocked and will require road easements across additional properties, and 3) the 280-foot elevation difference presents significant challenges in terms of building an AR from Old Wendell Road to the base of the hill where the equipment will be installed.
Alternative 2	2 acres	2-2	Not selected because of the environmentally sensitive area around Pulpit Falls
Alternative 3	139 acres	N/A	Not selected because: 1) multiple wetland areas, 2) proximity to Pulpit Falls (i.e., environmentally sensitive area), 3) there is a 130-foot elevation difference between the hilltops and the property edges and two hilltops will require grading to provide a flat surface to accommodate the footprint of the station, and 4) the parcel is landlocked except for a private road and will require road easements from two landowners.
Alternative 4	30 acres 17 acres	2-7 2-13	Not selected because: 1) proximity to Pulpit Falls (i.e., environmentally sensitive area), 2) there is a 220-foot elevation difference between the western and eastern boundaries of the parcel and the side of the hill will have to be carved out to provide a flat surface for the compressor station site, which will require significant rock removal and potentially will require blasting, and 3) an easement will be required from a separate landowner.

Table 5-10
Market Path Tail Station Alternatives

Alternative	Parcel Size	Parcel ID	Reason for Dismissal
Alternative 1	45 acres	N/A	Not selected because: 1) close proximity to existing residences and subdivisions (several homes are within 600 feet of the proposed location of the compressor building, and over 30 homes are located less than 0.5 mile away), 2) the area north of the powerline ROW is too small to use, 3) the power company will not allow any permanent, aboveground structures within their ROW, and 4) there is an existing home/business within the property that will require purchase and removal. Not selected because the actual usable area is only 7 to 10 acres directly south and adjacent to the powerline ROW. The close proximity of this land to the powerline corridor will make it difficult to meet setback requirements from the power company with regard to blowdown stacks
Alternative 2	19 acres	37-73-1 37-73-2	Not selected because numerous wetlands were identified during field surveys.
Alternative 3	26 acres	79-F_714671_3073220	This is the site shown in the July 2015 filing. The new site has less environmental impacts than the previously proposed site and also accommodates stakeholder requests.

5.4.5 Alternative Sites for New Meter Stations and MLVs

There are eight new meter station sites and two new regulator station sites in Massachusetts.

As part of the planning and design process, new meter stations locations were dictated by where the pipelines (both new and existing) intersect and interconnect. Where possible, the new meter stations were sited on existing Tennessee property or co-located with other new facilities (i.e., compressor stations). Additional specifics for meter station in Massachusetts include:

- North Adams Lateral Check: Station site dictated by location of interconnection between the proposed Wright to Dracut Pipeline Segment and the existing North Adams Lateral.
- West Greenfield: Station is a new delivery interconnect for Berkshire Gas. Proximity of station site dictated by location of the proposed Wright to Dracut Pipeline Segment and existing Berkshire Gas local distribution system.
- Maritimes: Station site dictated by location of interconnection between the proposed Wright to Dracut Pipeline Segment and the existing Spectra Maritimes pipeline.

- 200-1 Check: Station site dictated by location where the new Lynnfield Lateral ends and the new Peabody Lateral begins. Site chosen is the existing TGP Camp Curtis meter station site.
- Haverhill Check: Station site dictated by location of interconnection between the proposed Wright to Dracut Pipeline Segment and the existing Haverhill Lateral.
- Fitchburg Lateral Check: Station site dictated by location of interconnection between the new Fitchburg Lateral Extension and the existing TGP 268A-100 Lateral.
- Longmeadow Station: This is a new delivery interconnect for Columbia Gas. Proximity of station site dictated by location of existing TGP 200-1 Line and 200-2 Lines and existing Columbia Gas local distribution system off of Shaker Road.
- Everett Station: This is a new delivery interconnect for National Grid. Proximity of station site dictated by location of existing TGP 270C-1100 Lateral and existing National Grid local distribution system. Two potential sites are being considered at the south end of the TGP Lateral in Everett.
- Wilmington Regulator: Regulator station will be located at the existing TGP Wilmington meter station site. No permanent enlargement to existing site is anticipated.
- Merrimack: Station is a new delivery interconnect for Liberty Utilities. Proximity of station site dictated by location of proposed Wright to Dracut Pipeline Segment and existing Liberty Utilities local distribution system, east of Daniel Webster Highway. Three potential sites are being considered.
- 200-2 Check: Station site dictated by location of interconnection between the proposed Wright to Dracut Pipeline Segment and the existing TGP Concord laterals (270B-100 & 273C-100). Check meter site chosen is on existing TGP property.

Tennessee also proposes to construct 54 mainline valves ("MLVs") as part of the Project. Valve spacing is determined by many factors, but minimum spacing is defined in the USDOT regulations, 49 CFR Part 192. In areas of low population density (defined as Class 1), valves may be located up to 20 miles apart. In areas of medium population density (defined as Class 2), valves may be located up to 15 miles apart. In areas of high population density (defined as Class 3), valves may be located up to 8 miles apart. The locations of MLVs are identified in Table 2-3. Locations were determined based on a class location study utilizing digitized structure photo interpreted from aerial flights conducted in March 2015. Since then, there have been route deviations so certain portions of the current Project alignment do not have high resolution aerial imagery associated with them. Tennessee has utilized publicly available data for these areas. Tennessee anticipates flying these deviations in November 2015, weather permitting, and will, if necessary, update MLV locations in the subsequent updated WQC application.

5.4.6 Alternatives Summary

After reviewing the above referenced Project alternatives, it is evident that the proposed NED Project is the preferred alternative to meet the identified Project Purpose and Need. If the proposed Project is not selected and constructed (i.e., the No-Action Alternative is selected) then the benefits of improving electrical power grid reliability, stabilizing electric and gas rates for consumers, providing adequate gas to residential and commercial consumers to meet the market demands, and ensuring adequate dispatchable electricity sources are available to support expanding renewable power will not be met. The NED Project is needed to help meet the existing and growing energy needs in New England, and Massachusetts in particular, and without it the region may experience energy shortages in times of peak demand or users

may revert to the consuming alternative fuels, including oil and coal. Use of alternative fossil fuels to supply the energy needs in the Northeast U.S. is not the best practicable alternative compared to using cleaner burning natural gas. In addition, although energy conservation is a valuable measure as part of an overall energy plan, energy conservation alone is not a solution to the current energy demand to be served by this Project. Furthermore, increasing the natural gas pipeline capacity into the state does not preclude expanding renewable energy sources. Rather, increasing dispatchable natural gas fired electric generation supplements and supports the expanded use of non-dispatchable renewable electric energy generation. These two energy streams work synergistically and not antagonistically.

As presented herein, Tennessee conducted a comprehensive routing analysis to assess various routes for the purpose of avoiding and minimizing impacts to environmental, socioeconomic, cultural/archeological, and other sensitive resources to the extent feasible and practicable, while at the same time ensuring that a constructible Project design will be implemented. Other potential alternative routes were identified using stakeholder input, environmental survey information, engineering/design criteria, and existing GIS resource mapping. Each alternative has the potential to be viable, although many alternatives were deemed obsolete due to their lack of connectivity with the proposed route and some were deemed less desirable than others based on environmental and land use impacts, need for agency coordination, and constructability issues.

Tennessee is continuing to review major and minor route alternatives to the proposed Project facilities, and will use field surveys, engineering constructability design assessments, and stakeholder involvement to determine the appropriate routing and location for the Project facilities. The evaluation of adjustments and deviations is an on-going iterative process and additional alternative identification, review, analysis, and supporting information will be presented in subsequent MEPA documents.

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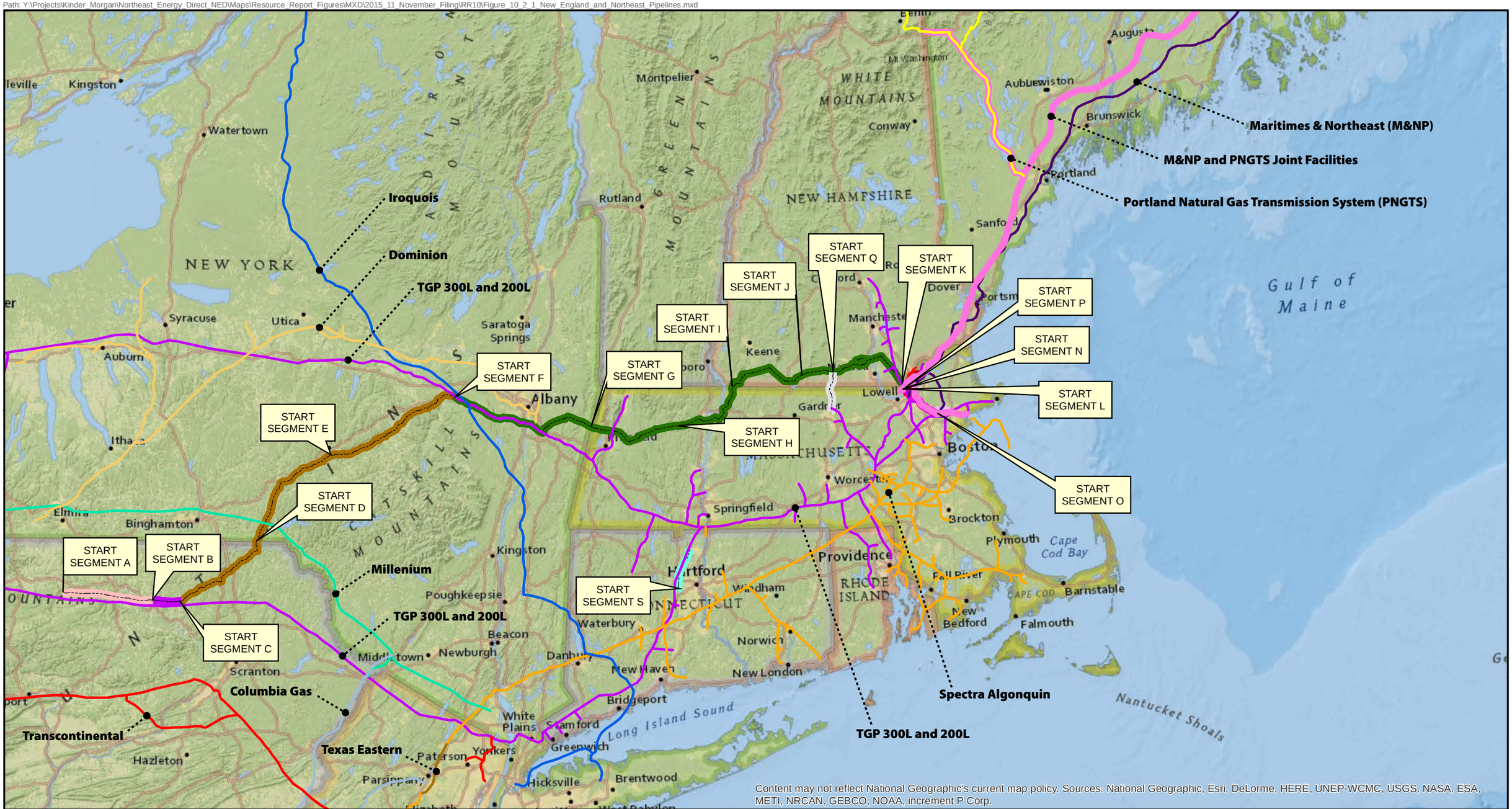
Figure 1-3 System Alternatives

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_2_1_New_England_and_Northeast_Pipelines.mxd



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Index Map

Source: US National Park Service

Legend

- NED Loop 317-3
- NED Loop 319-3
- NED PA to Wright Pipeline Segment
- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Columbia Gas
- Dominion
- Iroquois
- M&NP and PNGTS Joint Facilities
- Maritimes & Northeast
- Millenium
- Portland Natural Gas Transmission System (PNGTS)
- Spectra Algonquin
- TGP 300L and 200L
- Texas Eastern
- Transcontinental

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

System Alternatives

New England and Northeast Natural Gas Pipelines System

0 5 10 20 Miles

1 inch = 166,667 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM

Mapsheet 1 of 1

November 2015

FIGURE 1-3

Map Projection: NAD83 UTM18N Ft.

Figure 1-4 Major Route Alternatives - New York Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_5_New_York_Alternative.mxd

START SEGMENT E
MP44.17
MP40
MP30
MP20
MP10
START SEGMENT F
MP50.89
MP50
MP40
MP30
MP20
MP10
START SEGMENT G
MP53.61
MP50
MP40
MP30
MP20
MP10
START SEGMENT H
MP32.67
MP30
MP20
MP10
START SEGMENT I
MP28.76
MP28.60
MP20
MP10
START SEGMENT J
MP20
MP10
START SEGMENT Q
MP30
MP20
MP10
MP13.97
START SEGMENT S
MP14.80
MP10
New York Alternative

Albany
Schenectady
Troy
Williamstown
North Adams
Pittsfield
Greenfield
Brattleboro
Keene
Fitzwilliam
Winchendon
Athol
Orange
Gardner
Fitchburg
Leominster
Shutesbury
North Amherst
Hardwick
Oakham
Northampton
Belchertown
Easthampton
South Hadley
Holyoke
Springfield
Westfield
Chicopee
Ware
Palmer
Brookfield
North Brookfield
Spencer
Worcester
Leicester
Holden
Paxton
Shrewsbury
Northborough
Framingham
Marlborough
Hopkinton
Hopedale
Milford
Whitinsville
Upton
Grafton
Millbury
Auburn
Northbridge
Sutton
Charlton
Oxford
Webster
East Douglas
Uxbridge
Bellingham
Southbridge
East Longmeadow
Hampden
Wilbraham
Ludlow
Somers
Stafford
Stafford Springs
Windsor Locks
Broad Brook
Ellington
Tolland
Storrs
Mansfield
Willimantic
Windham
Danielson
Putnam
Pascoag
Smithfield
Pawtucket
Greenville
North Scituate
Cranston
Coventry
West Warwick
Plainfield
Glastonbury
Wethersfield
Farmington
Hartford
Manchester
Collinsville
Torrington
Winsted
West Simsbury
Winchester Center
Windsor Locks
Middletown
Waterbury
Watertown
Wolcott
New Britain
Plainville
New Milford
Colchester
East Hampton
Litchfield
Woonsocket
Somers
Stafford
Stafford Springs
Putnam
Danielson
Storrs
Mansfield
Willimantic
Windham
Plainfield
Coventry
West Warwick
Cranston
Greenville
North Scituate
Smithfield
Pawtucket
Pascoag
Exeter
North Kingstown
Hopkinton
Hollis
Nashua
Pelham
Tyngsboro
Lowell
Westford
Acton
Concord
Maynard
Sudbury
Clinton
Princeton
Harvard
Lunenburg
Townsend
Pepperell
Ashby
Brookline
Milford
Wilton
Lyndeborough
Mont Vernon
Bedford
New Boston
Greenfield
Hancock
Jaffrey
Peterborough
Derry
Londonderry
Merrimack
Swains Pond
Scituate Reservoir
Barkhamsted Reservoir
Quabbin Reservoir
Chicopee River Reservoir
Ware River
Quinebaug River
Shetucket River
Willimantic River
Housatonic River
Farmington River
Connecticut River
Deerfield River
Millers River
Nashua River
Sandy Pond
Wachusett Reservoir
Ashokan Reservoir
Rondout Reservoir
Pepacton Reservoir
Canadarago Lake
Otsego Lake
Schenectady County Airport
Albany International Airport
Albany County Airport
Bradley International Airport
Hartford-Brainard Airport
Windham Airport
Barnes Municipal Airport
Westover Air Reserve Base / Metropolitan Airport
Gardner Municipal Airport
Orange Municipal Airport
Turners Falls Airport
Hopedale Industrial Park Airport
Old Sturbridge Village Airport
Natick Laboratories Military Reservation
Camp Fogarty
Fort Devens (closed)
Mansfield Hollow Lake
Green Mountains
Taconic Mountains
Catskill Mountains
Hoosac Range
Berkshire Hills
Massachusetts
Rhode Island
Connecticut

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Index Map

Source: US National Park Service

Legend

- NED PA to Wright Pipeline Segment
- NED Wright to Dracut Pipeline Segment
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- New York Alternative

Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

New York Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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November 2015

FIGURE 1-4

Map Projection: NAD83 UTM18N Ft.

Figure 1-5 Major Route Alternatives - Massachusetts Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_6_Massachsuetts_Alternative.mxd

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START SEGMENT S
Massachusetts Alternative

MP10
MP20
MP28.76
MP30
MP40
MP41.69
MP0.75
MP9.27
MP2.45
MP5.32
MP14.28
MP13.97
MP28.60
MP50
MP53.61
MP32.67
MP14.80

MASSACHUSETTS
CONNECTICUT
RHODE ISLAND

Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Massachusetts Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Massachusetts Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM

Mapsheet 1 of 1

November 2015

FIGURE 1-5

Map Projection: NAD83 UTM18N Ft.

Figure 1-6 Major Route Alternatives - Existing 200 Line Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_7_Easting_200_Line_Alternative.mxd

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MP53.61
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MP32.67
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MP20
MP28.60
MP10
Fitzwilliam
MP20
MP28.76
MP10
MP20
MP30
MP40
MP41.69
MP0.75
MP9.27
MP2.45
MP10
MP13.97
MP10
MP5.32
MP14.28
MP14.80
MP10
Existing 200 Line Alternative
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
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Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Existing 200 Line Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Existing 200 Line Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

November 2015

FIGURE 1-6

Map Projection: NAD83 UTM18N Ft.

Figure 1-7 Major Route Alternatives - Massachusetts Route 2 Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_8_Massachusetts_Route2_Alternative.mxd

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Massachusetts Route 2 Alternative
MP40
MP50
MP53.61
MP10
MP20
MP32.67
MP30
MP10
MP20
MP28.60
MP10
MP20
MP28.76
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MP41.69
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MP9.27
MP10
MP14.28
MP5.32
MP14.80
MP10

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Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Massachusetts Route 2 Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Massachusetts Route 2 Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM

Mapsheet 1 of 1

November 2015

FIGURE 1-7

Map Projection: NAD83 UTM18N Ft.

Figure 1-8 Major Route Alternatives - Massachusetts Turnpike Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_9_Mass-Turnpike_Alternative.mxd

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Massachusetts Turnpike Alternative

MP40
MP50
MP53.61
MP10
MP20
MP30
MP32.67
MP10
MP20
MP10
MP28.60
MP20
Fitzwilliam
MP20
MP28.76
MP10
MP20
MP30
MP40
MP41.69
MP0.75
MP2.45
MP9.27
MP10
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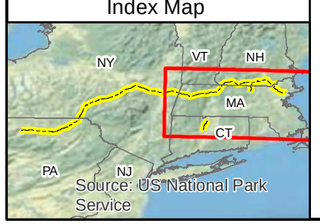
MP14.28
MP14.80
MP10

MASSACHUSETTS
CONNECTICUT
RHODE ISLAND

Index Map



Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Massachusetts Turnpike Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Massachusetts Turnpike Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM

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November 2015

FIGURE 1-8

Map Projection: NAD83 UTM18N Ft.

Figure 1-9 Major Route Alternatives - Massachusetts Powerline Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_10_Massachusetts_Powerline_Alternative.mxd

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Massachusetts Powerline Alternative
MP40
MP50
MP53.61
MP10
MP20
MP32.67
MP30
MP10
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MP28.60
MP10
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MP40
MP41.69
MP2.45
MP0.75
MP9.27
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MP14.28
MP13.97
MP10
MP14.80
MP10
MASSACHUSETTS
RHODE ISLAND
CONNECTICUT
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Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Massachusetts Powerline Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Massachusetts Powerline Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

November 2015

FIGURE 1-9

Map Projection: NAD83 UTM18N Ft.

Figure 1-10 Major Route Alternatives - Combined New York and Existing 200 Line Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_11a_Combined_NY_and_Existing_200Line_Alt.mxd

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MP28.60
MP32.67
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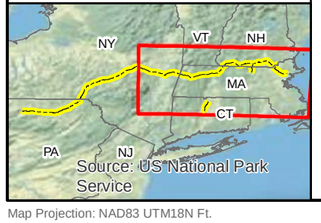
Combined New York and Existing 200 Line Alternative

Index Map



Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Combined New York and Existing 200 Line Alternative

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Combined New York and Existing 200 Line Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM

Mapsheet 1 of 1

November 2015

FIGURE 1-10

Map Projection: NAD83 UTM18N Ft.

Figure 1-11 Major Route Alternatives - Combined New York and Mass Turnpike Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_12a_Combined_New_York_and_Esting_200_Line.mxd

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MP41.69
MP2.45
MP0.75
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START SEGMENT S
Combined New York and MassTurnpike Alternative
MASSACHUSETTS
RHODE ISLAND
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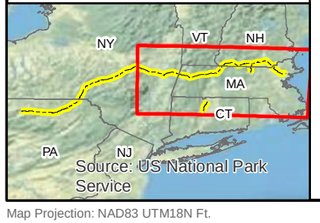
Index Map



Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Combined New York and MassTurnpike Alternative

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Combined New York and Mass Turnpike Alternative

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

November 2015

FIGURE 1-11

Map Projection: NAD83 UTM18N Ft.

Figure 1-12 Major Route Alternatives - Article 97 Avoidance and Co-location Alternatives

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_13_Article97_and_CoLocation_Alternative.mxd

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MP50.89
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MP32.67
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MP28.60
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MP41.69
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MP10
MP13.97
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MP5.32
MP14.28
MP9.27
MP14.80
MP10

Article 97 Total Avoidance Route
Article 97 Co-located Route

Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- NED 300 Line CT Loop
- Milepost (MP)
- Article 97 Co-located Route
- Article 97 Total Avoidance Route
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Major Route Alternatives

Article 97 Avoidance and Co-location Alternatives

0 2.5 5 10 Miles

1 inch = 64,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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November 2015

FIGURE 1-12

Map Projection: NAD83 UTM18N Ft.

Figure 1-13 Minor Route Alternatives - Lynnfield Lateral Alternatives

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_14_Lynnfield_Lateral_Alternatives.mxd

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MP41.69

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MP0.75

START SEGMENT N

MP2.45

START SEGMENT P

Andover Lateral Alternative 2

Andover Lateral Alternative 4

Andover Lateral Alternative 3

Andover Lateral Alternative 1

Andover Lateral Alternative 5

Alternative Lynnfield Lateral (A)

MP10

MP5.32

MP14.28

START SEGMENT O

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Index Map

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- Milepost (MP)
- Alternative Lynnfield Lateral (A)
- Andover Lateral Alternative 1
- Andover Lateral Alternative 2
- Andover Lateral Alternative 3
- Andover Lateral Alternative 4
- Andover Lateral Alternative 5

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Minor Route Alternatives

Lynnfield Lateral Alternatives

0 0.5 1 2 Miles

1 inch = 10,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

November 2015

FIGURE 1-13

Map Projection: NAD83 UTM18N Ft.

Figure 1-14 Minor Route Alternatives - Haverhill Lateral Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3_15_Haverhill_Lateral_Alternative.mxd

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Haverhill Lateral Alternative
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MP2.45
START SEGMENT N
START SEGMENT P
MP10
MP14.28
MP5.32

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Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Peabody Lateral
- NED Haverhill Lateral
- Milepost (MP)
- Haverhill Lateral Alternative

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Minor Route Alternatives

Haverhill Lateral Alternative

0 0.5 1 2 Miles

1 inch = 12,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

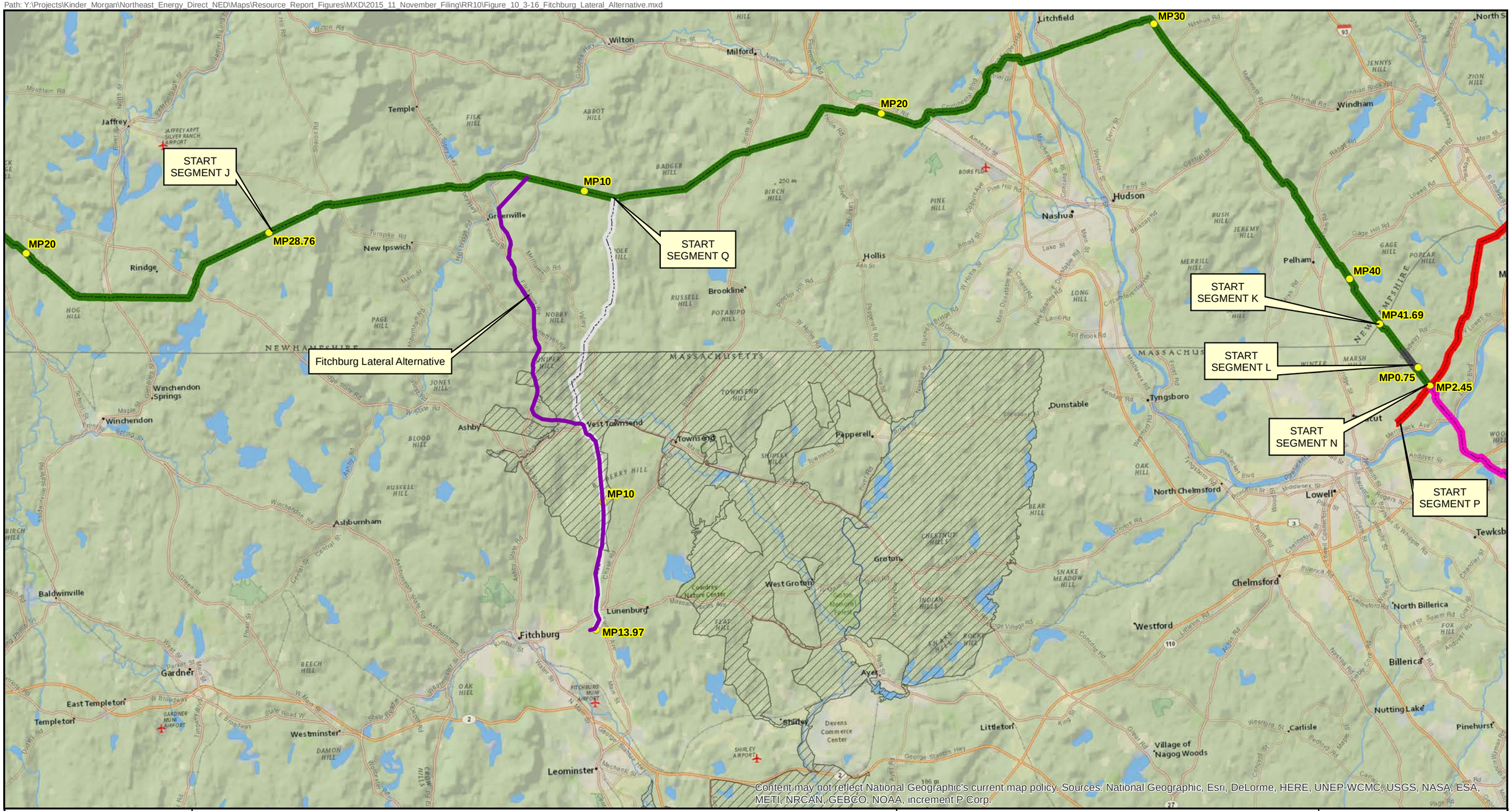
November 2015

FIGURE 1-14

Map Projection: NAD83 UTM18N Ft.

Figure 1-15 Minor Route Alternative - Fitchburg Lateral Alternative

Path: Y:\Projects\Kinder_Morgan\Northeast_Energy_Direct_NED\Maps\Resource_Report_Figures\MXD\2015_11_November_Filing\RR10\Figure_10_3-16_Fitchburg_Lateral_Alternative.mxd



Index Map

Source: US National Park Service

Legend

- NED Wright to Dracut Pipeline Segment
- NED Maritimes Delivery Line
- NED Lynnfield Lateral
- NED Haverhill Lateral
- NED Fitchburg Lateral Extension
- Milepost (MP)
- Fitchburg Lateral Alternative
- Areas of Critical Environmental Concern (MassGIS April 2009)

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Minor Route Alternative

Fitchburg Lateral Alternative

0 1 2 4 Miles

1 inch = 15,000 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

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Mapsheet 1 of 1

November 2015

FIGURE 1-15

Map Projection: NAD83 UTM18N Ft.

Attachment 2

Conformance with Massachusetts Water Quality Certification Criteria

CONFORMANCE WITH THE CRITERIA FOR THE EVALUATION OF APPLICATION FOR DISCHARGE OF DREDGED OR FILL MATERIAL

The NED Project has been designed to comply with the WQC regulations codified in 314 CMR 9.00. These regulations contain Criteria for the Evaluation of Applications for Discharge of Dredged or Fill Material (314 CMR 9.06). In accordance with 314 CMR 9.06(1) through (8), the proposed jurisdictional activities conform to WQC criteria as presented below. The criteria are presented in italics typeface and the response is in normal typeface. Please note, the responses below are based on planning level project information for use in this preliminary WQC application, to demonstrate the applicant's intent to comply the Criteria for the Evaluation of Applications for Discharge of Dredged or Fill Material, and therefore are general in nature. More site specific information will provide to the MADEP with the supplemental WQC application to be submitted after MEPA review is complete.

314 CMR 9.06(1) (in part) - *No discharge of dredge or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences … (a) Where the activity associated with the discharge does not require access or proximity to or siting within wetlands and waters to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve the discharge of dredged or fill material are presumed to be available, unless clearly demonstrated otherwise. In addition, all practicable alternatives to the proposed activity, which do not involve a discharge, are presumed to have less adverse impact on the aquatic ecosystem unless clearly demonstrated otherwise … (b) The scope of alternatives to be considered shall be commensurate with the scale and purpose of the proposed activity, the impacts of the proposed activity, and the classification, designation and existing uses of the affected wetlands and waters in the Surface Water Quality Standards at 314 CMR 4.00: Massachusetts Surface Water Quality Standards … 2. For any activity resulting in the loss of more than one acre cumulatively of bordering and isolated vegetated wetlands and land under water, alternative sites not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed will be considered by the Department, but only if such information is required in an Environmental Impact Report or in an alternatives analysis conducted by the Corps of Engineers for an individual 404 permit …*

The project wide alternatives analysis is presented in WQC Attachment 1. The conclusion of that alternatives analysis is that the proposed project route, and co-locating the NED Project pipeline with existing utility rights of ways, is the least environmentally damaging practicable route alternative. Minor route deviations have been incorporated into the route to minimize unavoidable impacts to waters of the United States, for example shifting the alignment to cross a wetland at a narrower portion rather than a wider portion. A more detailed description of measures to minimize impacts to waters of the U.S. will be presented in the supplemental WQC application to be submitted following MEPA review. Most of the impacts to waters of the U.S. will be temporary, i.e. construction period impacts for installing the pipeline, and those will be restored in-situ to yield

no net loss. Permanent impacts may occur at compressor stations and/or meter stations, should there be permanent loss of vegetated wetlands or land under water, replication areas will be constructed at a minimum of 1:1 ratio (replication : loss), to result in no net loss.

The project as a whole meets the definition of a water dependent infrastructure project, as the alignment needs to cross jurisdictional waterways to meet the project purpose and need. See discussion in Attachment 1.

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 the water or ocean, or the intertidal zone. For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication … However, no such project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species as specified in 310 CMR 10.00*

The design intent is to avoid and minimize impacts to waters of the U.S. to the extent practicable. Unavoidable impacts will be restored in-situ for the majority of the Project, i.e. for pipeline construction. Any locations which result in the loss of waters of the U.S. will be mitigated by constructing a replacement area at a minimum of a 1:1 (replacement : loss). Regarding vegetated wetlands, the performance standards in 310 CMR 10.55 for bordering vegetated wetlands will be applied to all bordering and isolated.

314 CMR 9.06(3) *- Except as otherwise provided in 314 CMR 9.06(3), no discharge of dredged or fill material shall be permitted to Outstanding Resource Waters. The discharge of dredged or fill material to an Outstanding Resource Water in association with an activity listed in 314 CMR 9.06(3)(a) through (k) may be permitted without requiring the applicant to obtain a variance in accordance with 314 CMR 9.08 provided that the Department determines that the discharge of dredged or fill material may be permitted in accordance with 314 CMR 9.06(1), (2), (4), (5), and (7), and is not identified in 314 CMR 9.06(4) as a discharge of dredged or fill material that requires a variance …*

Please see Table 1-3 in Attachment 1 for a list of watercourses to be crossed by the proposed pipeline. Table 1-3 identifies four water courses designated as ORWs. Tennessee will continue to evaluate alternatives during the MEPA review process and will present any changes to the project, as described herein, in the updated WQC application.

314 CMR 9.06(4) *- The discharge of dredged or fill material into wetlands or waters of the Commonwealth within 400 feet of the high water mark of a Class A surface water (exclusive of tributaries) requires a variance issued by the Department pursuant to 314 CMR 9.08 unless the discharge of dredged or fill material is associated with an activity conducted by a public water system under 310 CMR 22.00: Drinking Water or by a public agency or authority for the maintenance or repair of existing public roads or railways. The discharge of dredged or fill*

material to a vernal pool certified by the Division of Fisheries and Wildlife requires a variance pursuant to 314 CMR 9.08.

Please see Table 1-3 in Attachment 1 for a list water courses to be crossed by the proposed pipeline. At this time, it is anticipated that no work will occur in or adjacent to Class A water bodies.

314 CMR 9.06(5) *- No discharge of dredged or fill material is permitted for the impoundment or detention of stormwater for purposes of controlling sedimentation or other pollutant attenuation. Discharge of dredged or fill material may be permitted to manage stormwater for flood control purposes only where there is no practicable alternative and provided that best management practices are implemented to prevent sedimentation or other pollution. No discharge of dredged or fill material is permitted for the impoundment or detention of stormwater in Outstanding Resource Waters for any purpose.*

No stormwater facilities to control sediment or attenuate other pollutants are proposed in wetlands or waterbodies.

314 CMR 9.06(6)(a) through (f) (in part) *- Except as otherwise provided in 314 CMR 9.06(6), stormwater discharges shall be provided with best management practices to attenuate pollutants and to provide a setback from the receiving water or wetlands in accordance with the following Stormwater Management Standards as further defined and specified in the Massachusetts Stormwater Handbook …*

Construction period best management practices ("BMPs") and permanent facilities will include stormwater BMPs to comply with the Stormwater Management Standards set forth in 314 CMR 9.06(6)(a)t1 through 10, as documented in Attachment 11 of this WQC application. Typical details of construction erosion and sedimentation controls are provided in the Massachusetts Environmental Construction Plan, found in Attachment 8 of this WQC application.

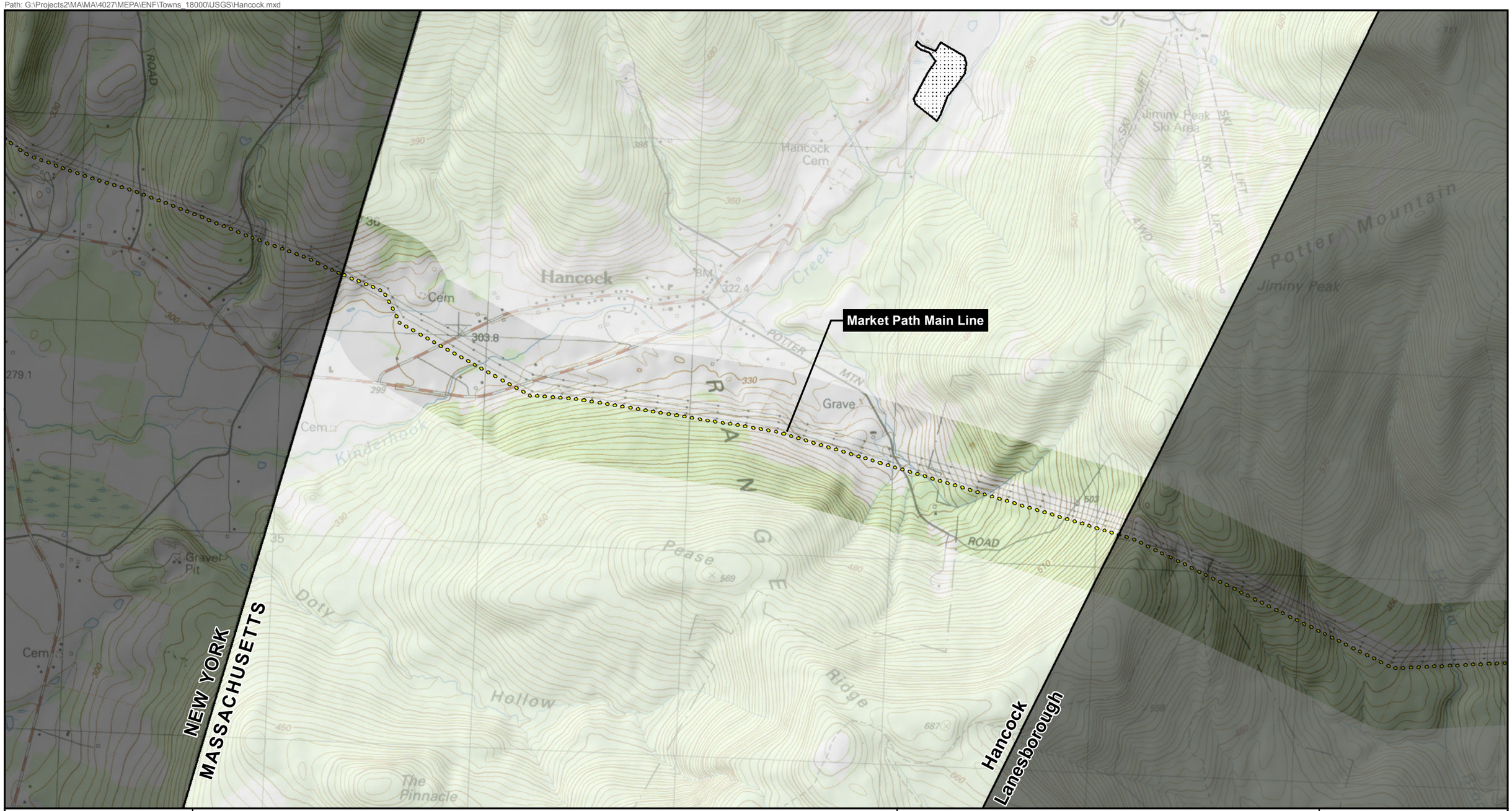
314 CMR 9.06(7) *- No discharge of dredged or fill material shall be permitted in the rare circumstances where the activity meets the criteria for evaluation but will result in substantial adverse impacts to the physical, chemical, or biological integrity of surface Waters of the Commonwealth.*

The project has been designed and during construction proper BMPs will be used to protect the physical, chemical, or biological integrity of surface waters for the long-term and construction period, respectively.

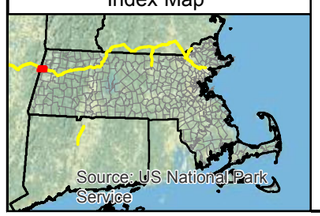
Attachment 3

Muncipality Based Project Maps

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Hancock.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Hancock, MA - USGS Locus Map
(Stephentown Quadrangle, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

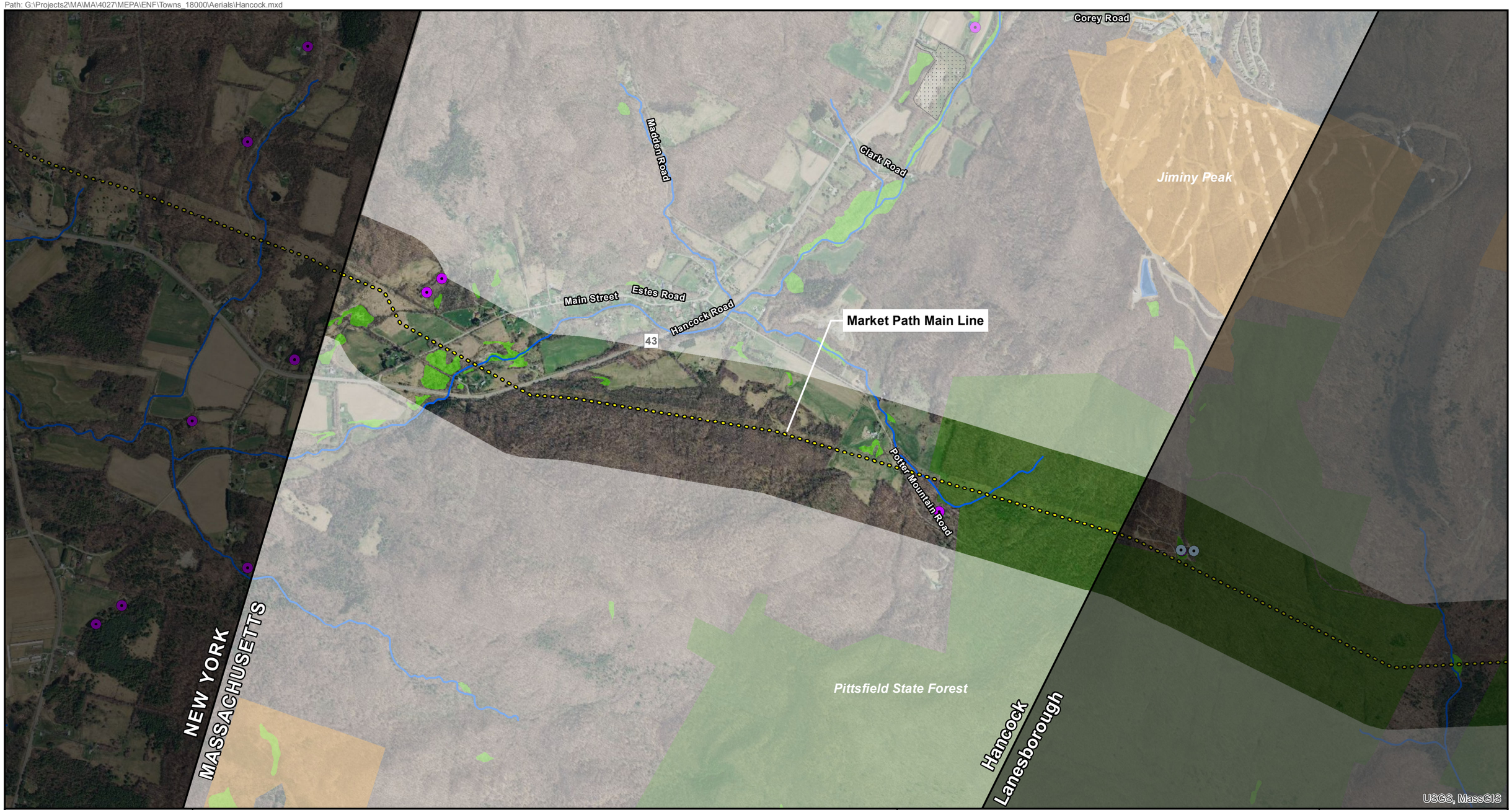
Market Path Main Line

October 2015

FIGURE 3.1-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Hancock.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
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- State-Owned Open Space
- Non State-Owned Open Space
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Hancock, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

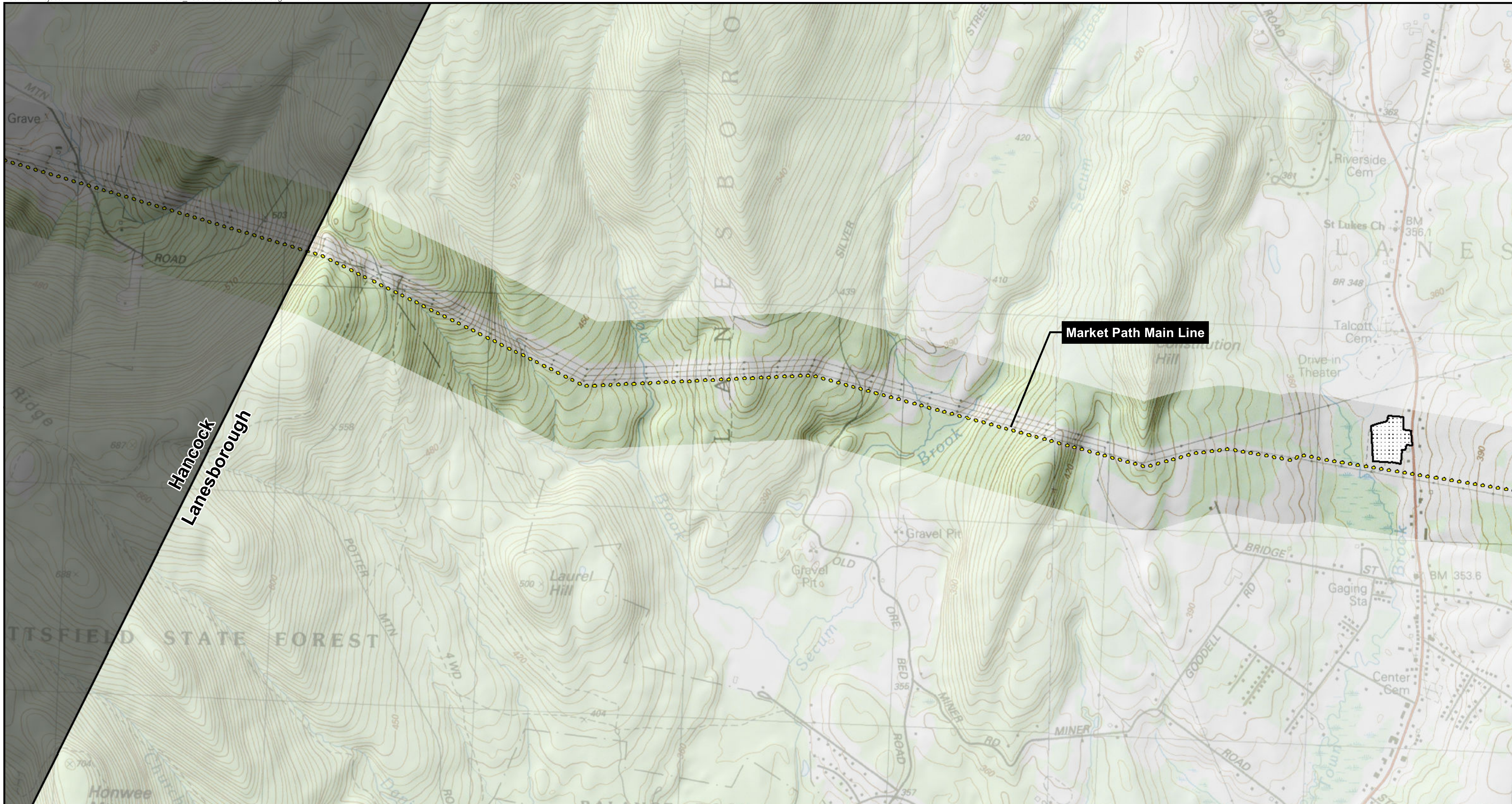
Market Path Main Line

October 2015

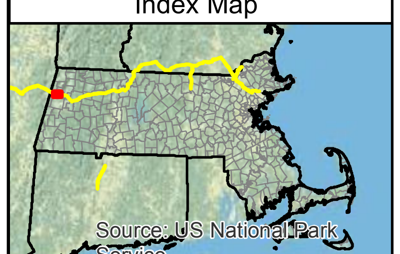
FIGURE 3.1-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\LanesboroughW.mxd



Index Map



Legend

Market Path Main Line

Massachusetts Town/City Boundary

Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lanesborough, MA - USGS Locus Map
(Stephentown and Cheshire Quadrangles, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon

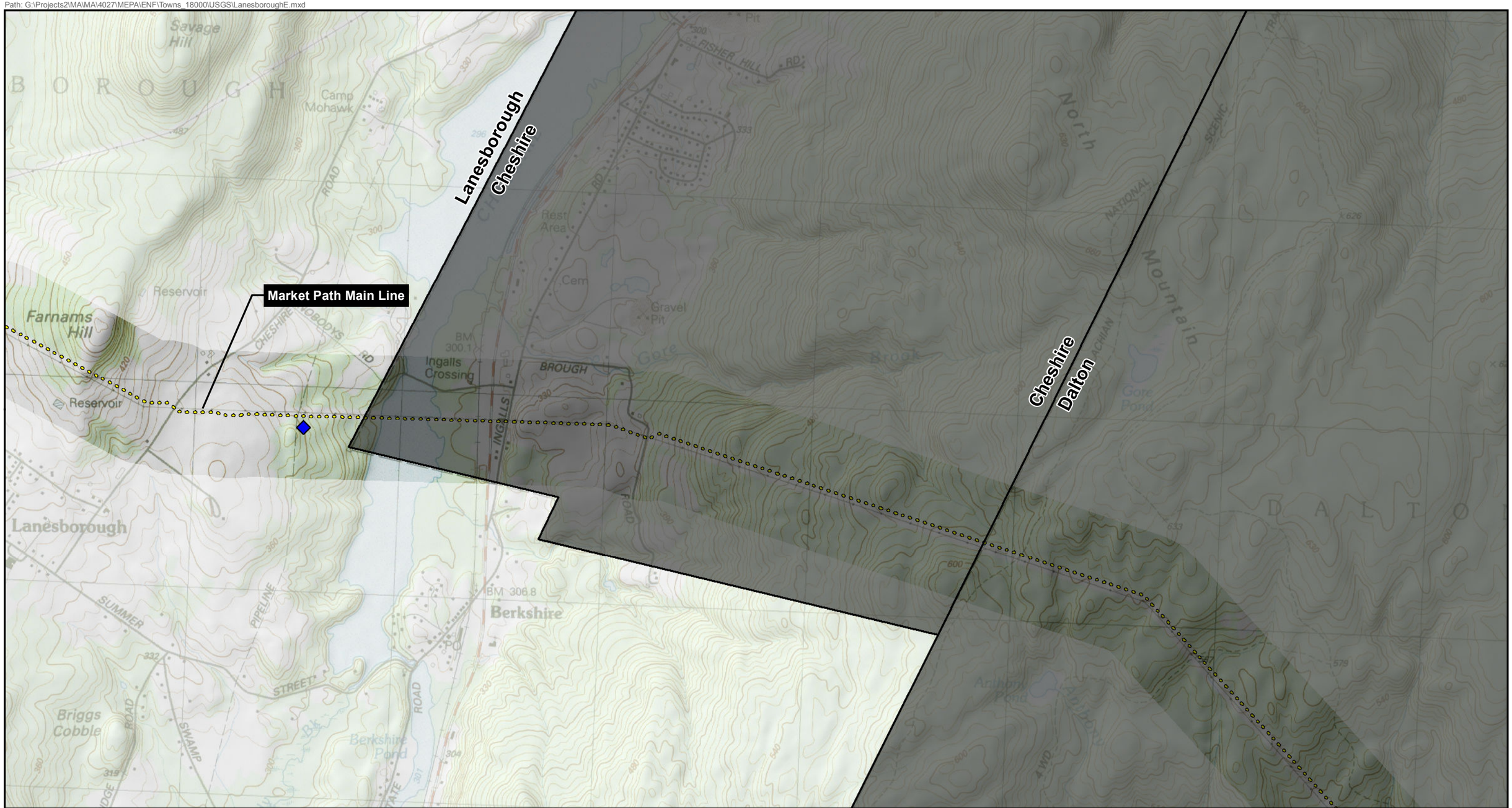
Market Path Main Line

October 2015

FIGURE 3.2-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\LanesboroughE.mxd



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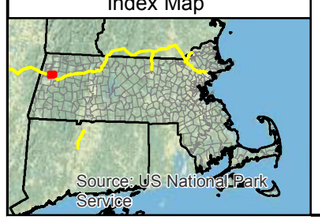

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lanesborough, MA - USGS Locus Map
(Cheshire Quadrangle, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

Market Path Main Line

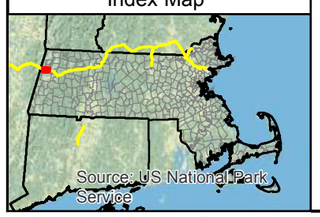
October 2015

FIGURE 3.2-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\LanesboroughW.mxd

Index Map



Legend

- Market Path Main Line
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- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lanesborough, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

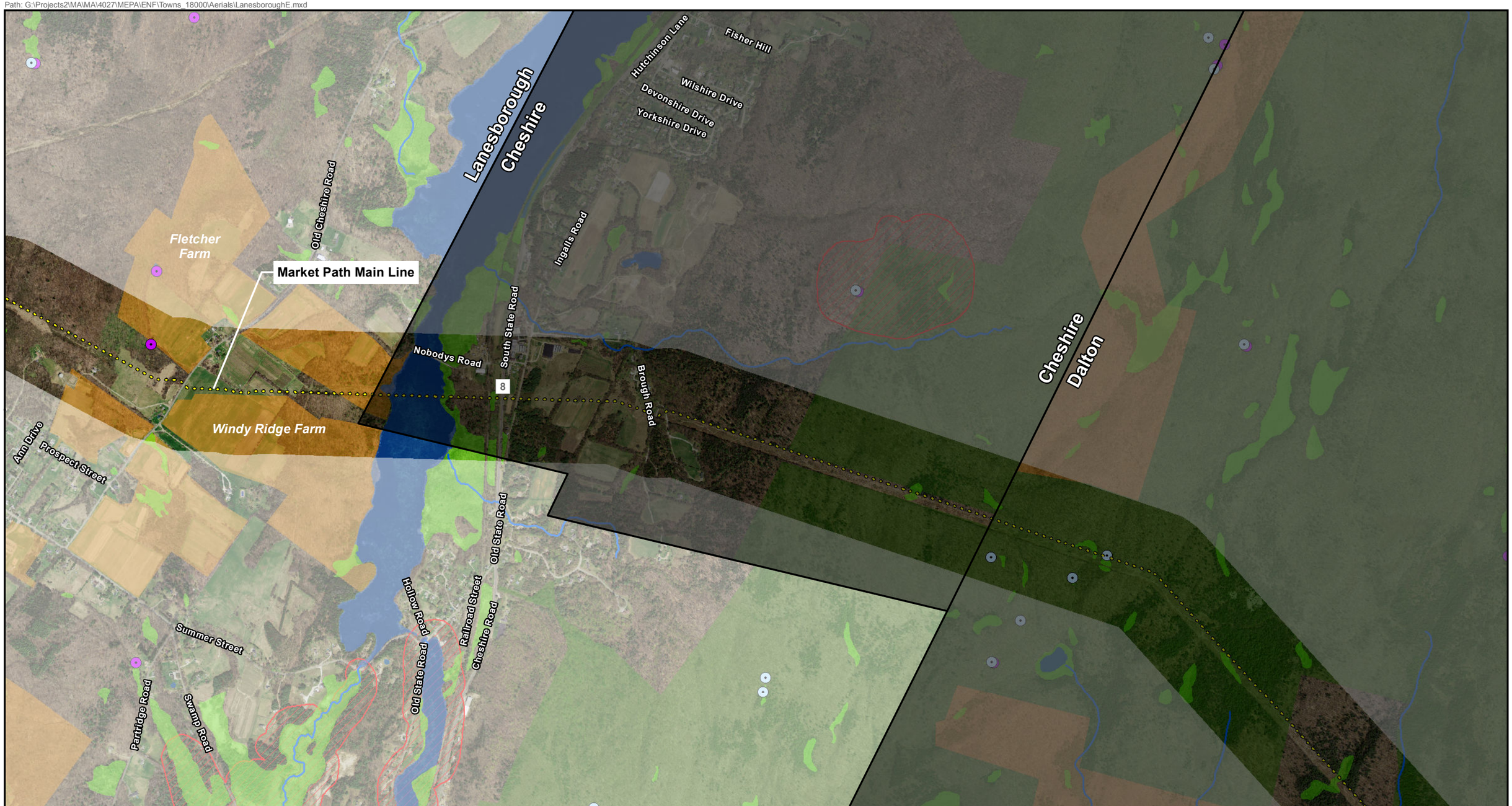
Market Path Main Line

October 2015

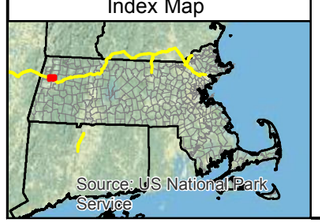
FIGURE 3.2-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\LanesboroughE.mxd



Index Map



Legend

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- Meter Station

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lanesborough, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

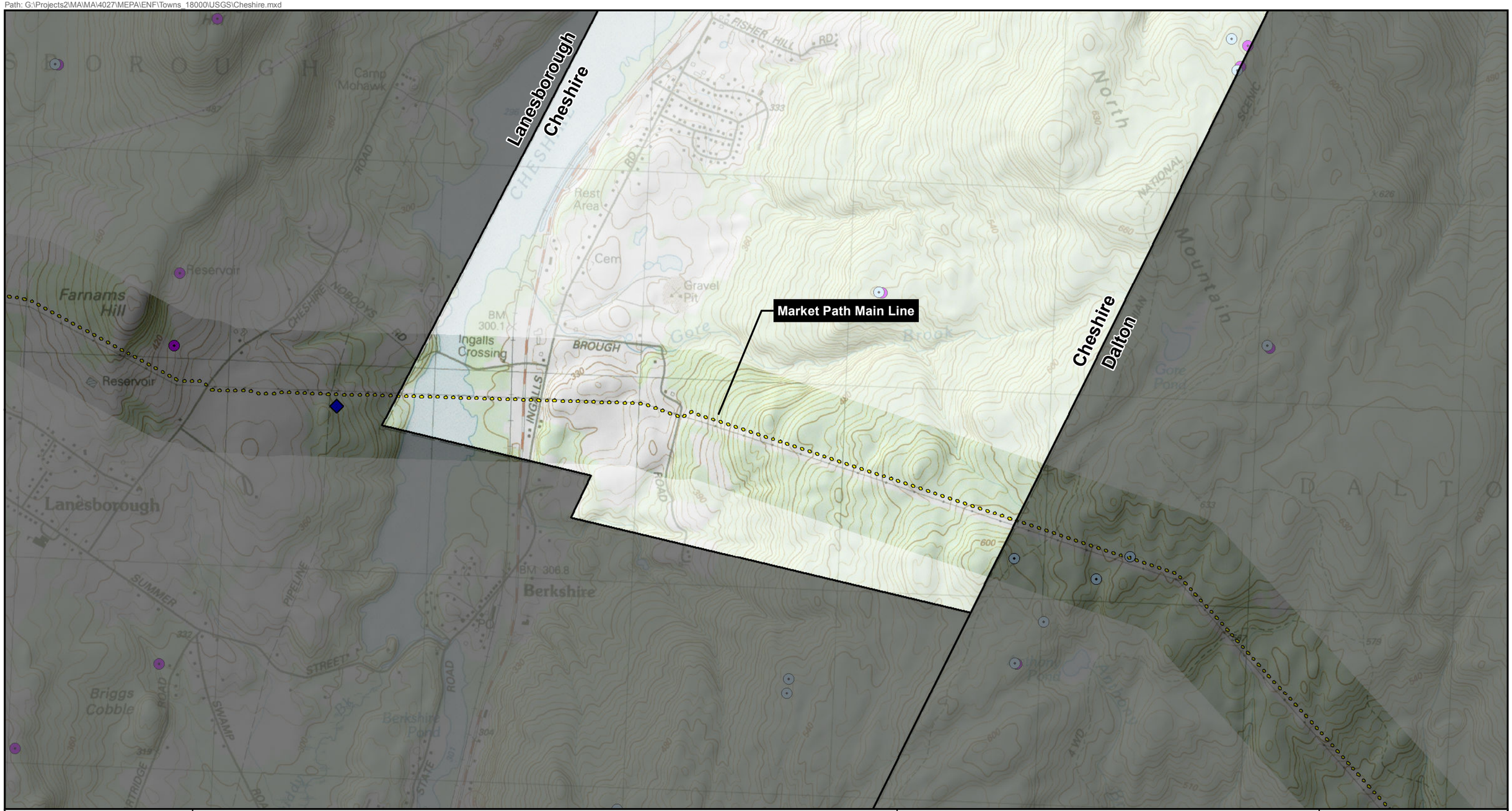
Market Path Main Line

October 2015

FIGURE 3.2-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Cheshire.mxd



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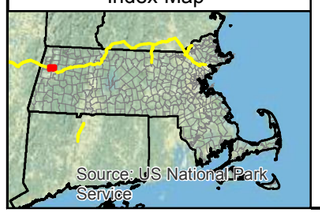

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Cheshire, MA - USGS Locus Map
(Cheshire Quadrangle, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

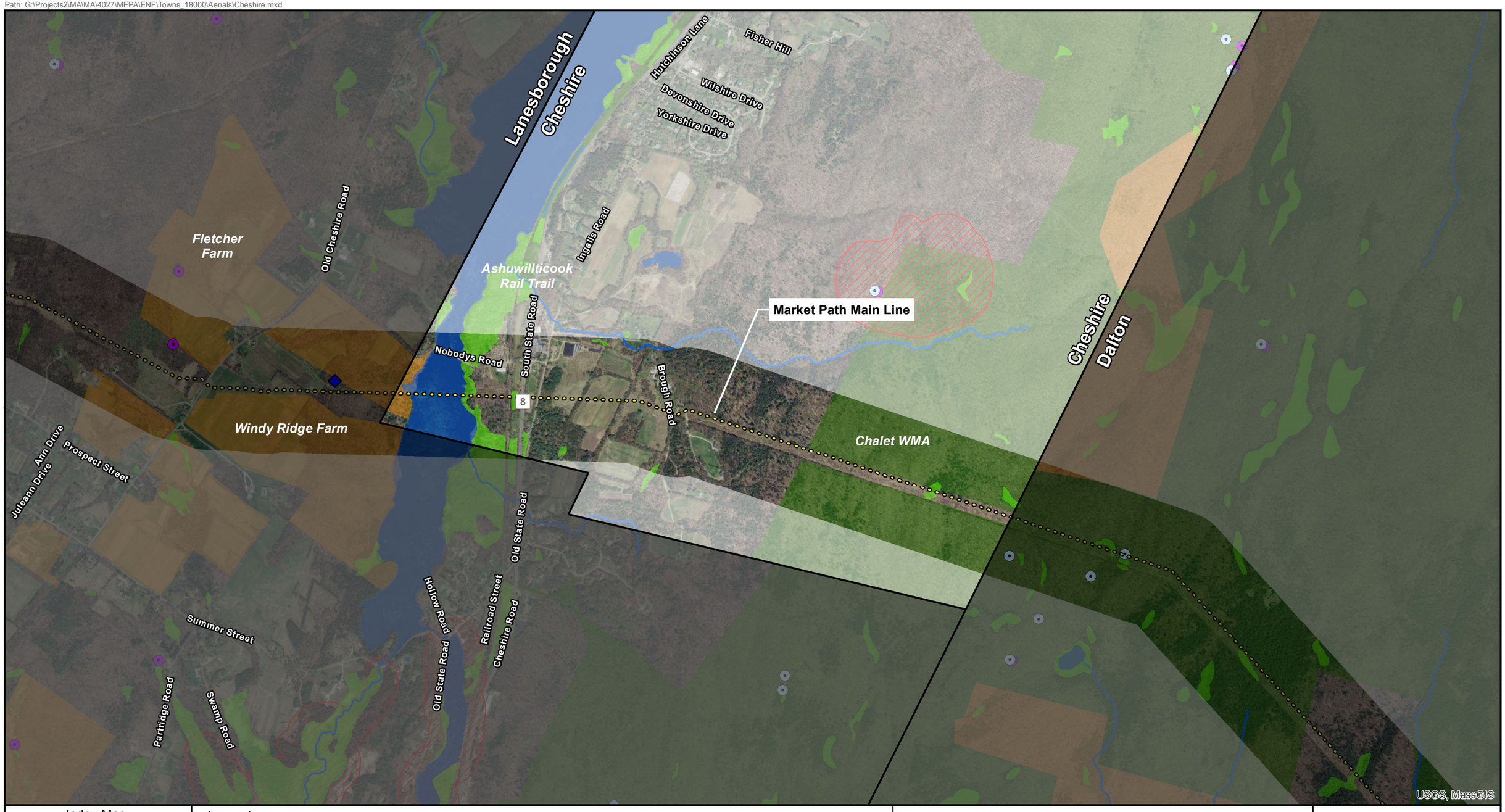
Market Path Main Line

October 2015

FIGURE 3.3-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Cheshire.mxd



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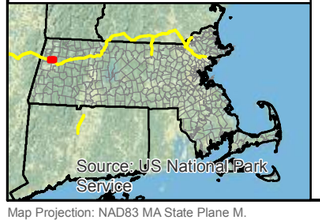

Legend

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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Cheshire, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

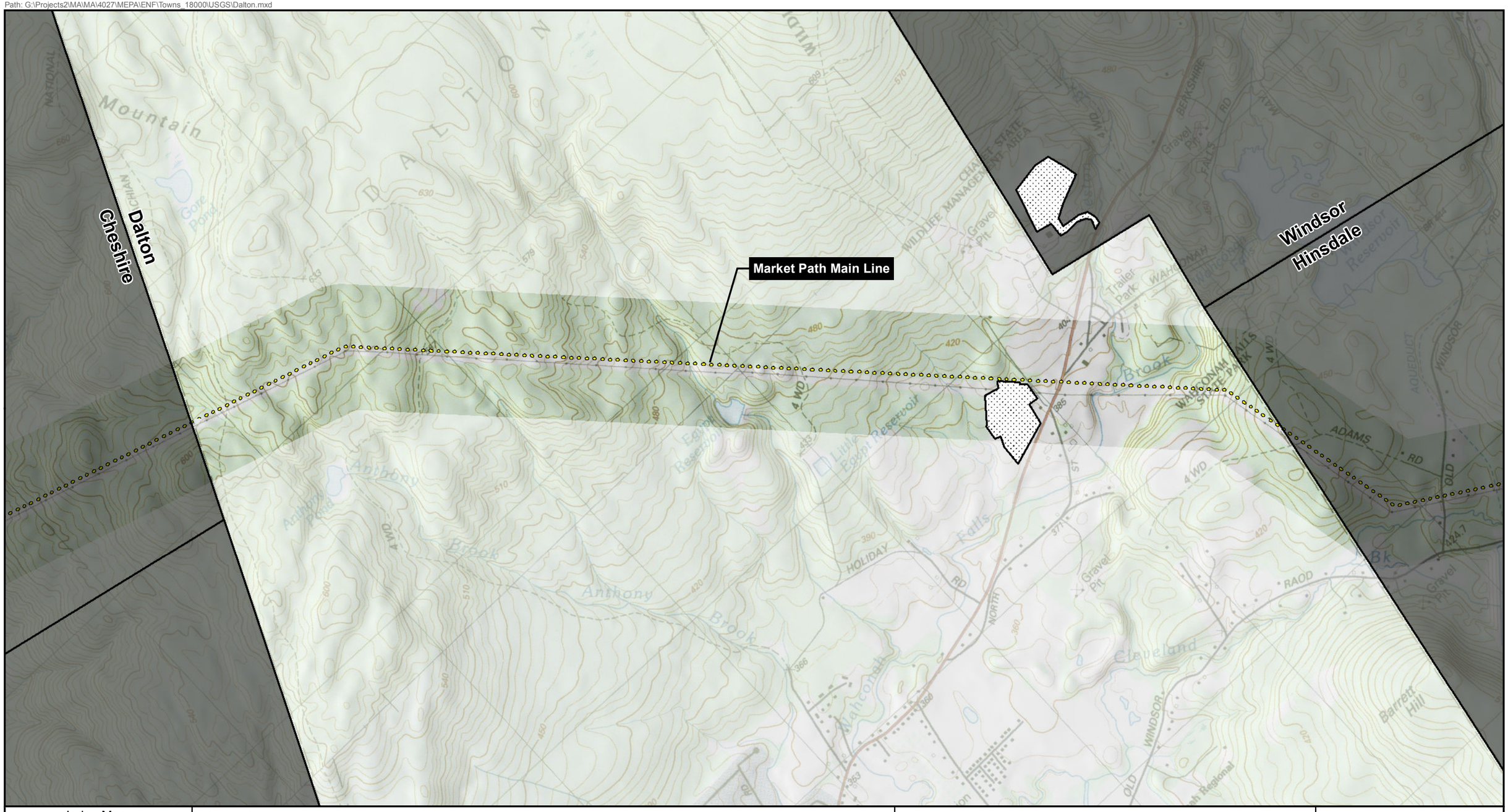
Market Path Main Line

October 2015

FIGURE 3.3-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Dalton.mxd



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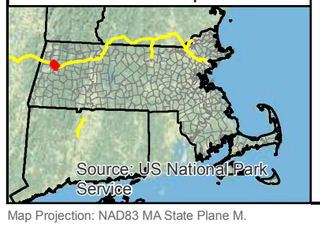


Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dalton, MA - USGS Locus Map
(Cheshire and Pittsfield East Quadrangles, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

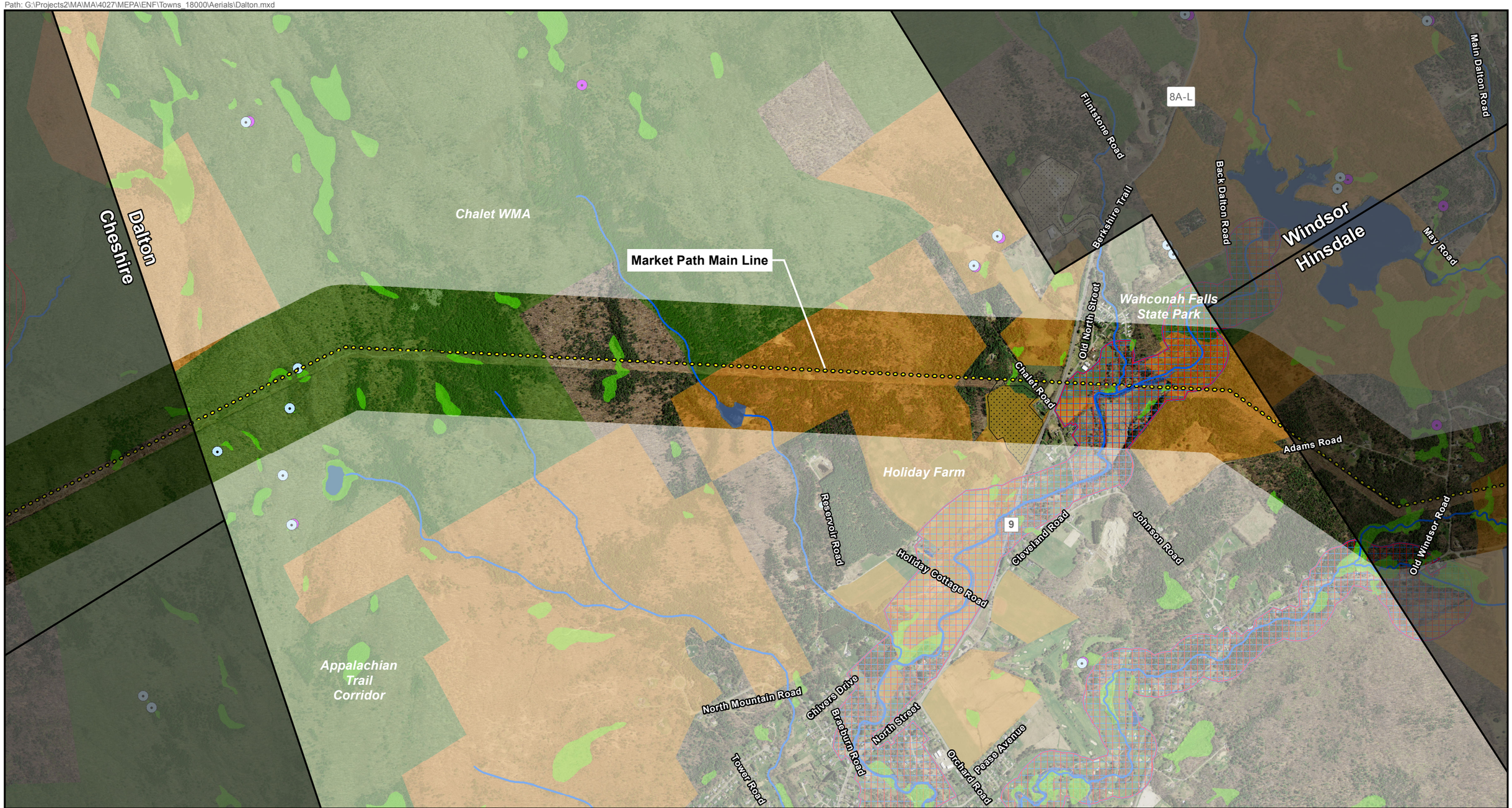
Market Path Main Line

October 2015

FIGURE 3.4-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Dalton.mxd



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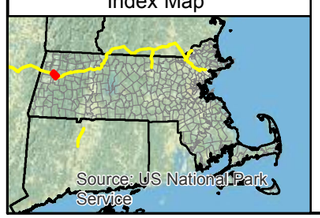

Legend

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- Contractor Yard

N E S W

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dalton, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

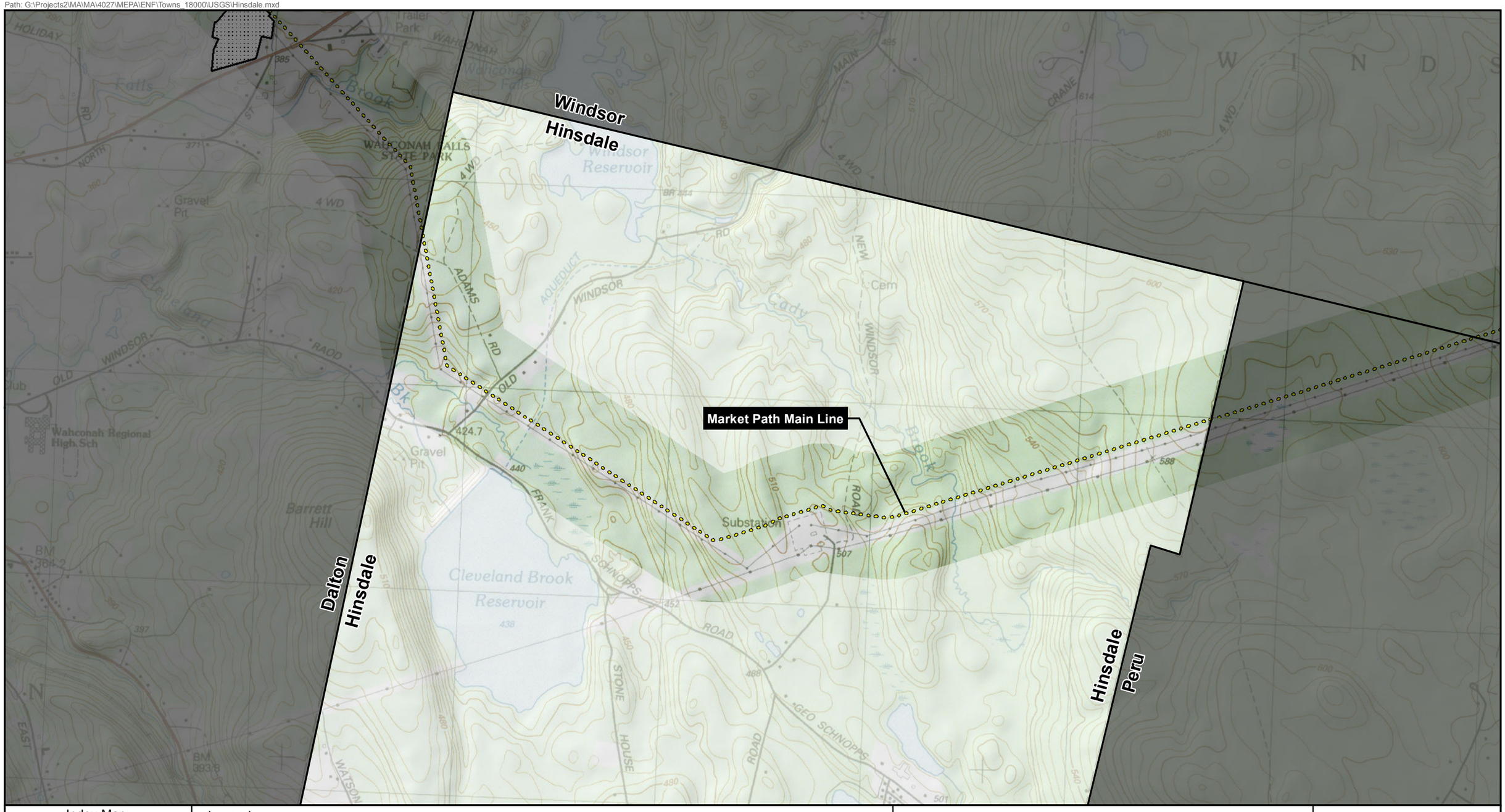
Market Path Main Line

October 2015

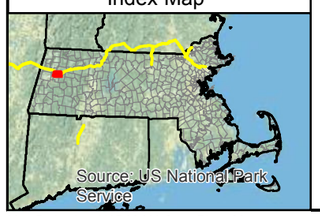
FIGURE 3.4-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Hinsdale.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Hinsdale, MA - USGS Locus Map
(Pittsfield East Quadrangle, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Market Path Main Line

October 2015

FIGURE 3.5-1

Map Projection: NAD83 MA State Plane M.

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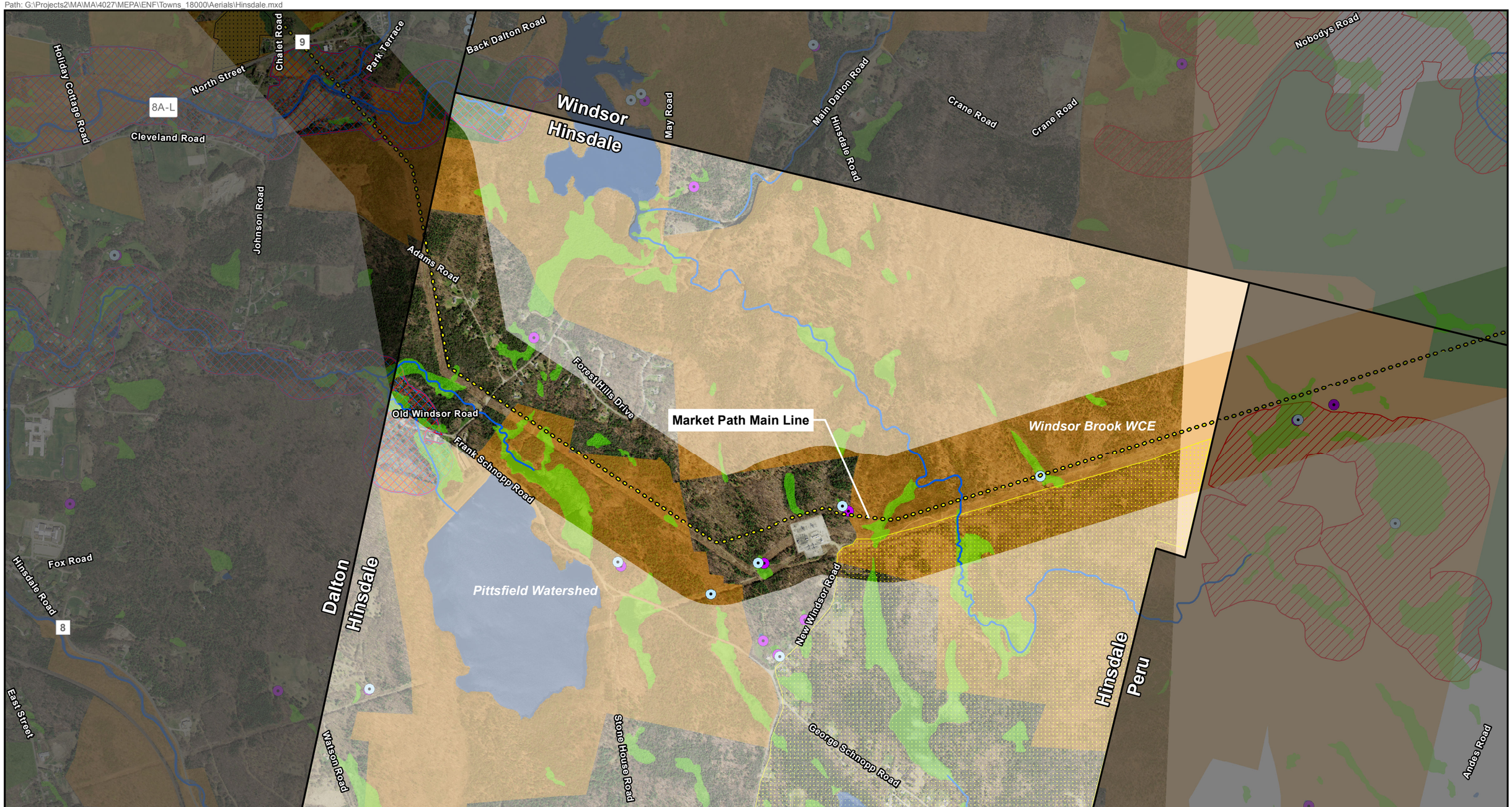
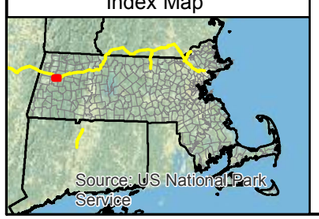


Index Map



Legend

- Market Path Main Line
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Hinsdale Flats Area of Critical Environmental Concern (ACEC)
- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Hinsdale, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

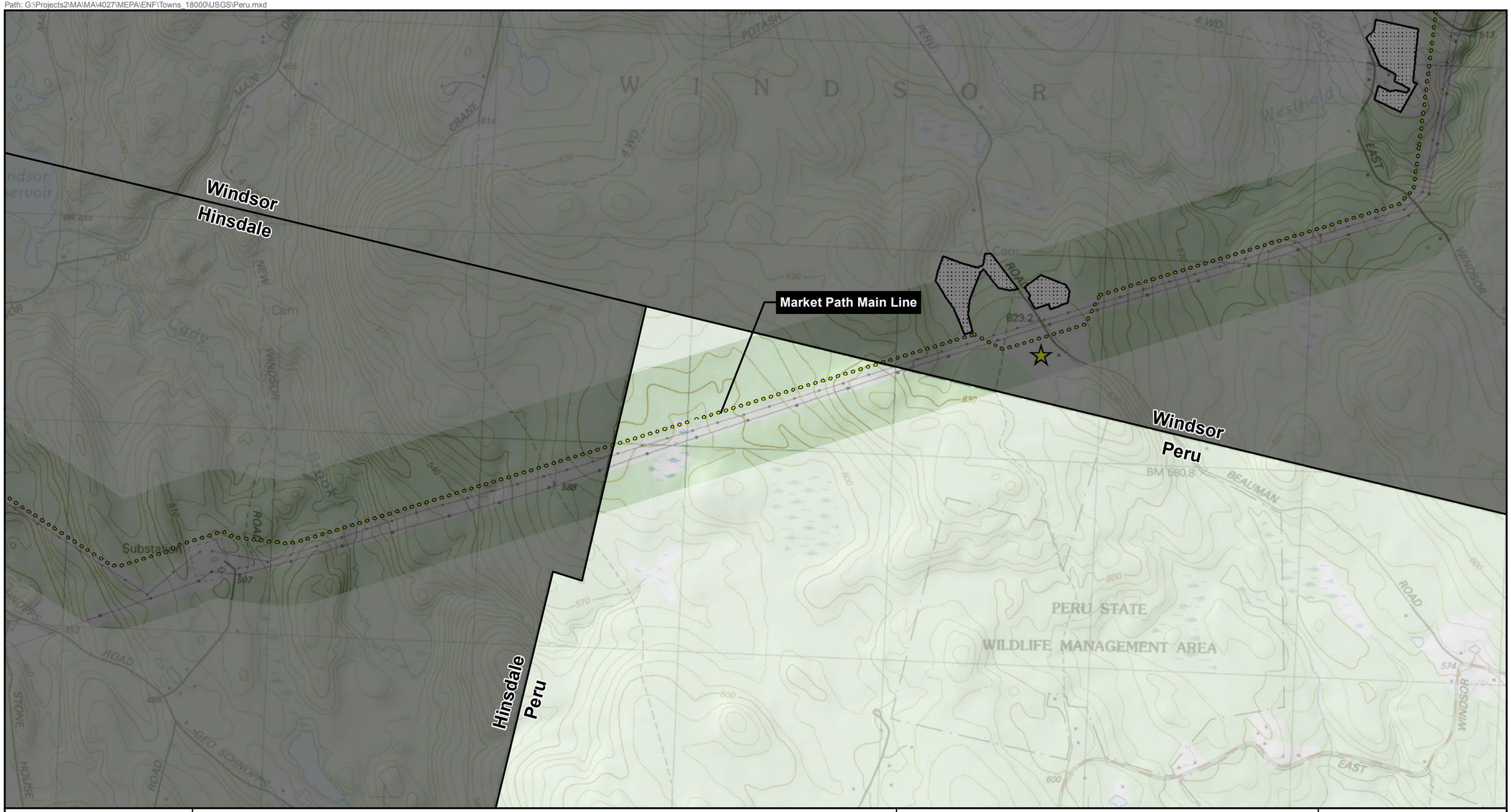
Market Path Main Line

October 2015

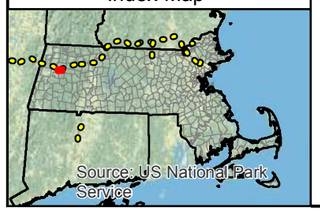
FIGURE 3.5-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Peru.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Proposed Compressor Station Site
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Peru, MA - USGS Locus Map
(Pittsfield East Quadrangle, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

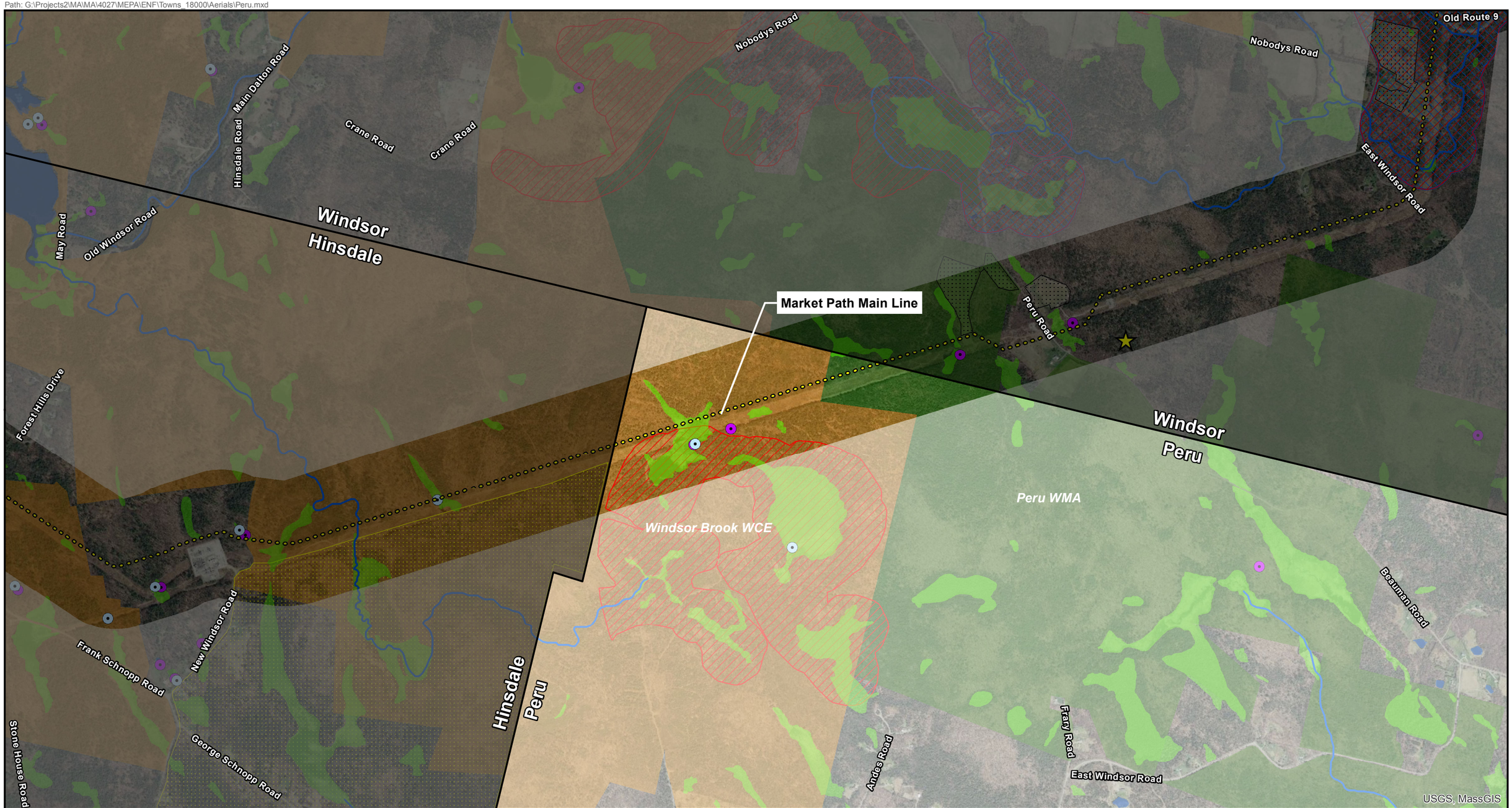
Market Path Main Line

October 2015

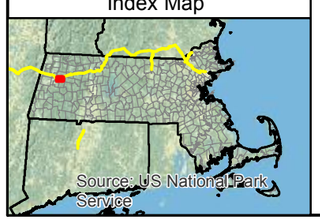
FIGURE 3.6-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Peru.mxd



Index Map



Legend

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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Peru, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

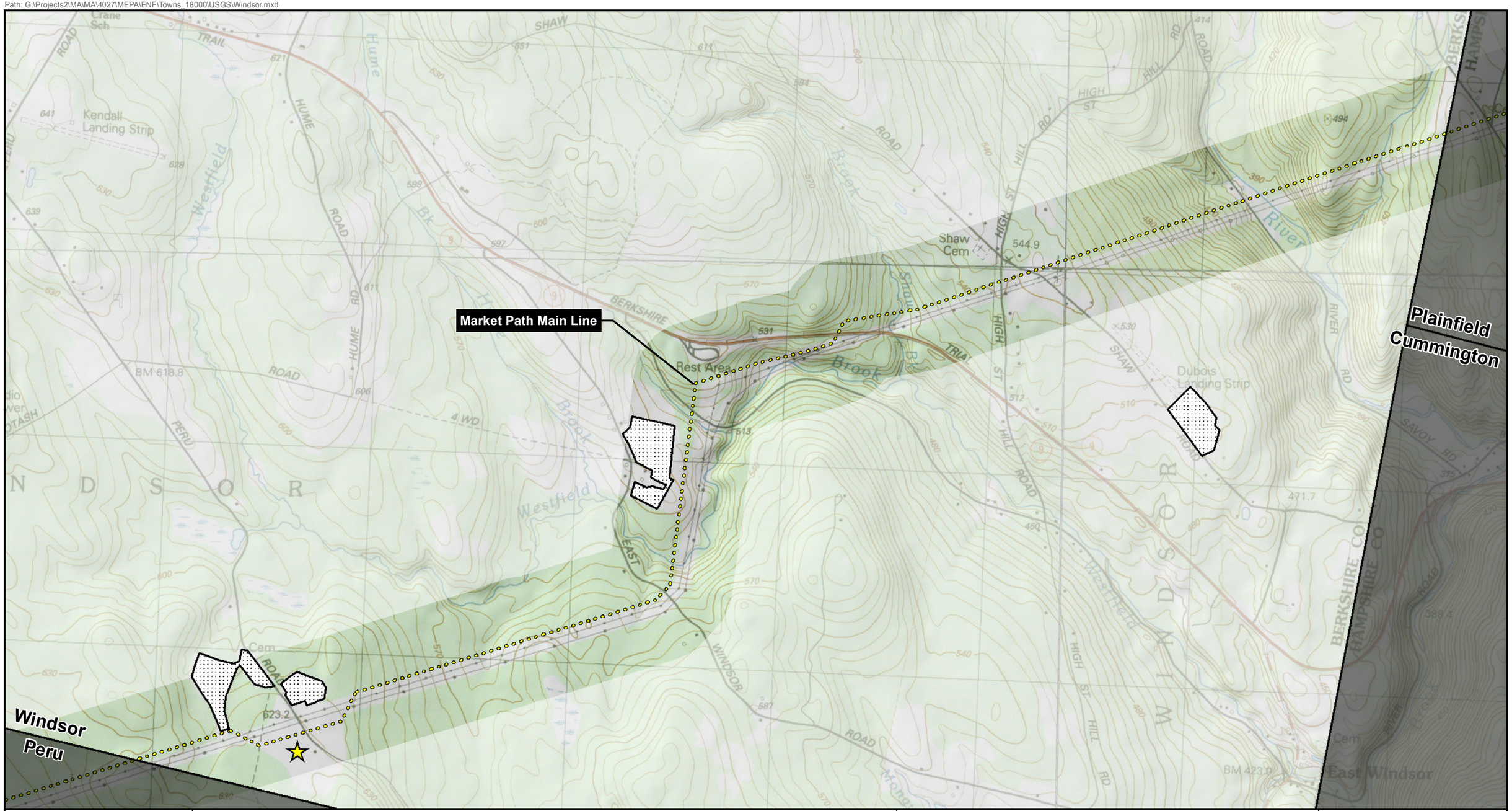
Market Path Main Line

October 2015

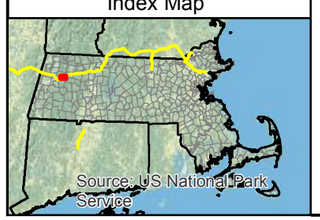
FIGURE 3.6-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Windsor.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Proposed Compressor Station Site
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Windsor, MA - USGS Locus Map
(Cheshire, Ashfield, Pittsfield East, Goshen Quadrangles, 1988/1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

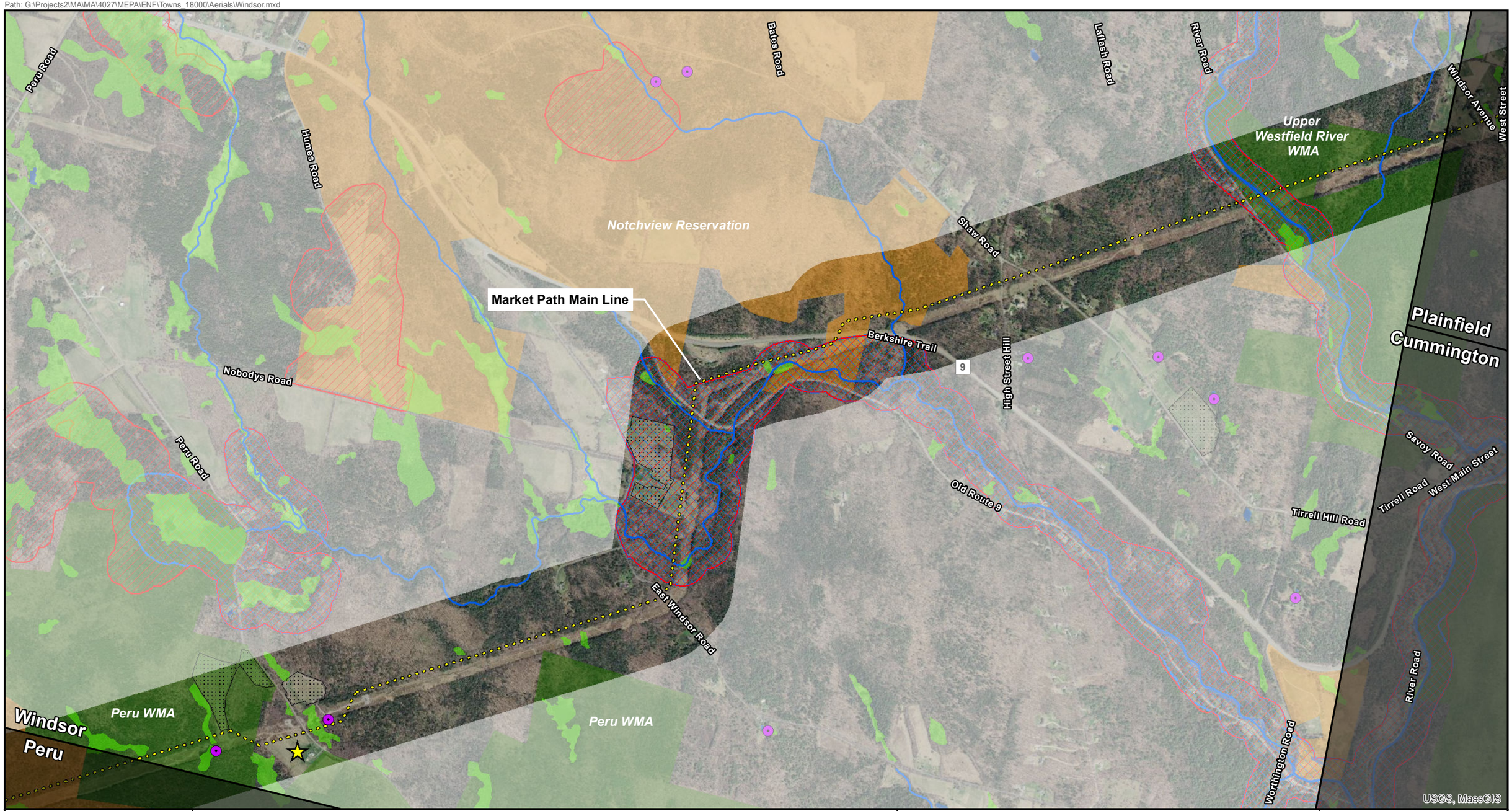
Market Path Main Line

October 2015

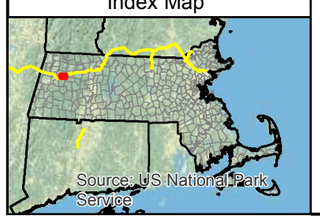
FIGURE 3.7-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Windsor.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
- NHESP 2008 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10)
- NHESP 2014 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Proposed Compressor Station Site
- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Windsor, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

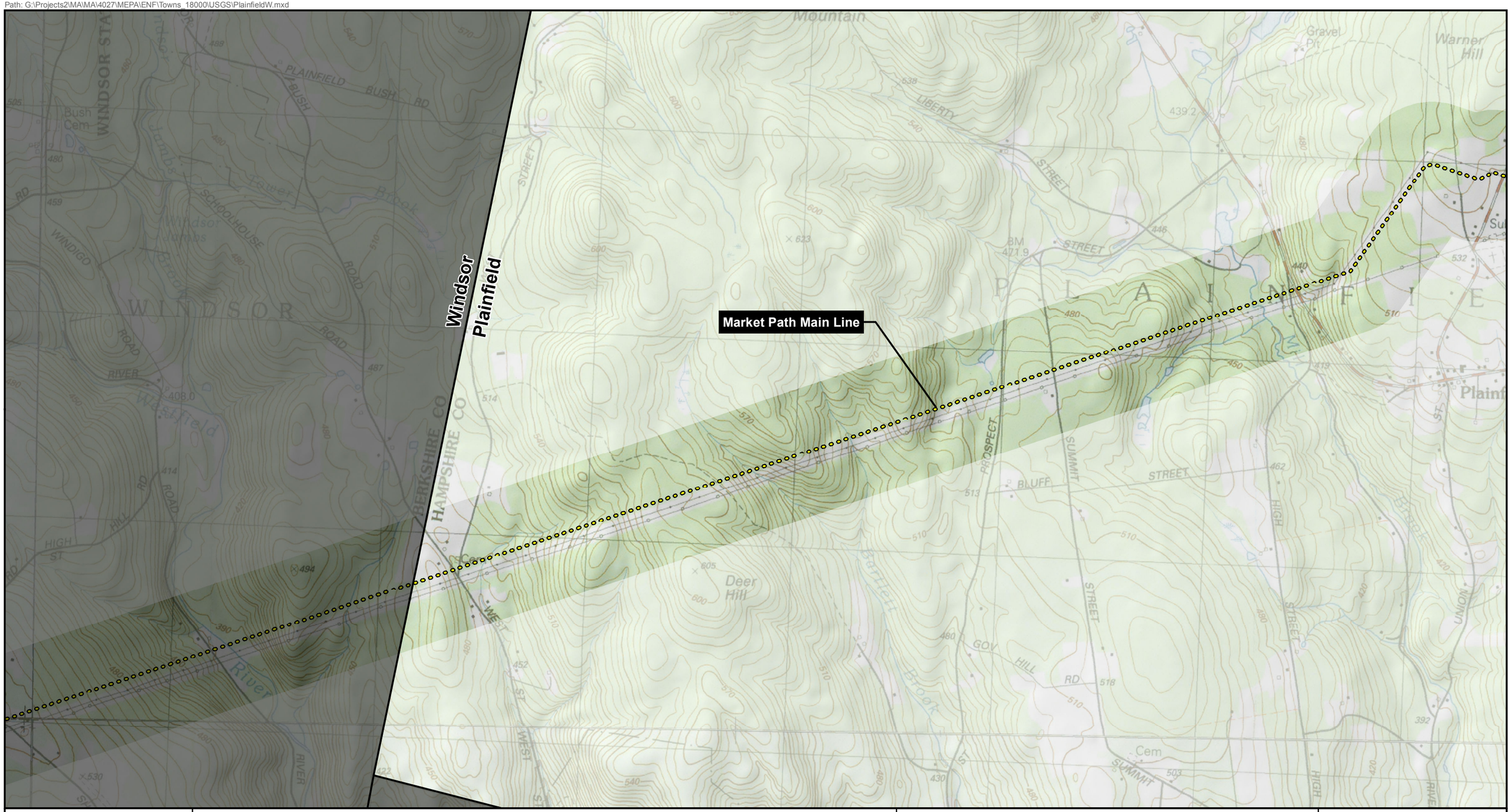
Market Path Main Line

October 2015

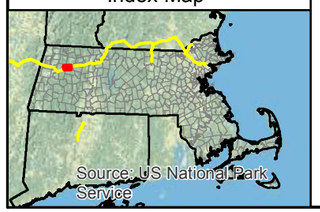
FIGURE 3.7-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\PlainfieldW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
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S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Plainfield, MA - USGS Locus Map
(Ashfield and Goshen Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

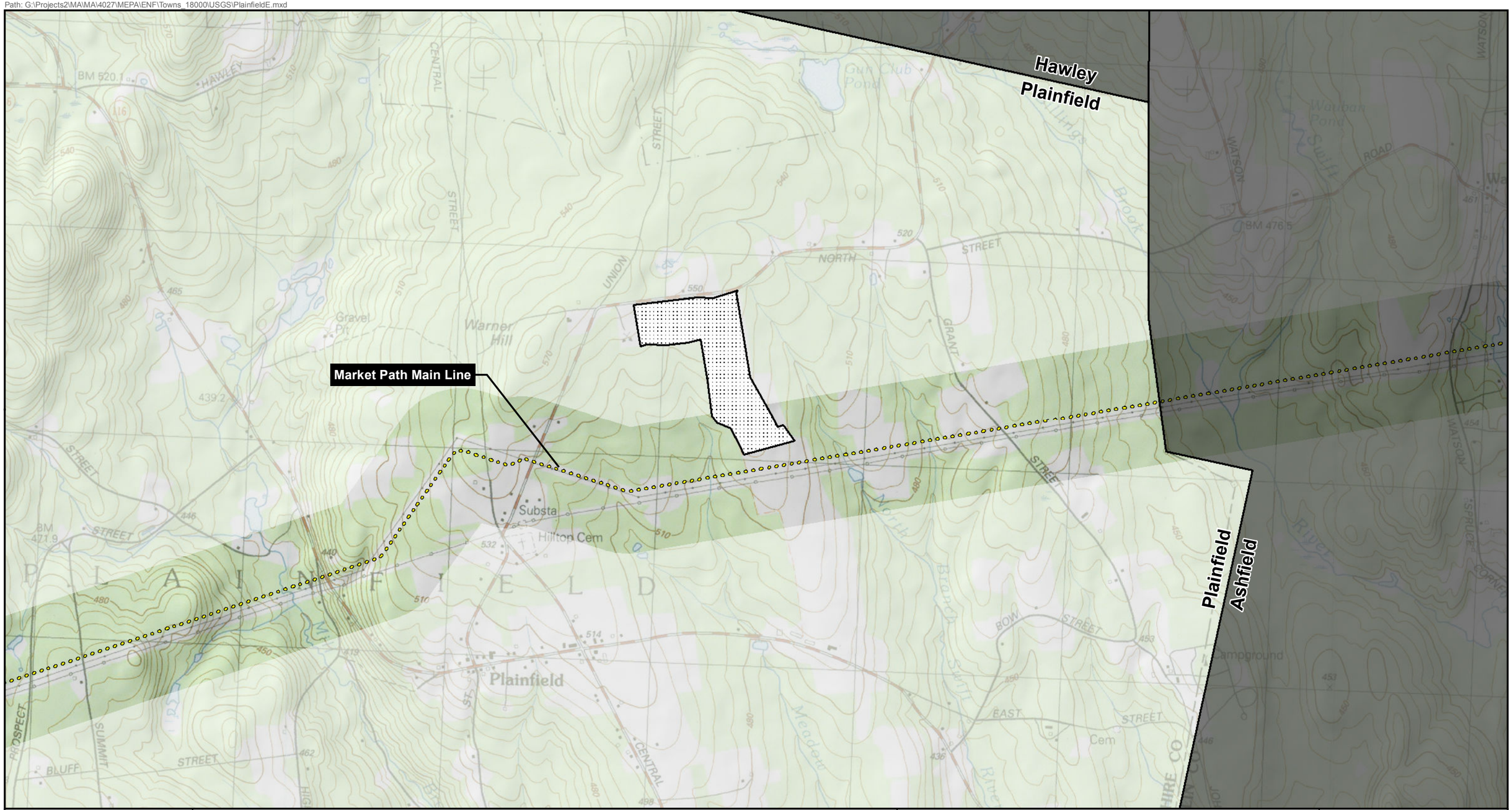
Market Path Main Line

October 2015

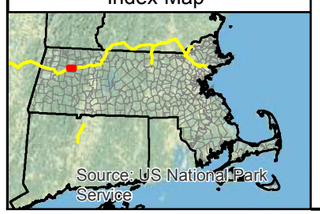
FIGURE 3.8-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\PlainfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Plainfield, MA - USGS Locus Map
(Ashfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

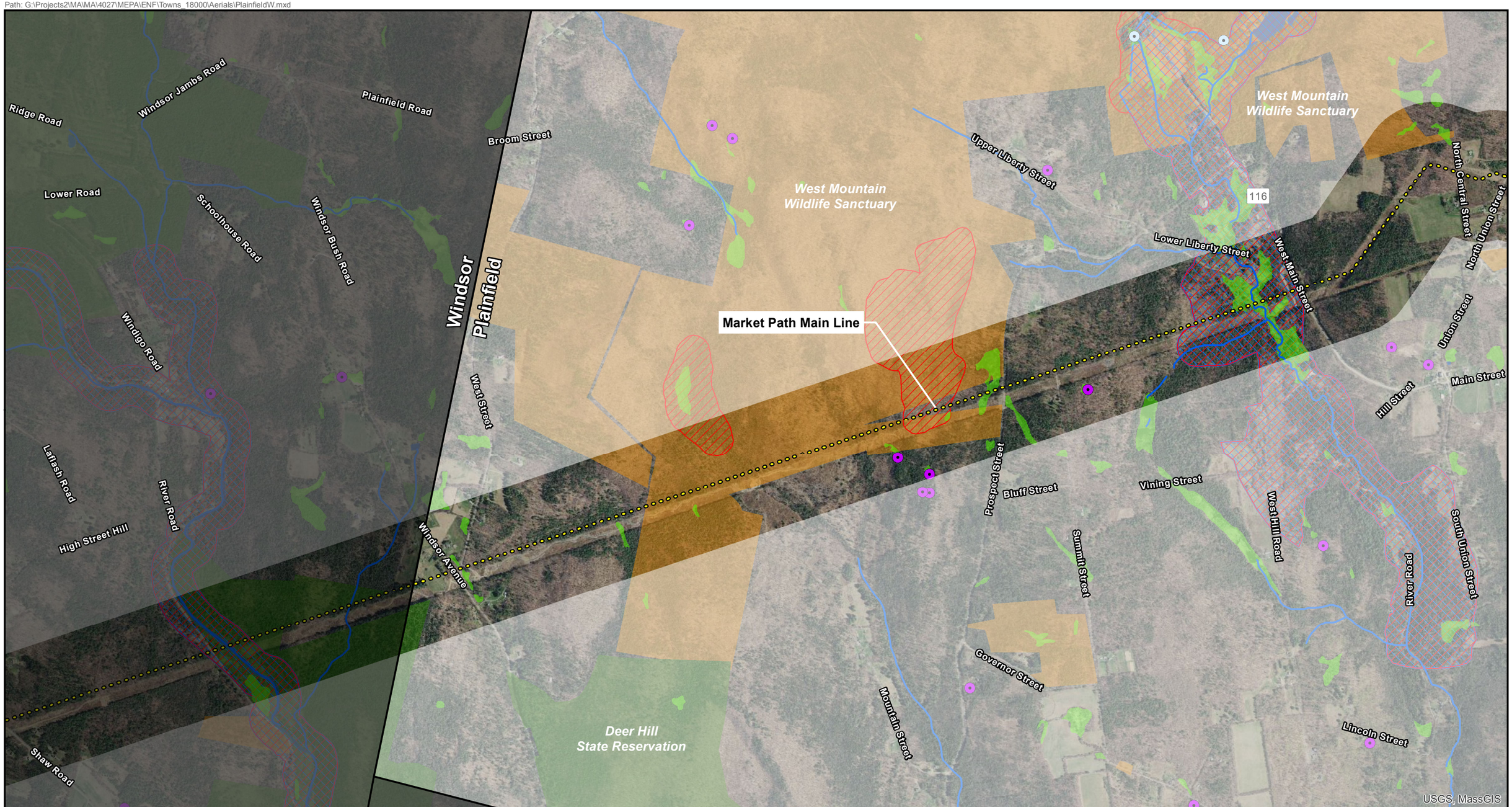
Market Path Main Line

October 2015

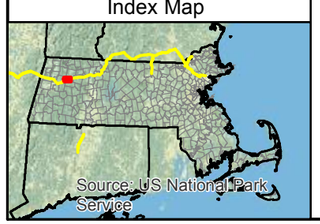
FIGURE 3.8-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\PlainfieldW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
- NHESP 2008 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10)
- NHESP 2014 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Plainfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

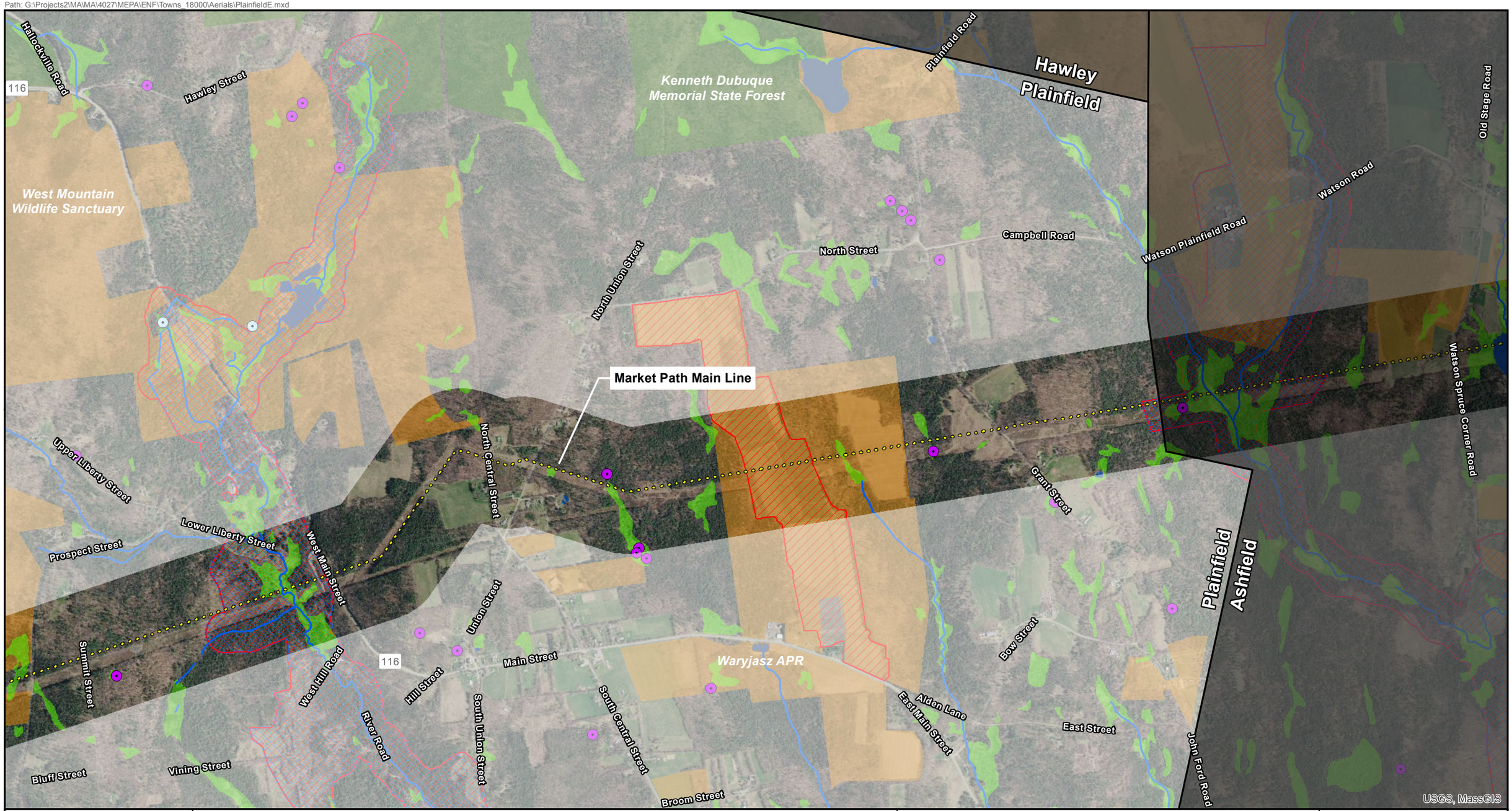
Market Path Main Line

October 2015

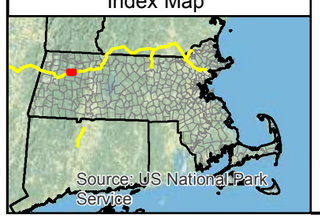
FIGURE 3.8-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\PlainfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
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- Contractor Yard

N
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S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Plainfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

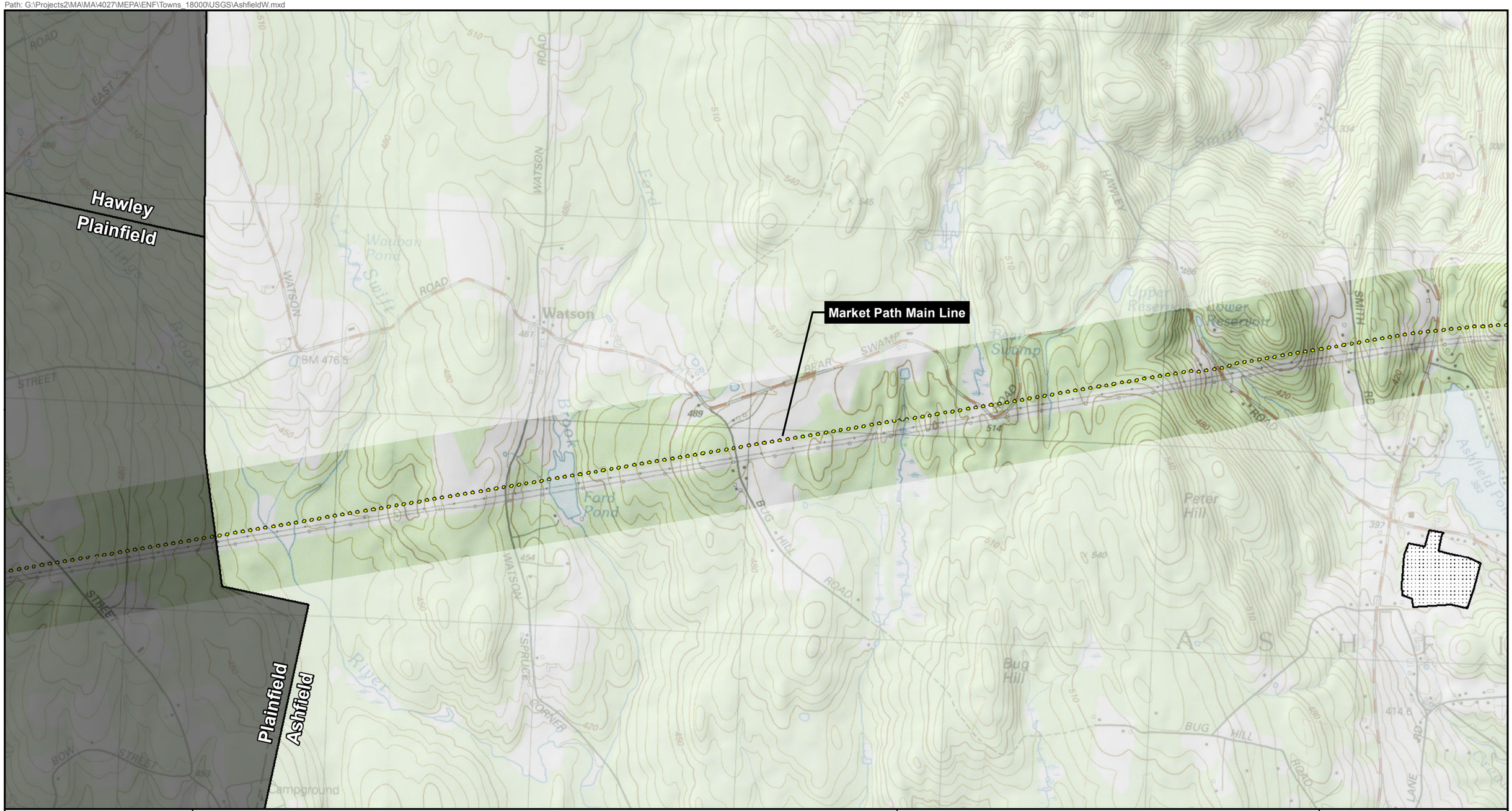
Market Path Main Line

October 2015

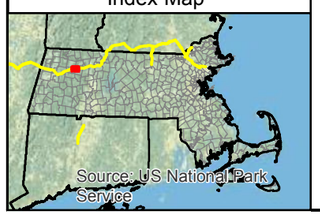
FIGURE 3.8-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\AshfieldW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Ashfield, MA - USGS Locus Map
(Ashfield and Plainfield Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

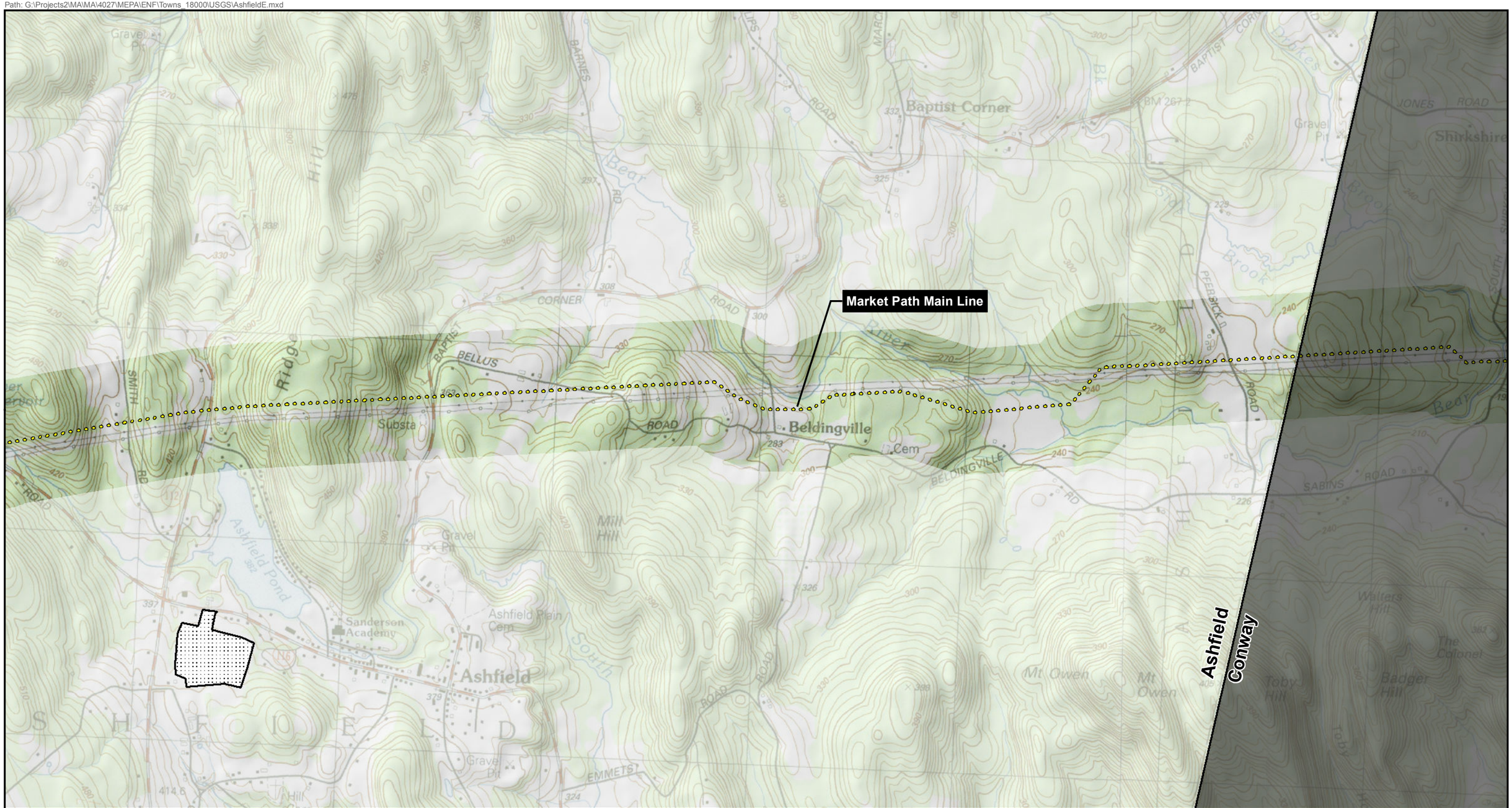
Market Path Main Line

October 2015

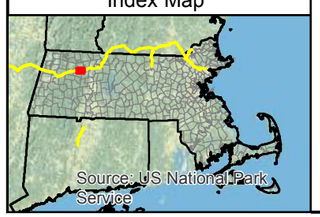
FIGURE 3.9-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\AshfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Ashfield, MA - USGS Locus Map
(Ashfield and Greenfield Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

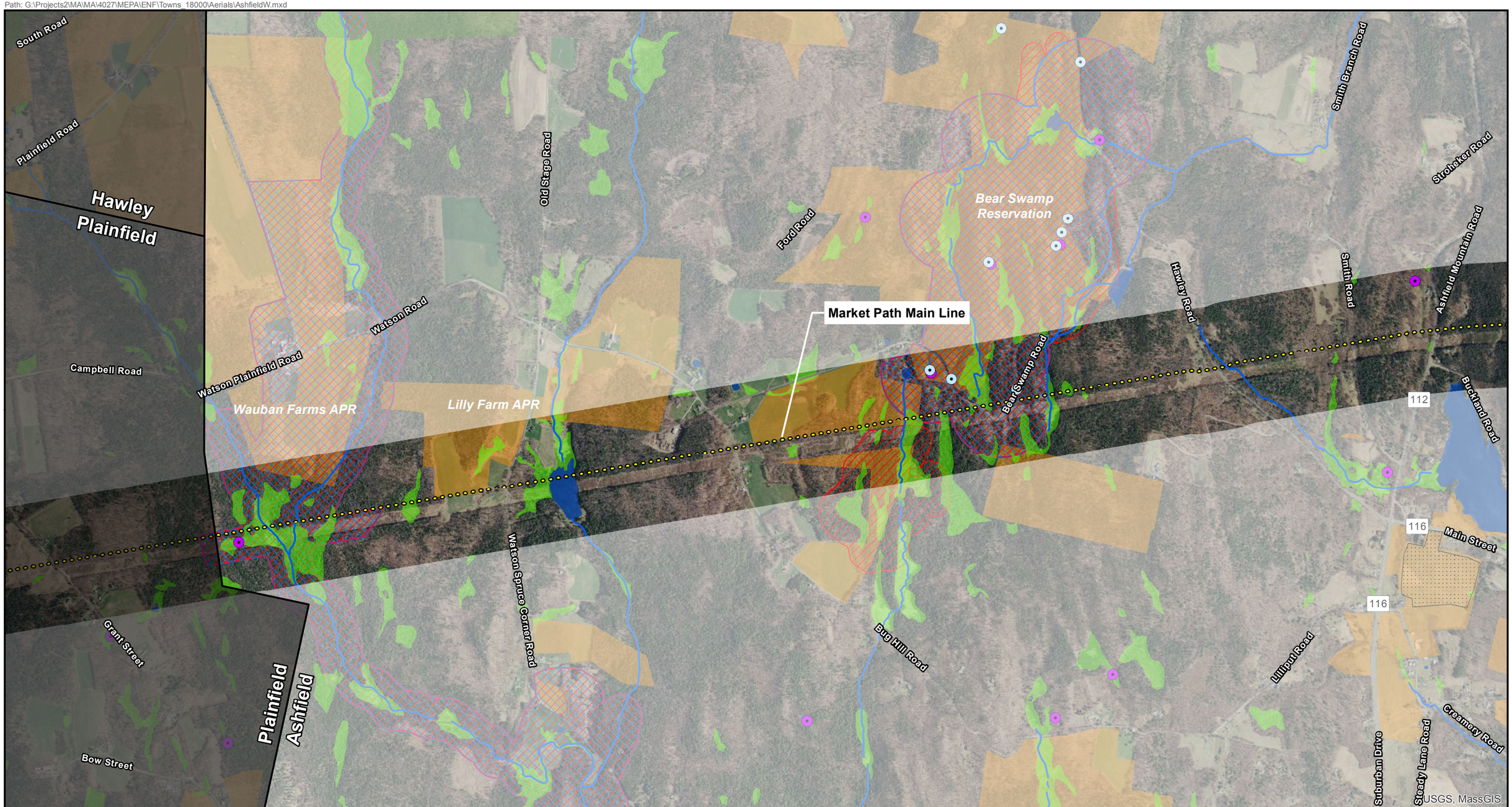
Market Path Main Line

October 2015

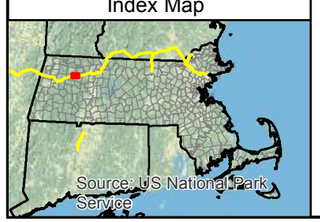
FIGURE 3.9-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\AshfieldW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Ashfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

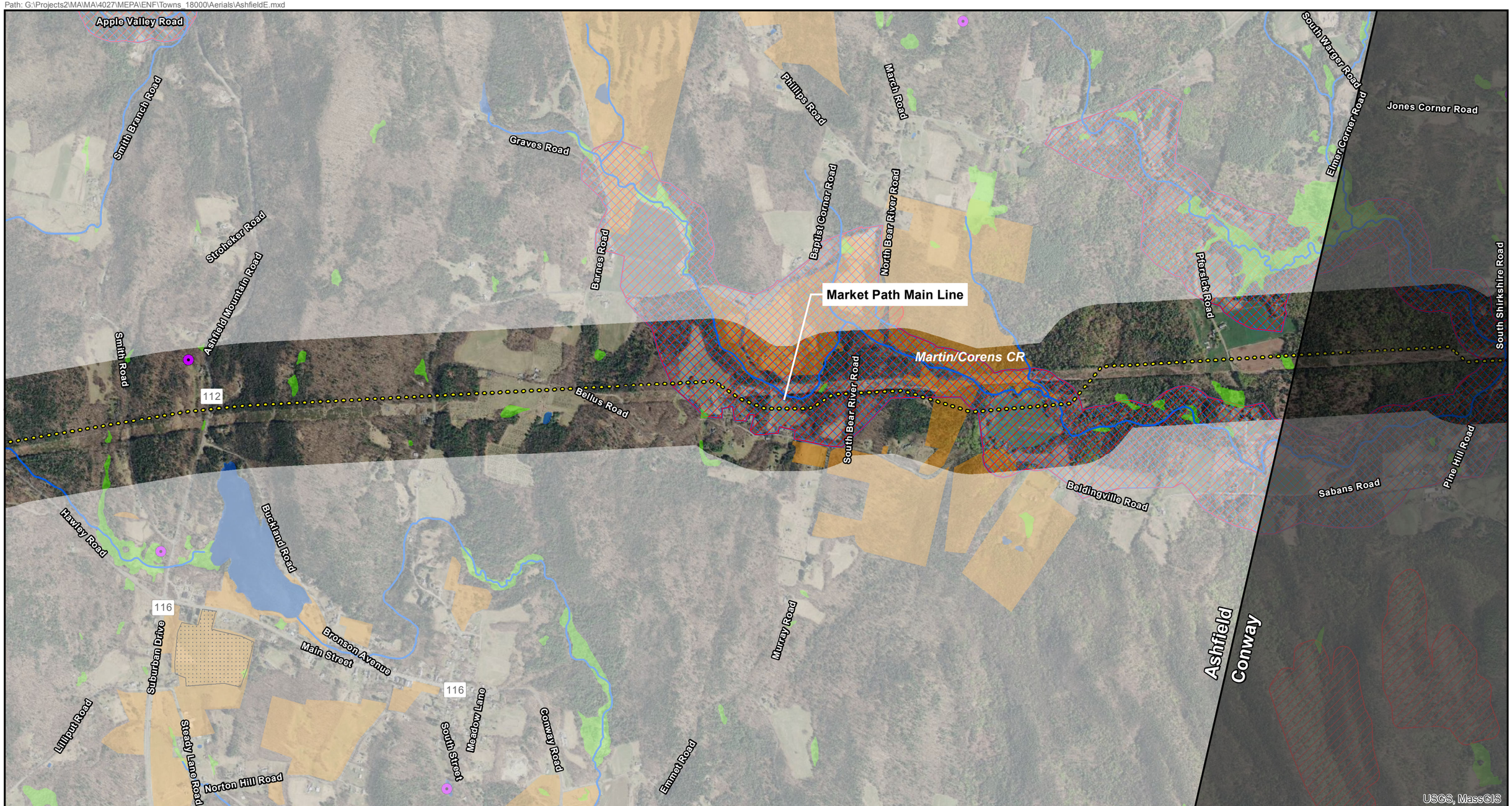
Market Path Main Line

October 2015

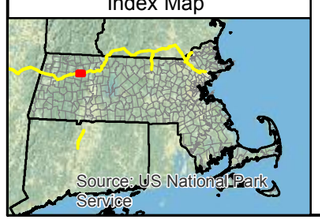
FIGURE 3.9-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\AshfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Ashfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

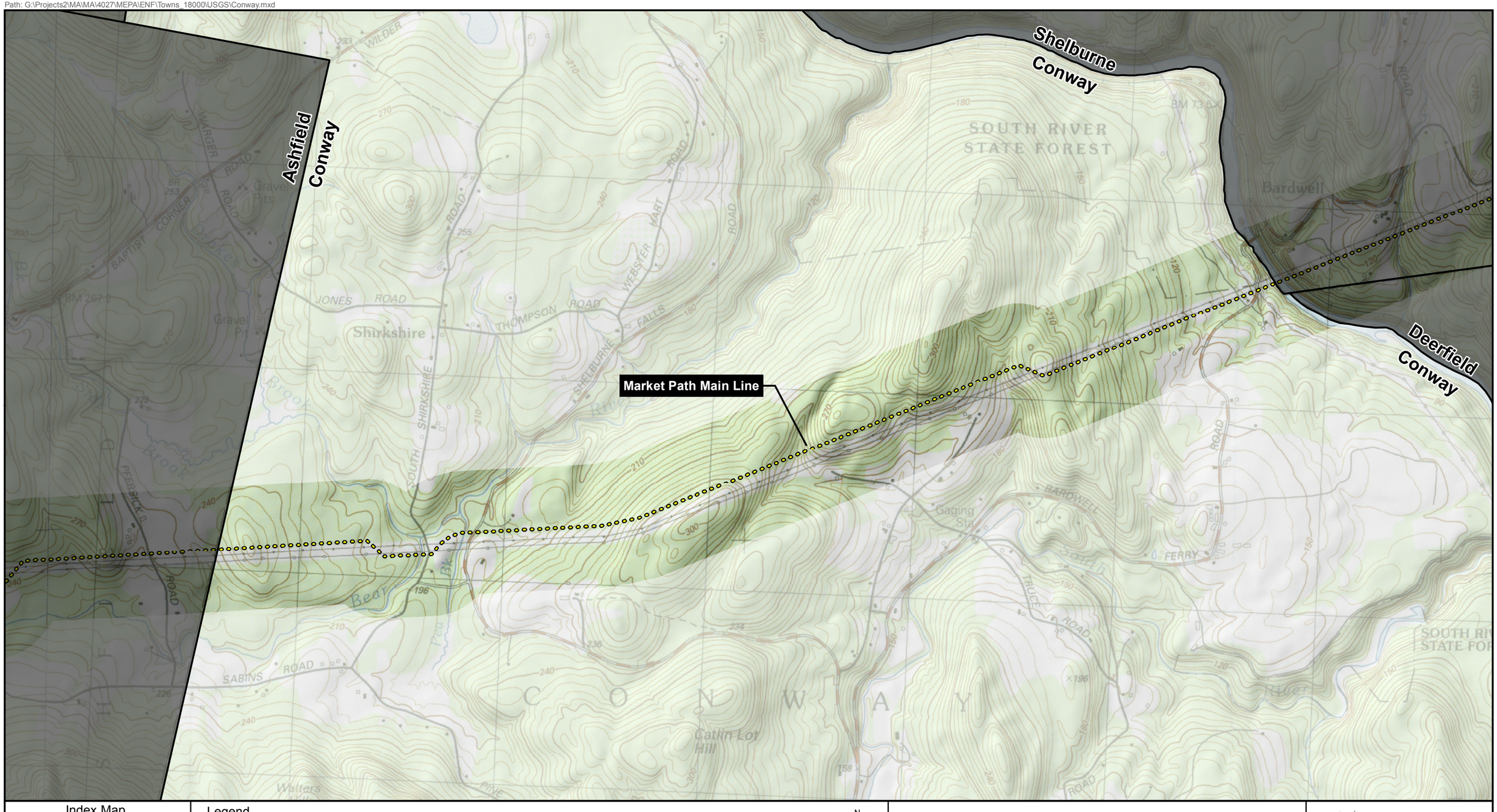
Market Path Main Line

October 2015

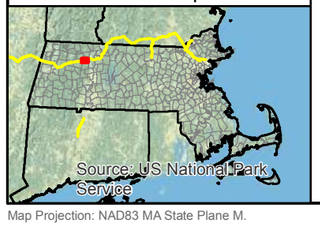
FIGURE 3.9-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Conway.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Conway, MA - USGS Locus Map
(Ashfield and Greenfield Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

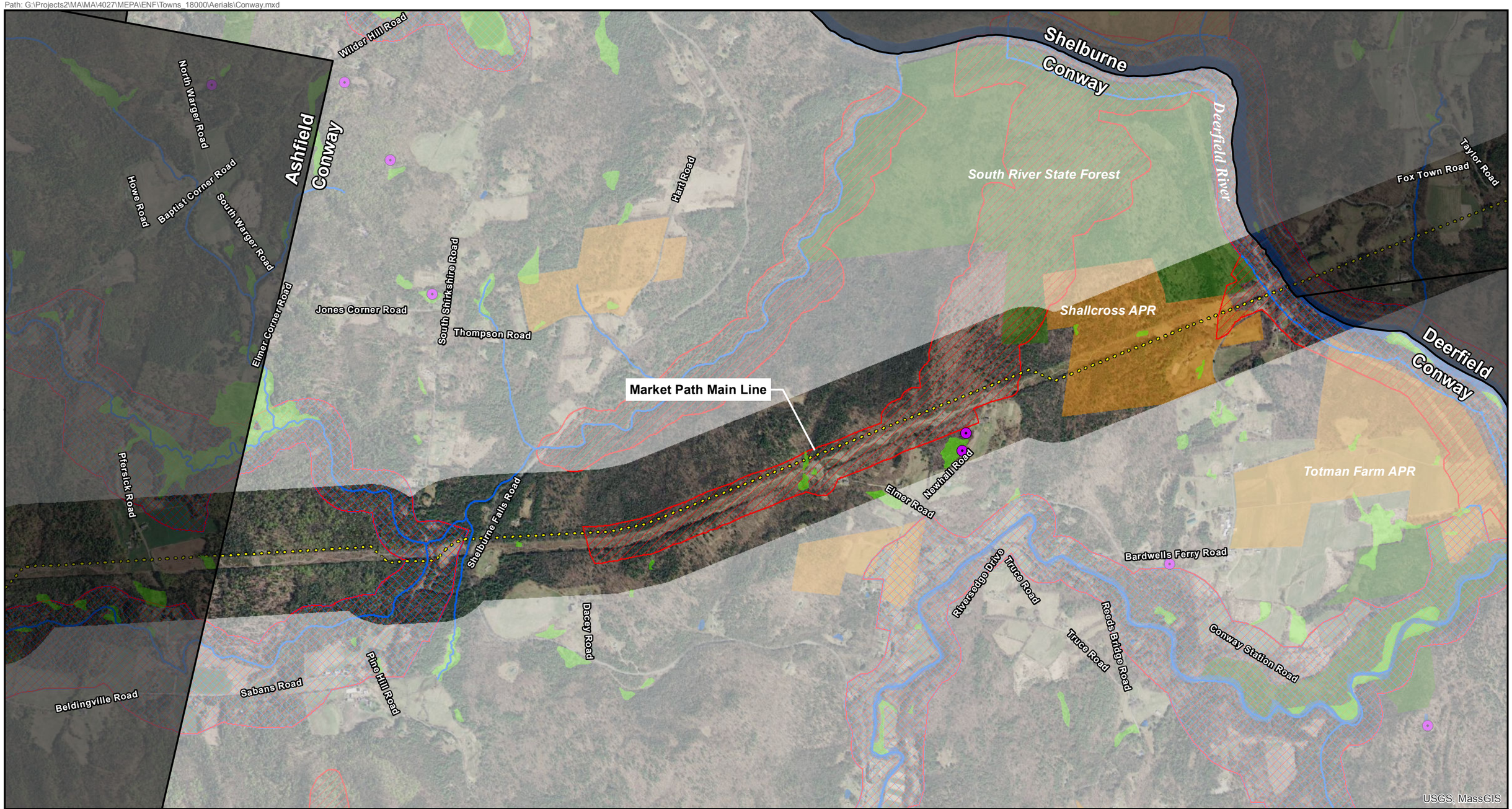
Market Path Main Line

October 2015

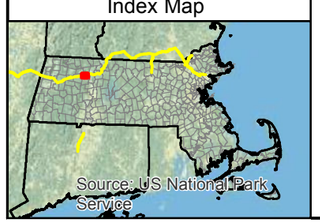
FIGURE 3.10-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Conway.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Conway, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

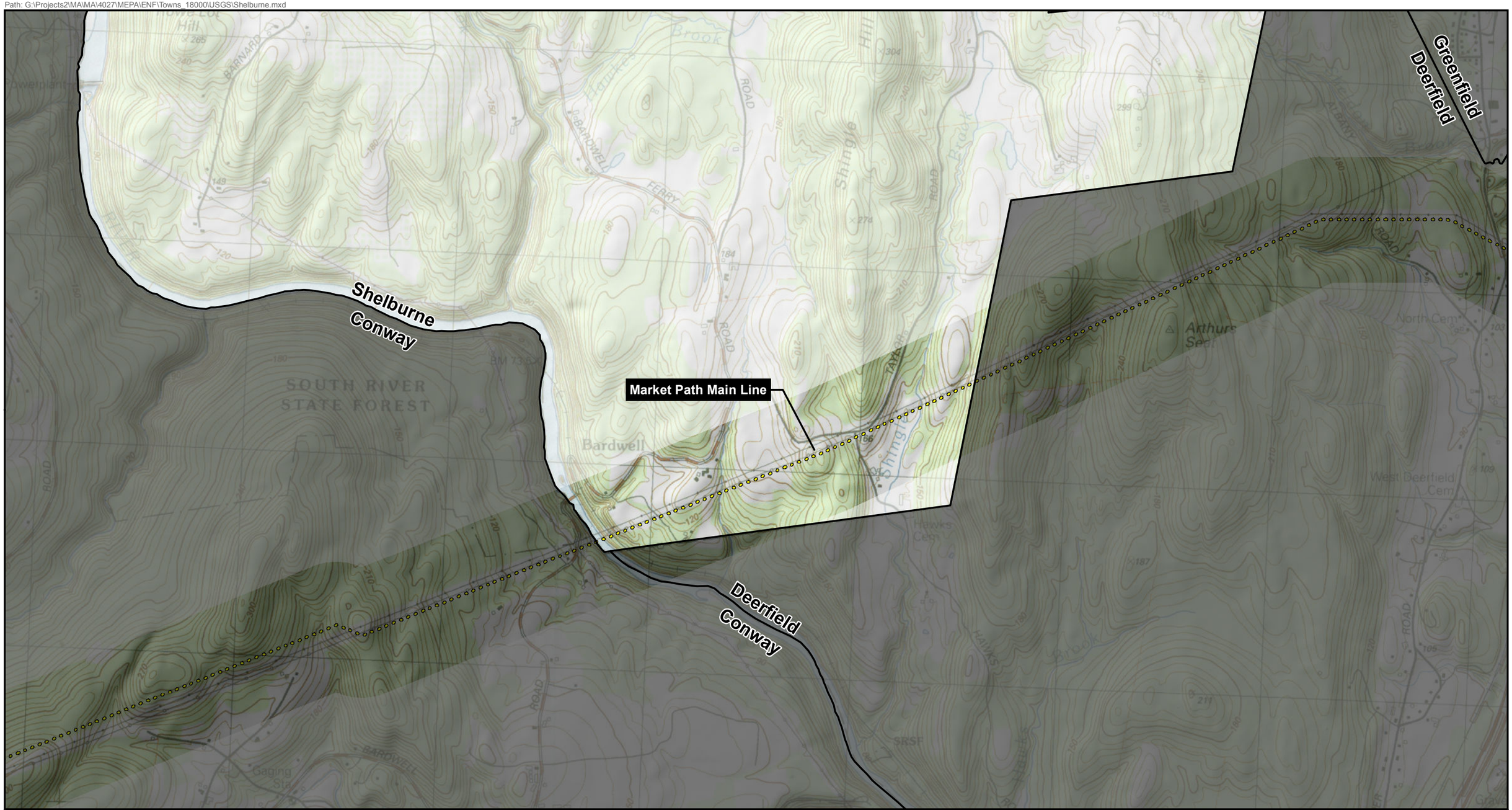
Market Path Main Line

October 2015

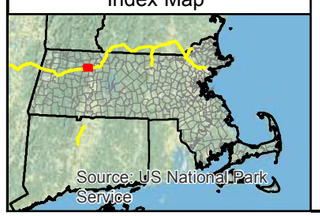
FIGURE 3.10-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Shelburne.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
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S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Shelburne, MA - USGS Locus Map
(Greenfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

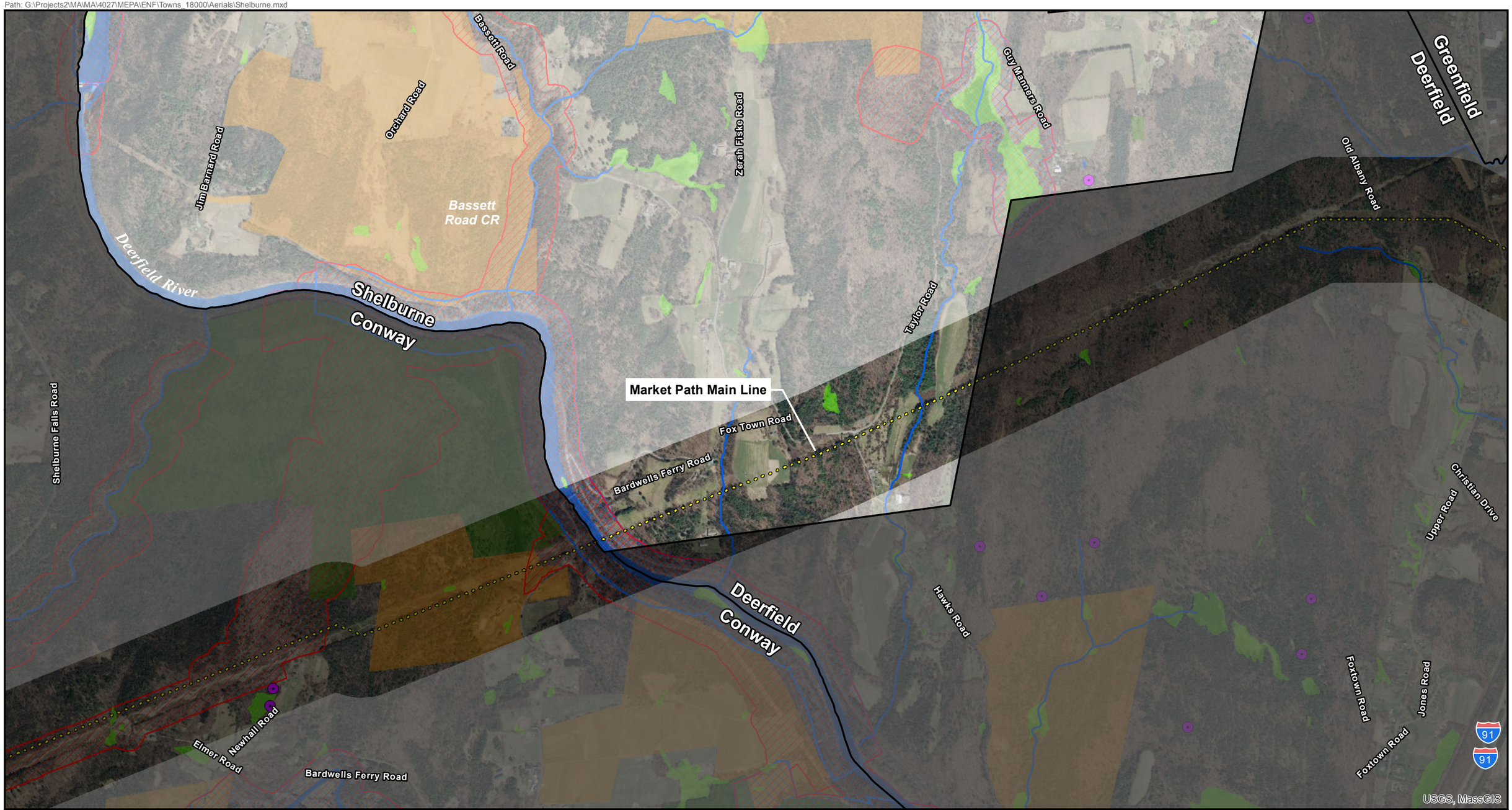
Market Path Main Line

October 2015

FIGURE 3.11-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Shelburne.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Shelburne, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

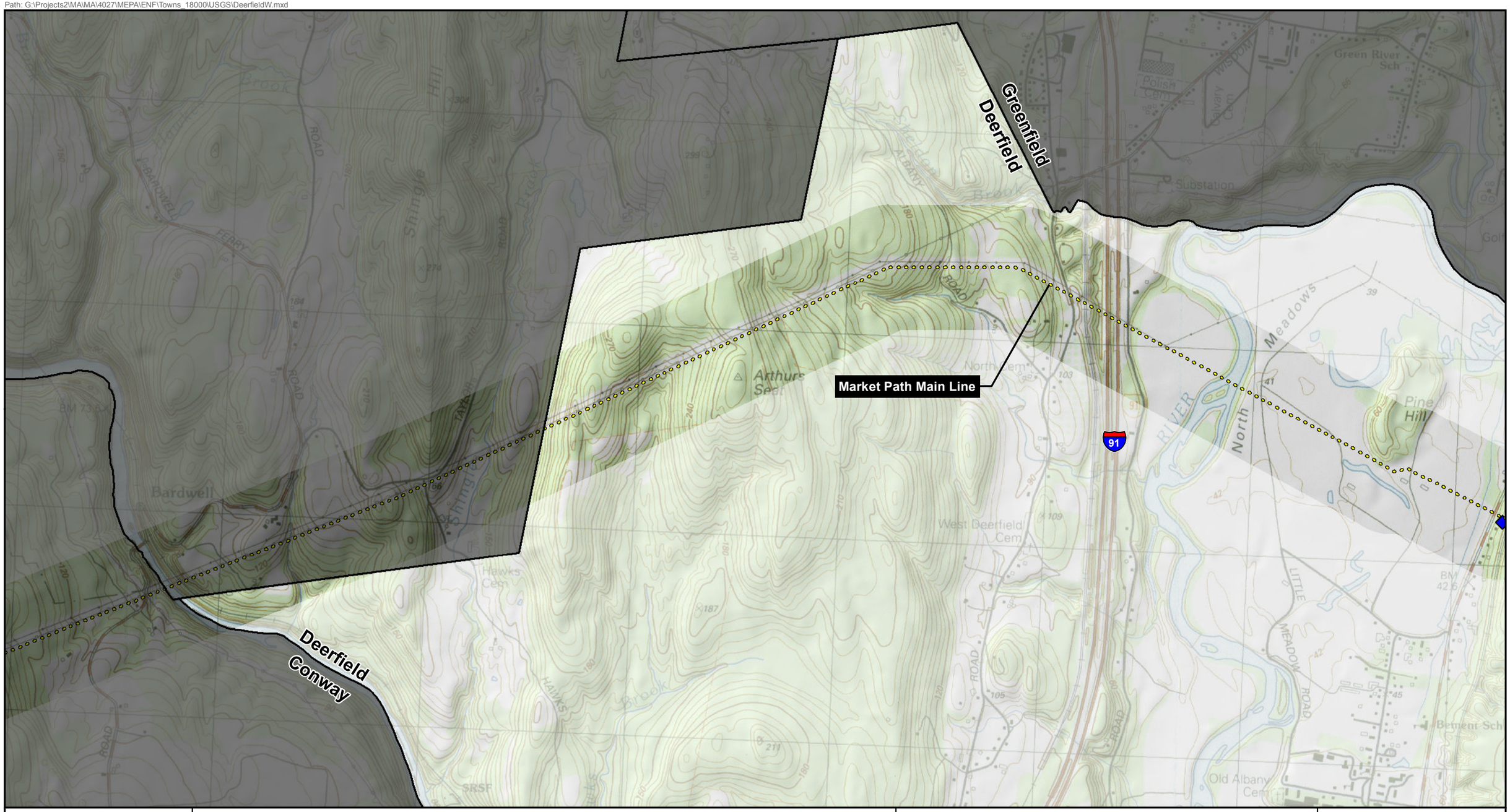
Market Path Main Line

October 2015

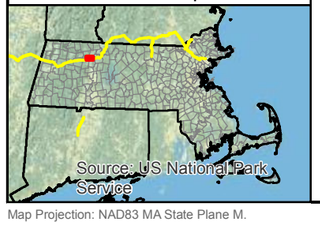
FIGURE 3.11-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\DeerfieldW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Deerfield, MA - USGS Locus Map
(Greenfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

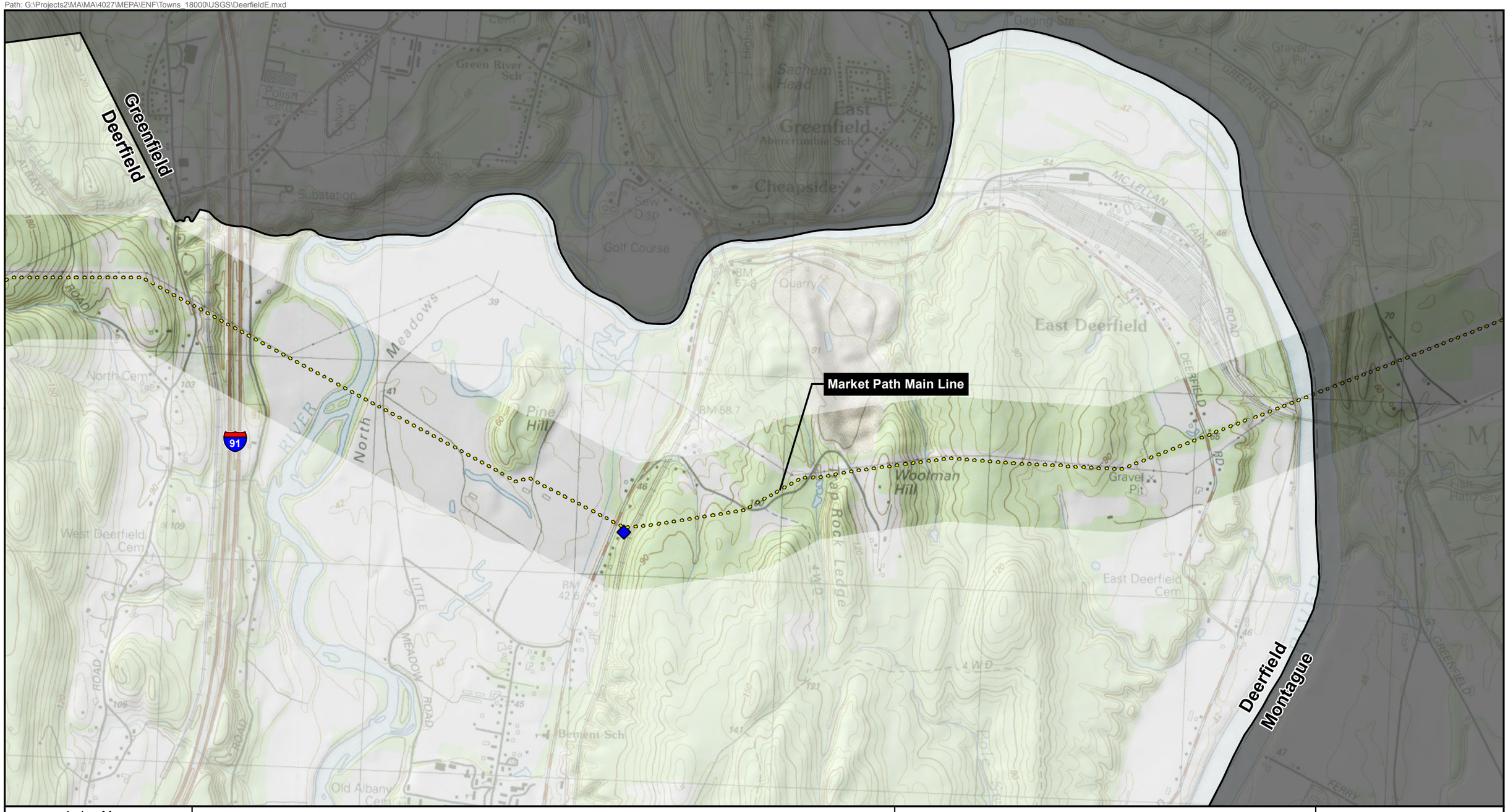
Market Path Main Line

October 2015

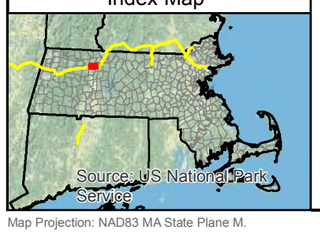
FIGURE 3.12-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\DeerfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Deerfield, MA - USGS Locus Map
(Greenfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

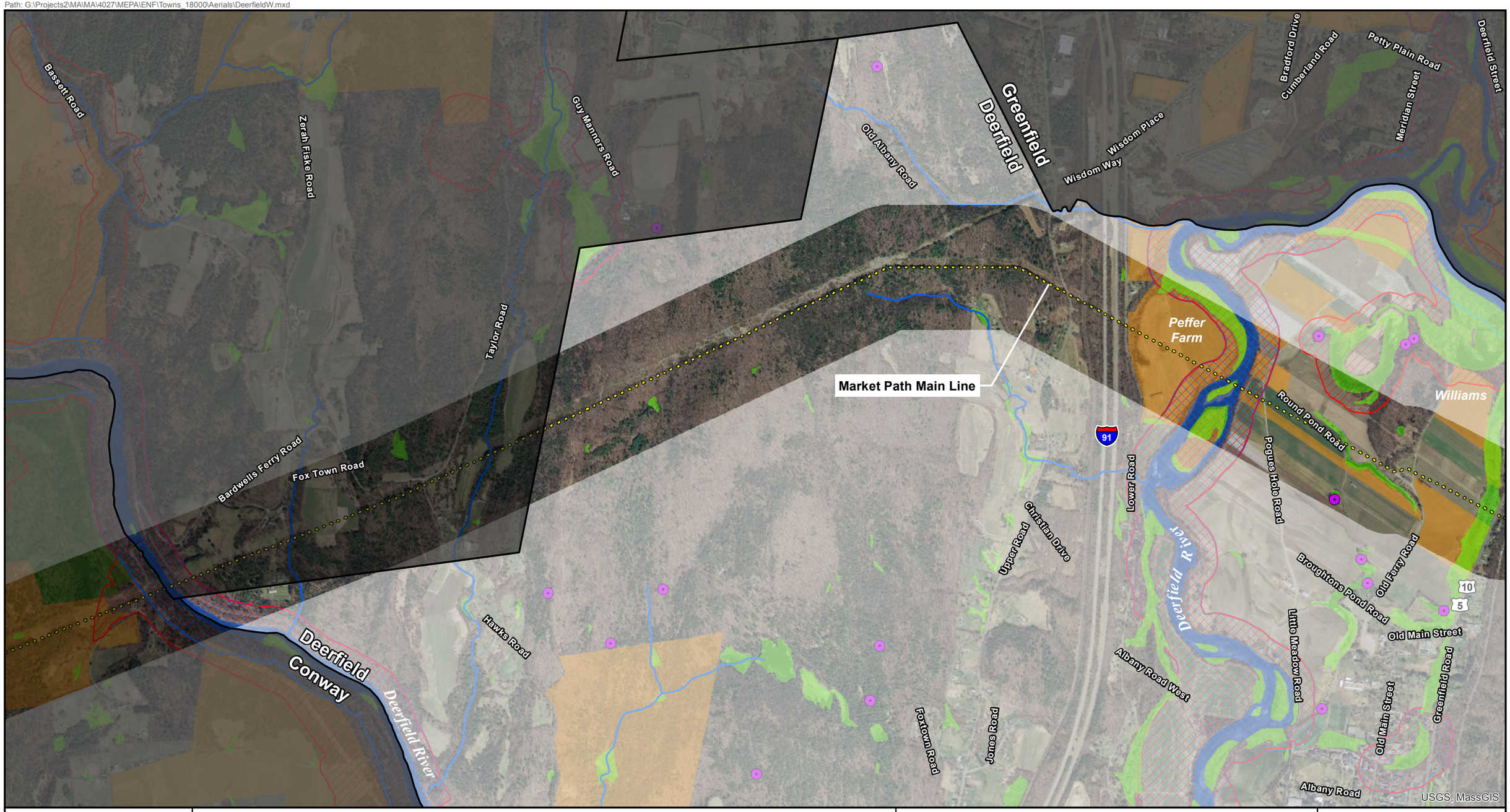
Market Path Main Line

October 2015

FIGURE 3.12-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\DeerfieldW.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
- NHESP 2008 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10)
- NHESP 2014 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Meter Station

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Deerfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

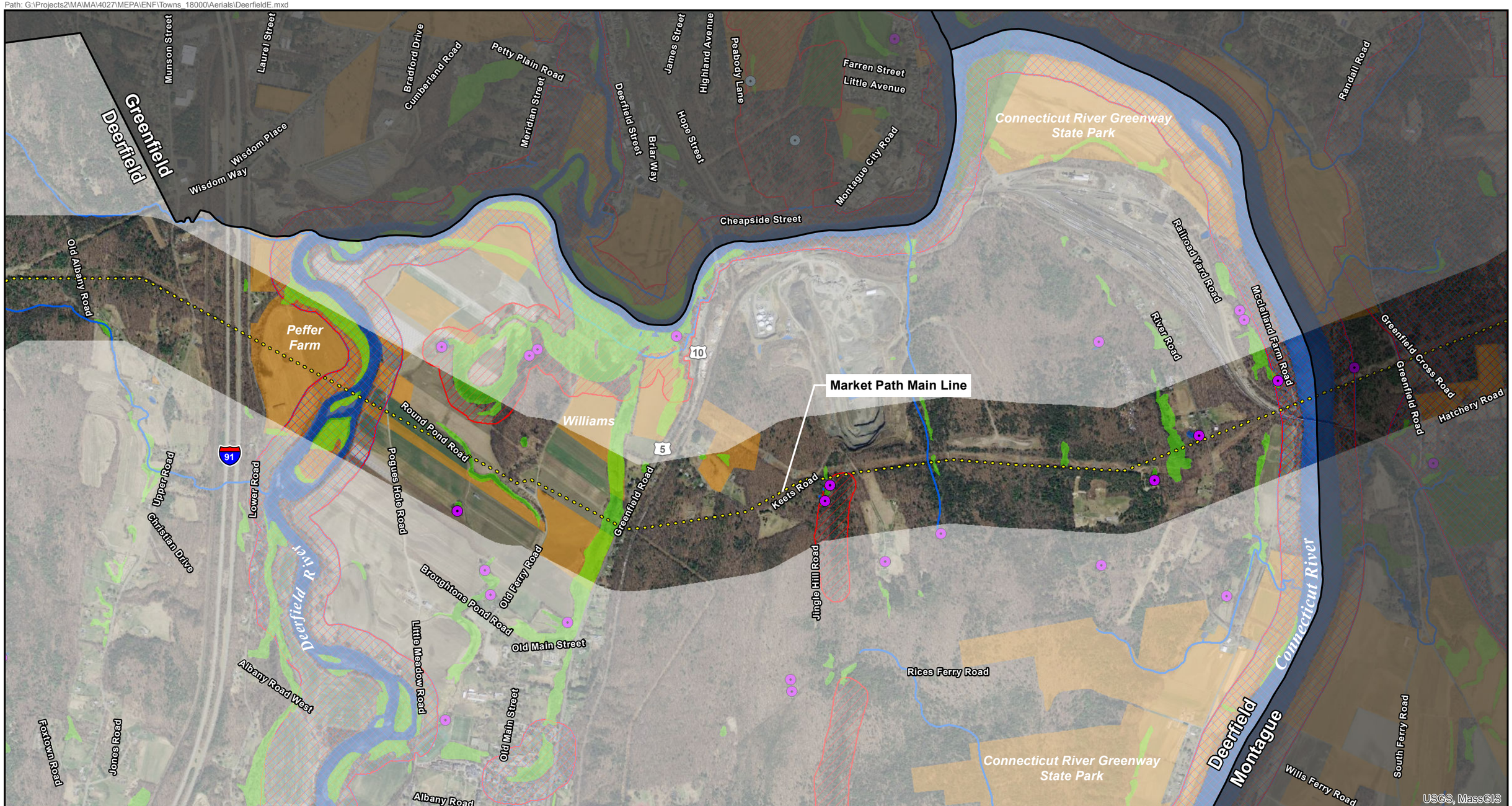
Market Path Main Line

October 2015

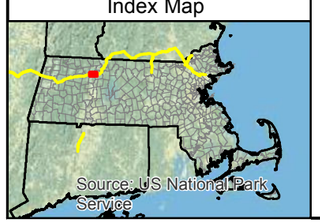
FIGURE 3.12-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\DeerfieldE.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Deerfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

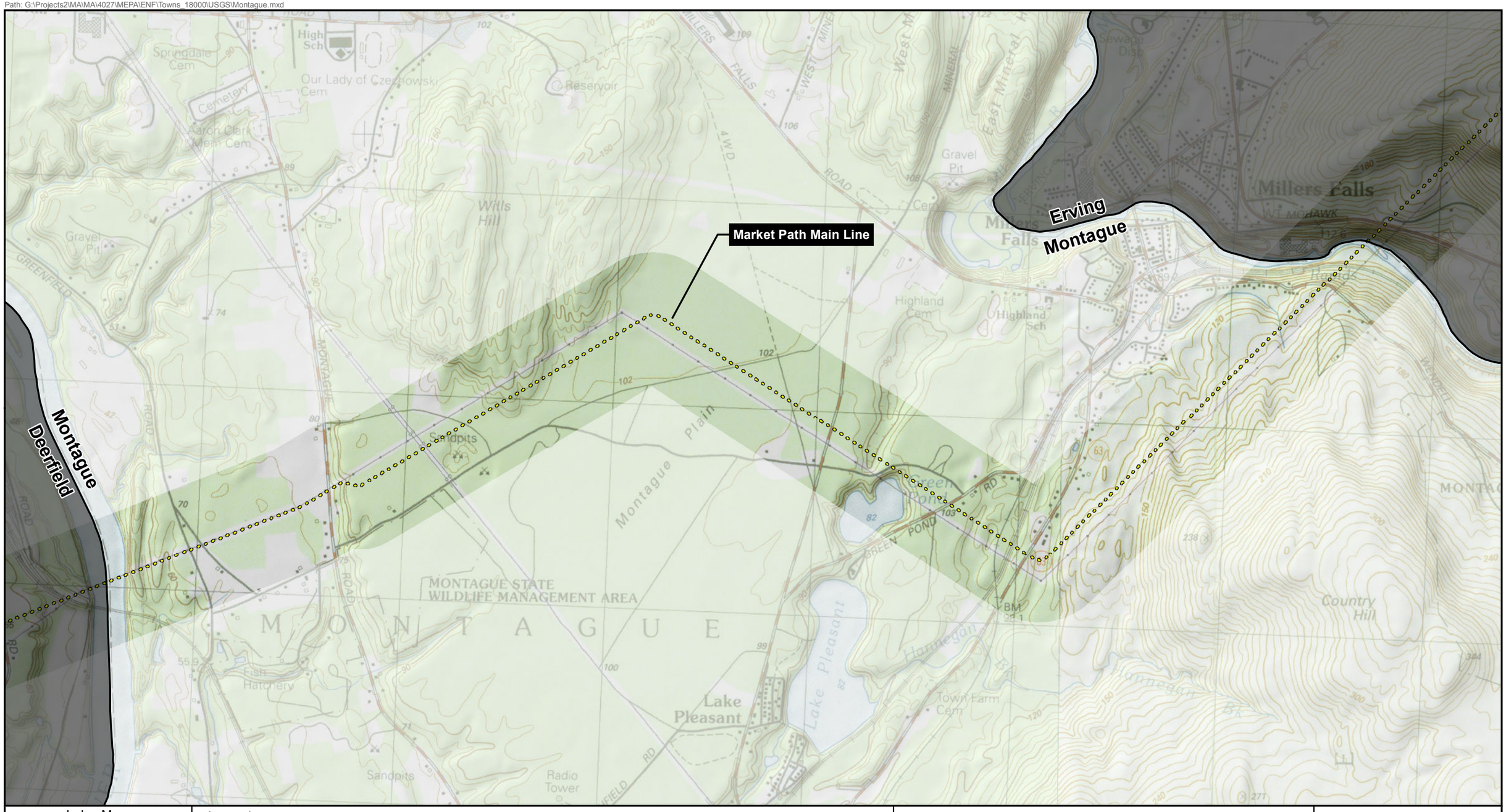
Market Path Main Line

October 2015

FIGURE 3.12-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Montague.mxd



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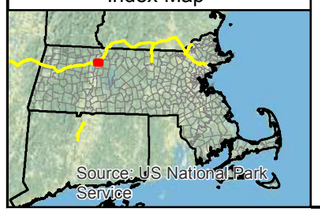


Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Montague, MA - USGS Locus Map
(Greenfield and Orange Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

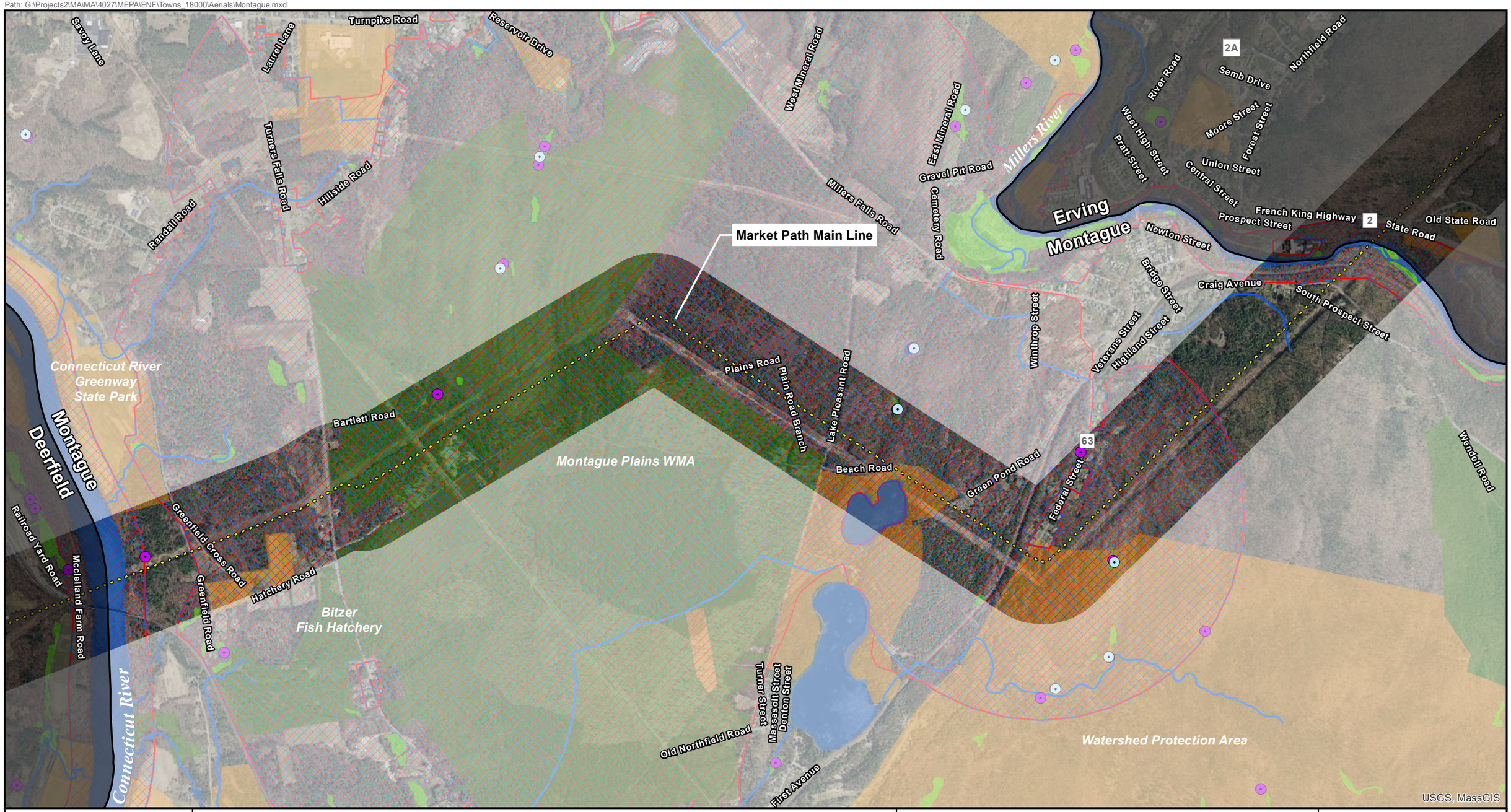
Market Path Main Line

October 2015

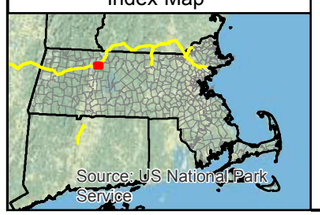
FIGURE 3.13-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Montague.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
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- NWI & MassDEP Wetland
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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Montague, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Market Path Main Line

October 2015

FIGURE 3.13-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Erving.mxd

Northfield

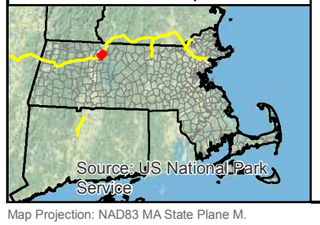
Erving

Market Path Main Line

Erving

Montague

Index Map



Legend

Market Path Main Line

Massachusetts Town/City Boundary

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Erving, MA - USGS Locus Map
(Geenfield, Orange, Northfield Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

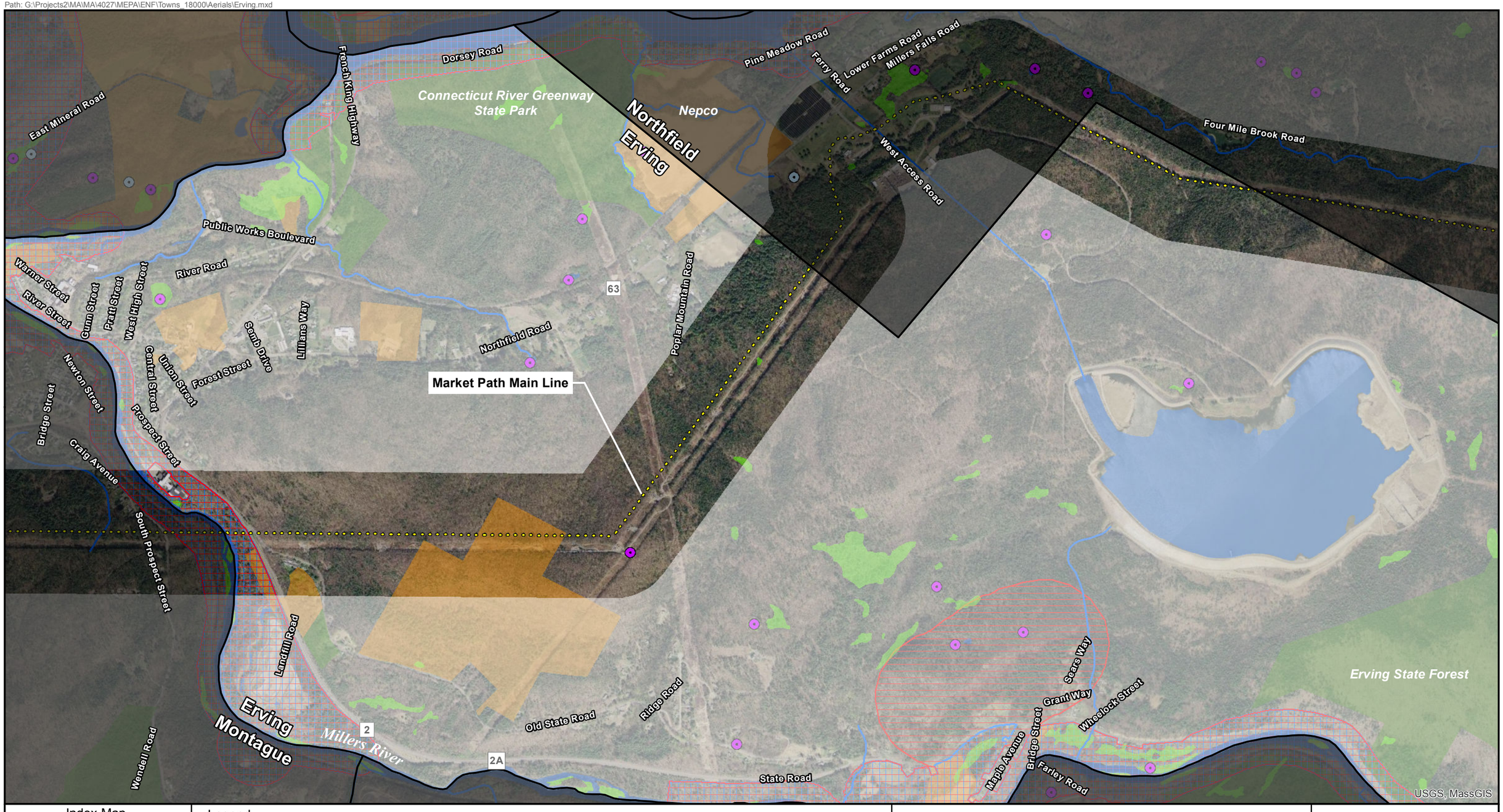
Market Path Main Line

October 2015

FIGURE 3.14-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Erving.mxd



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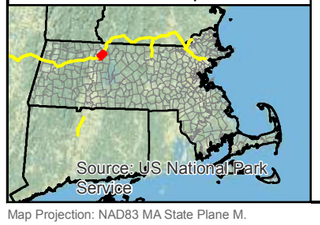

Legend

- Market Path Main Line
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- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Erving, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

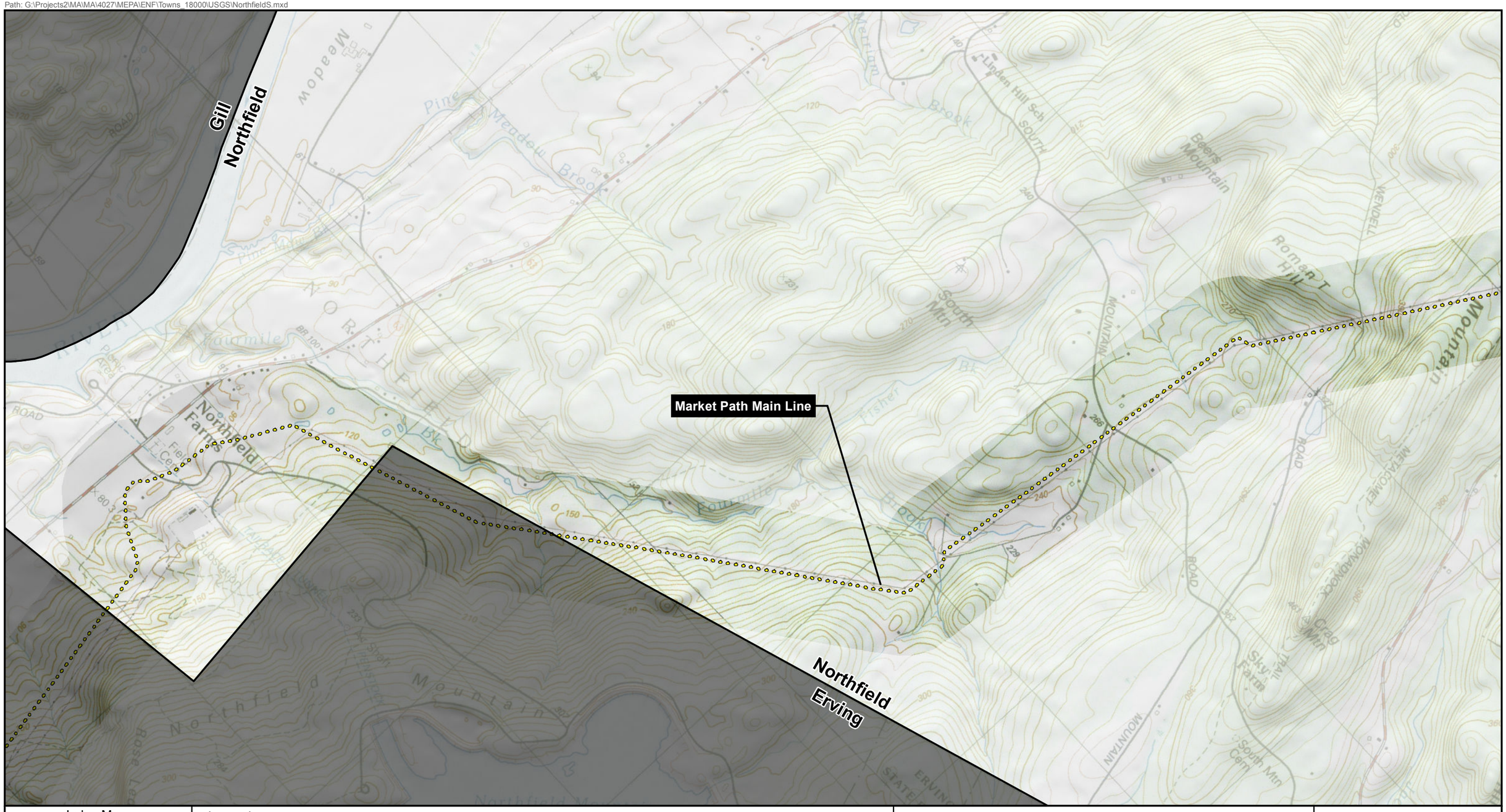
Market Path Main Line

October 2015

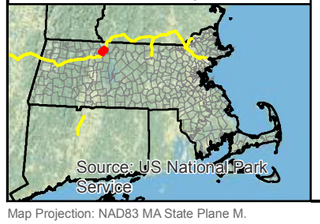
FIGURE 3.14-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\NorthfieldS.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Northfield, MA - USGS Locus Map
(Orange and Northfield Quadrangles, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

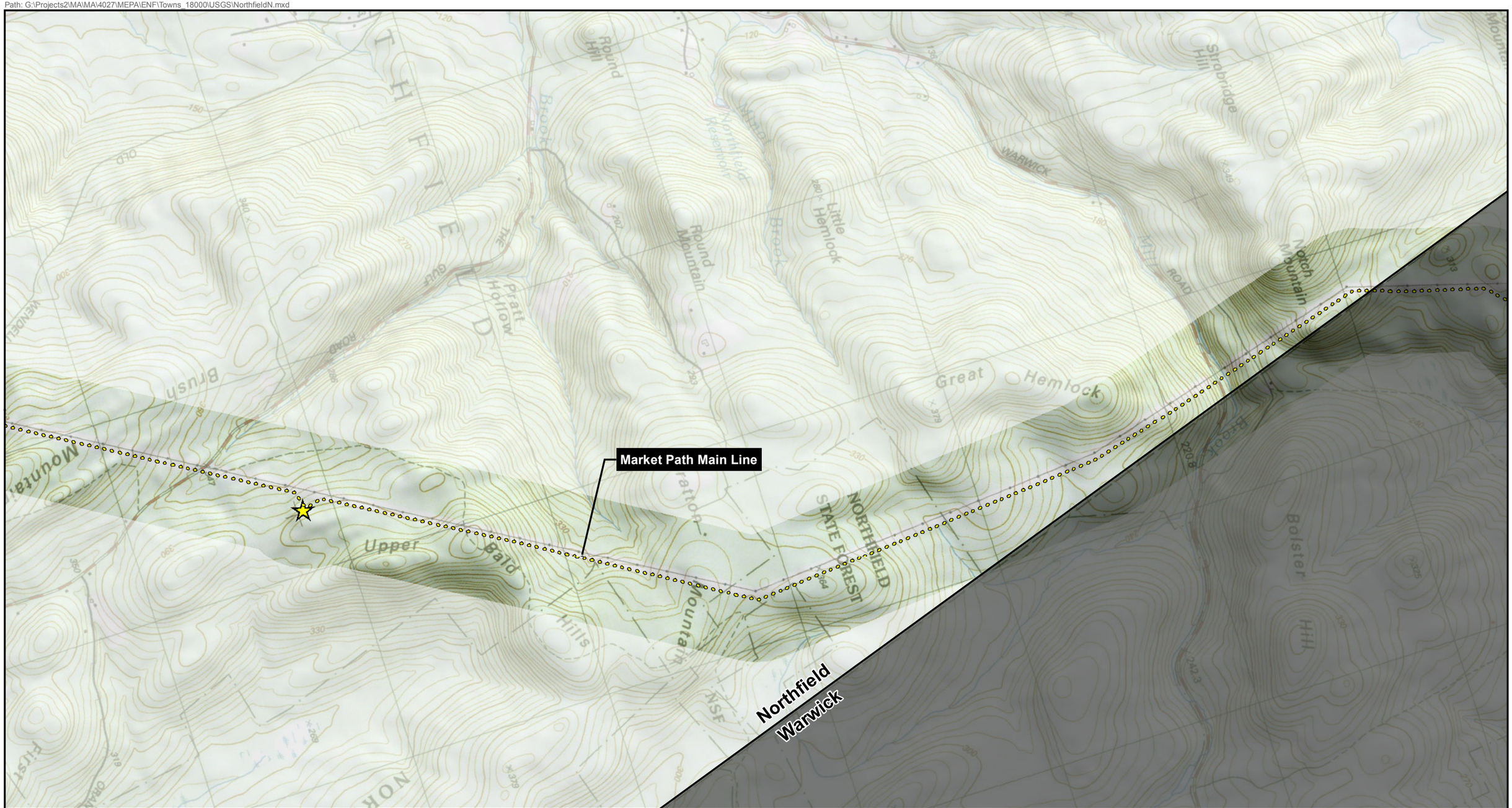
Market Path Main Line

October 2015

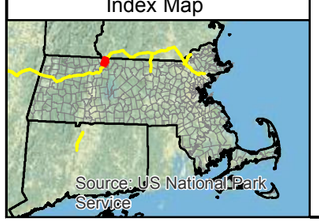
FIGURE 3.15-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\NorthfieldN.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Proposed Compressor Station Site

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Northfield, MA - USGS Locus Map
(Northfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

Market Path Main Line

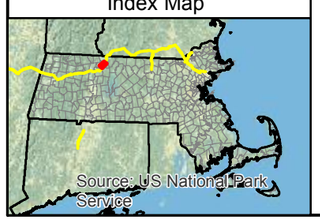
October 2015

FIGURE 3.15-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\NorthfieldS.mxd

Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
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- Open Water
- State-Owned Open Space
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Northfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

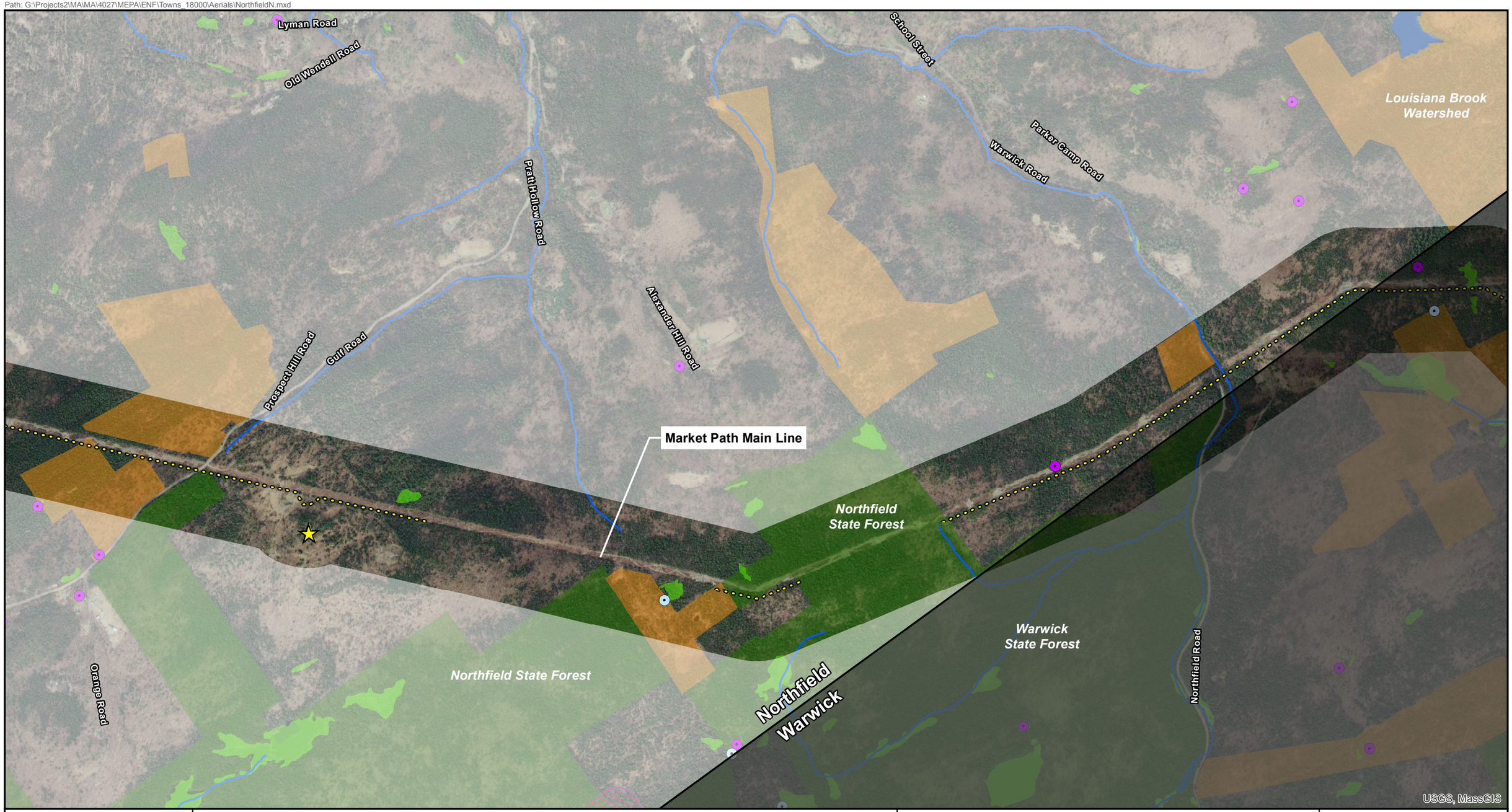
Epsilon Associates Inc. AECOM

July 2015

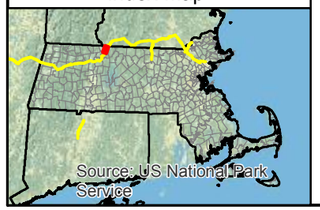
FIGURE 3.15-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\NorthfieldN.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Proposed Compressor Station Site

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Northfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

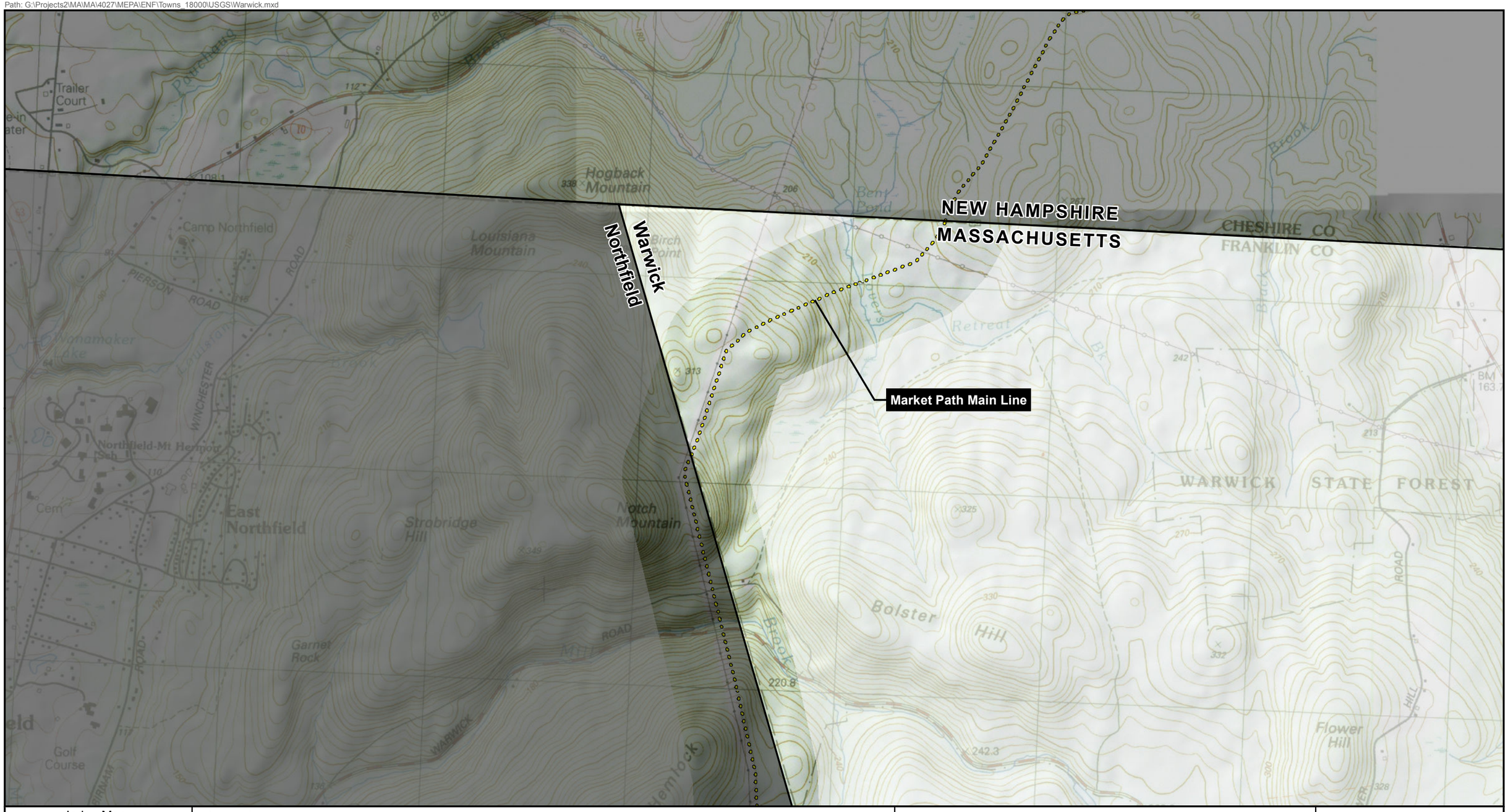
Market Path Main Line

October 2015

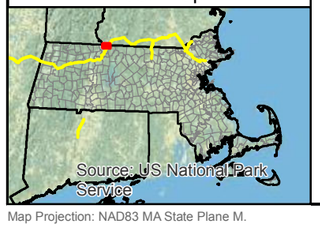
FIGURE 3.15-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Warwick.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Warwick, MA - USGS Locus Map
(Northfield Quadrangle, 1990)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

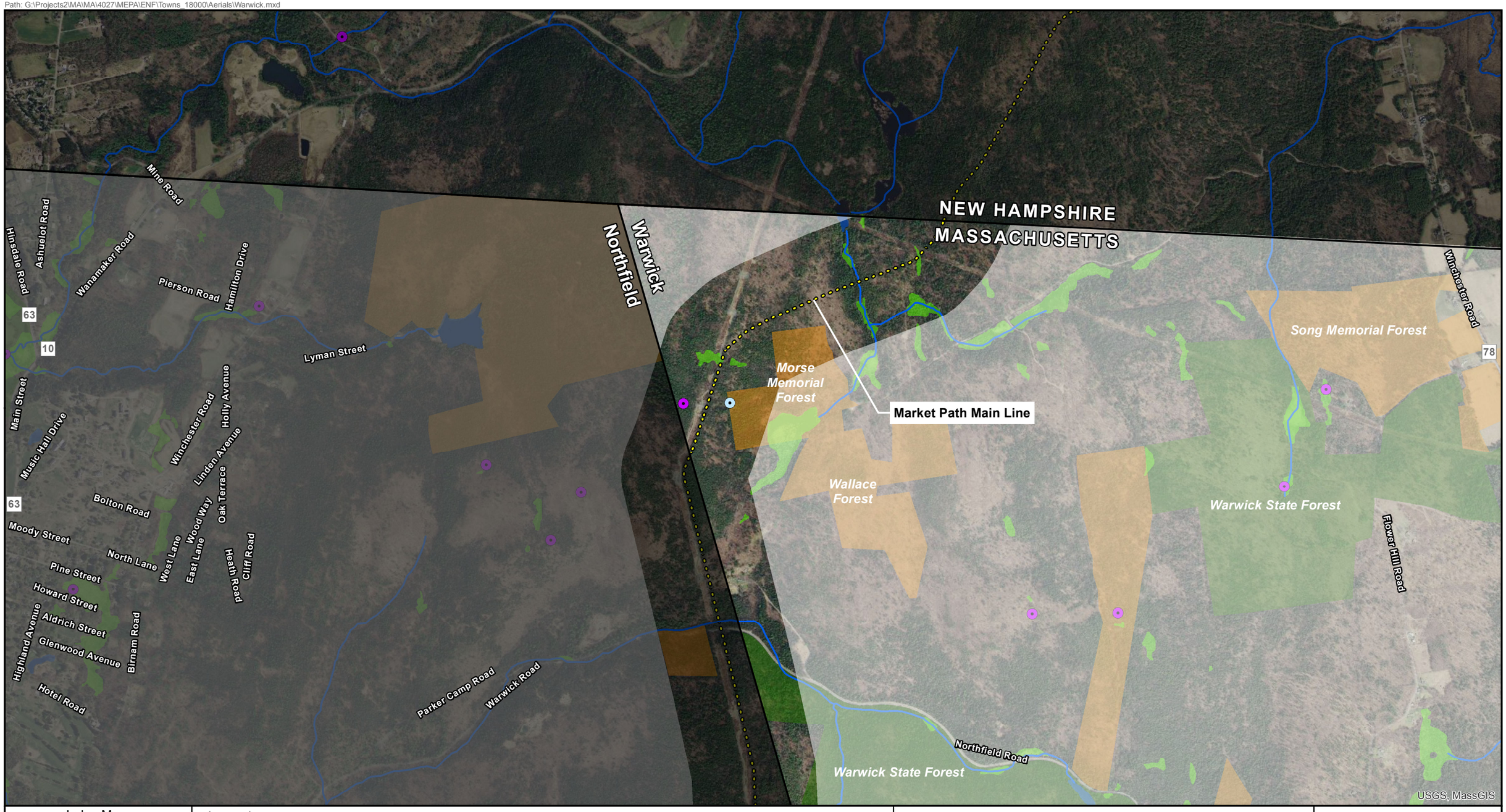
Market Path Main Line

October 2015

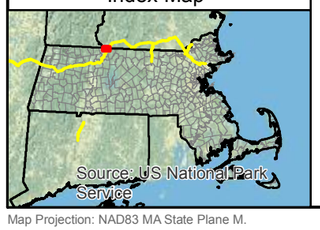
FIGURE 3.16-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Warwick.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
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N
W E
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Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Warwick, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

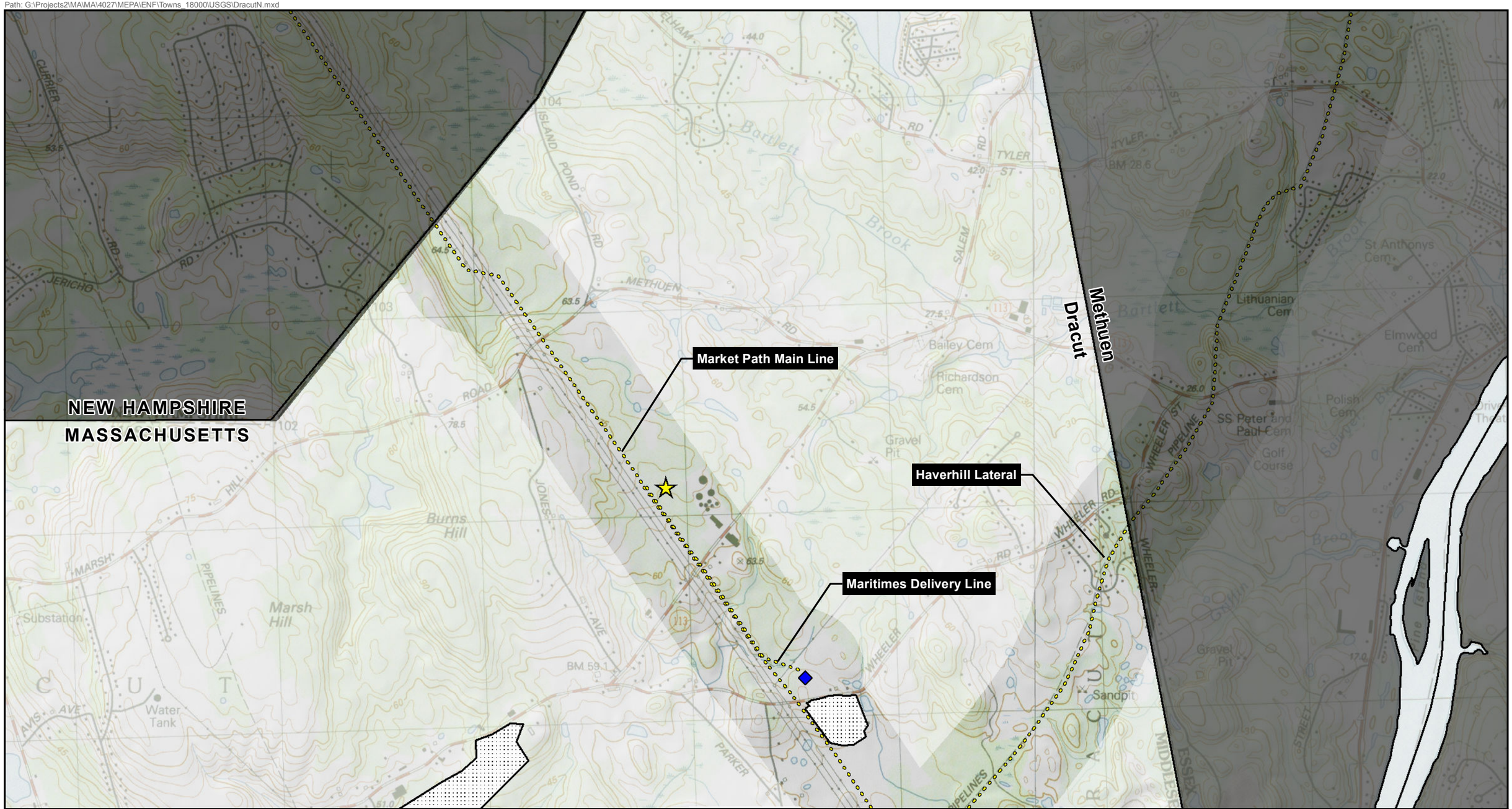
Market Path Main Line

October 2015

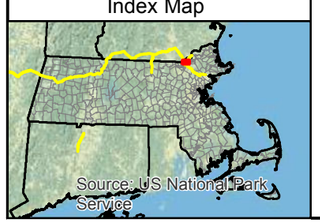
FIGURE 3.16-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\DracutN.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard
- Meter Station
- **Proposed Compressor Station Site**

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dracut, MA - USGS Locus Map
(Lowell and Lawrence Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

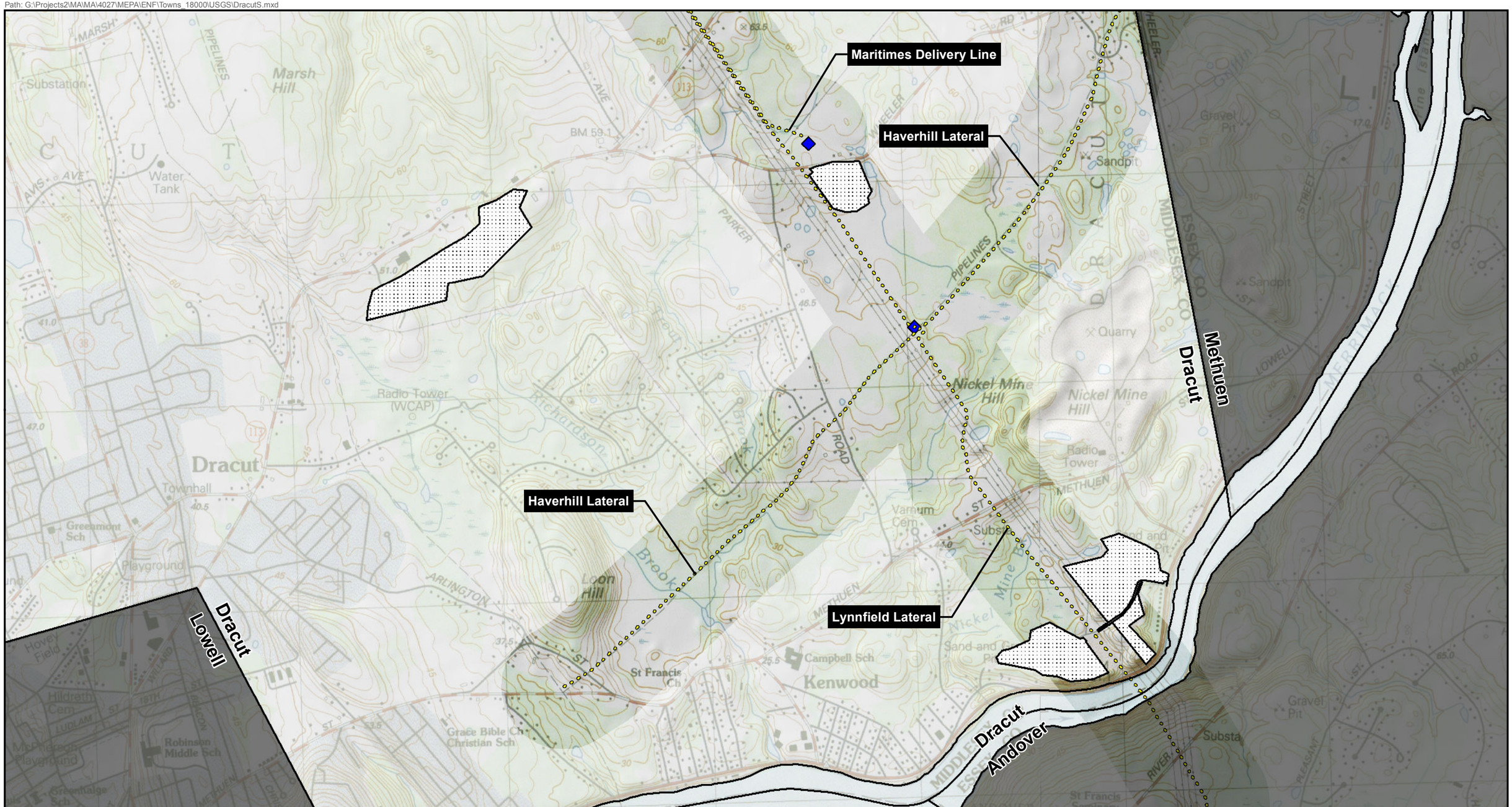
Market Path Main Line

October 2015

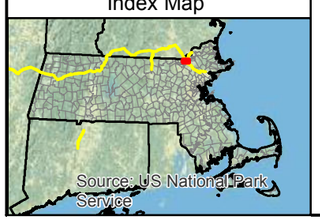
FIGURE 3.17-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\DracutS.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard
- Proposed Compressor Station Site
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dracut, MA - USGS Locus Map
(Lowell and Lawrence Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

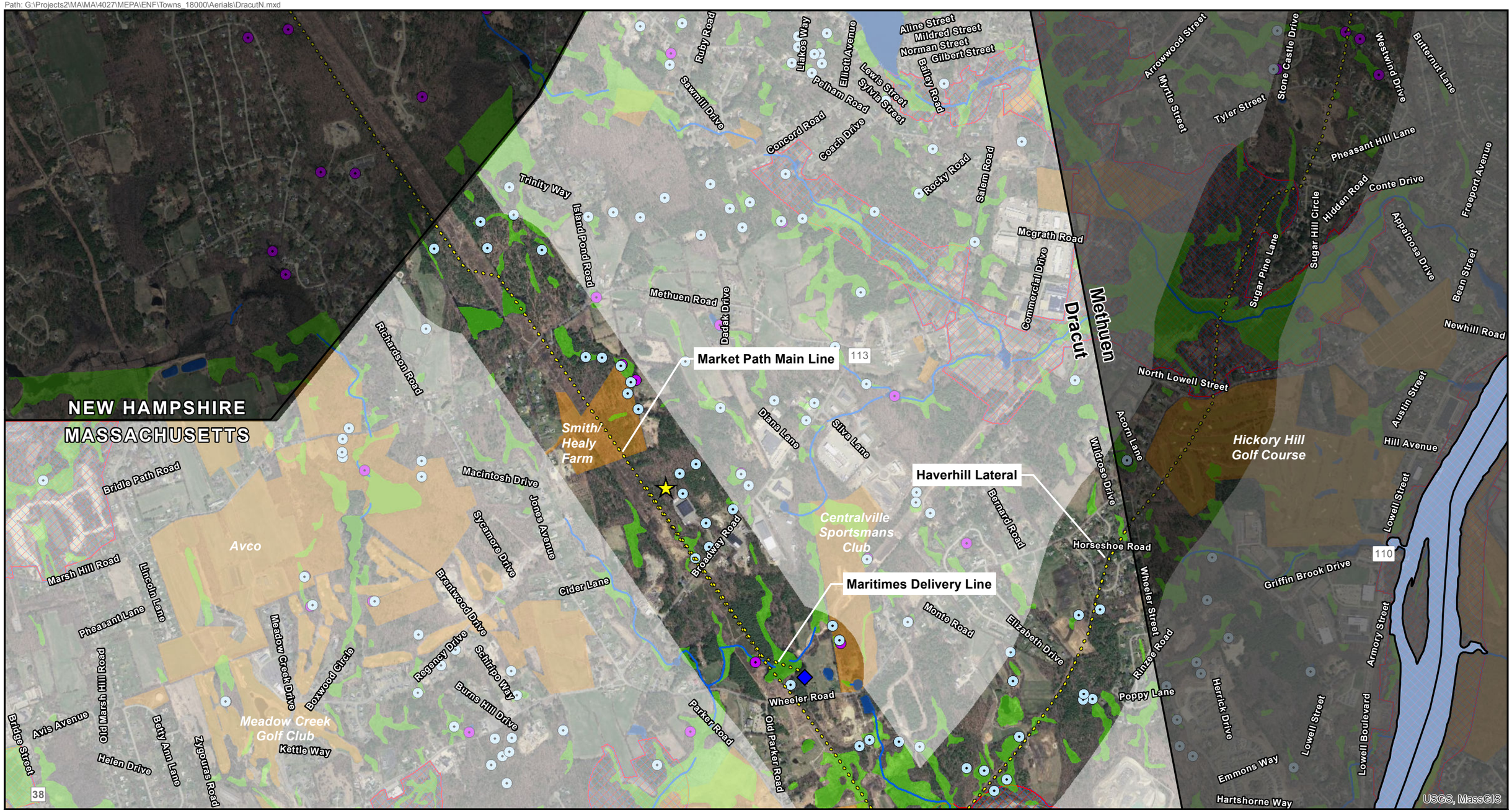
Market Path Main Line

October 2015

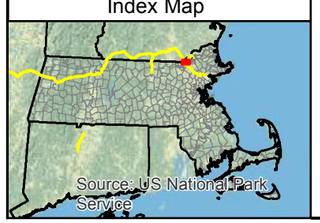
FIGURE 3.17-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\DracutN.mxd



Index Map



Legend

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- Meter Station
- Proposed Compressor Station Site

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dracut, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

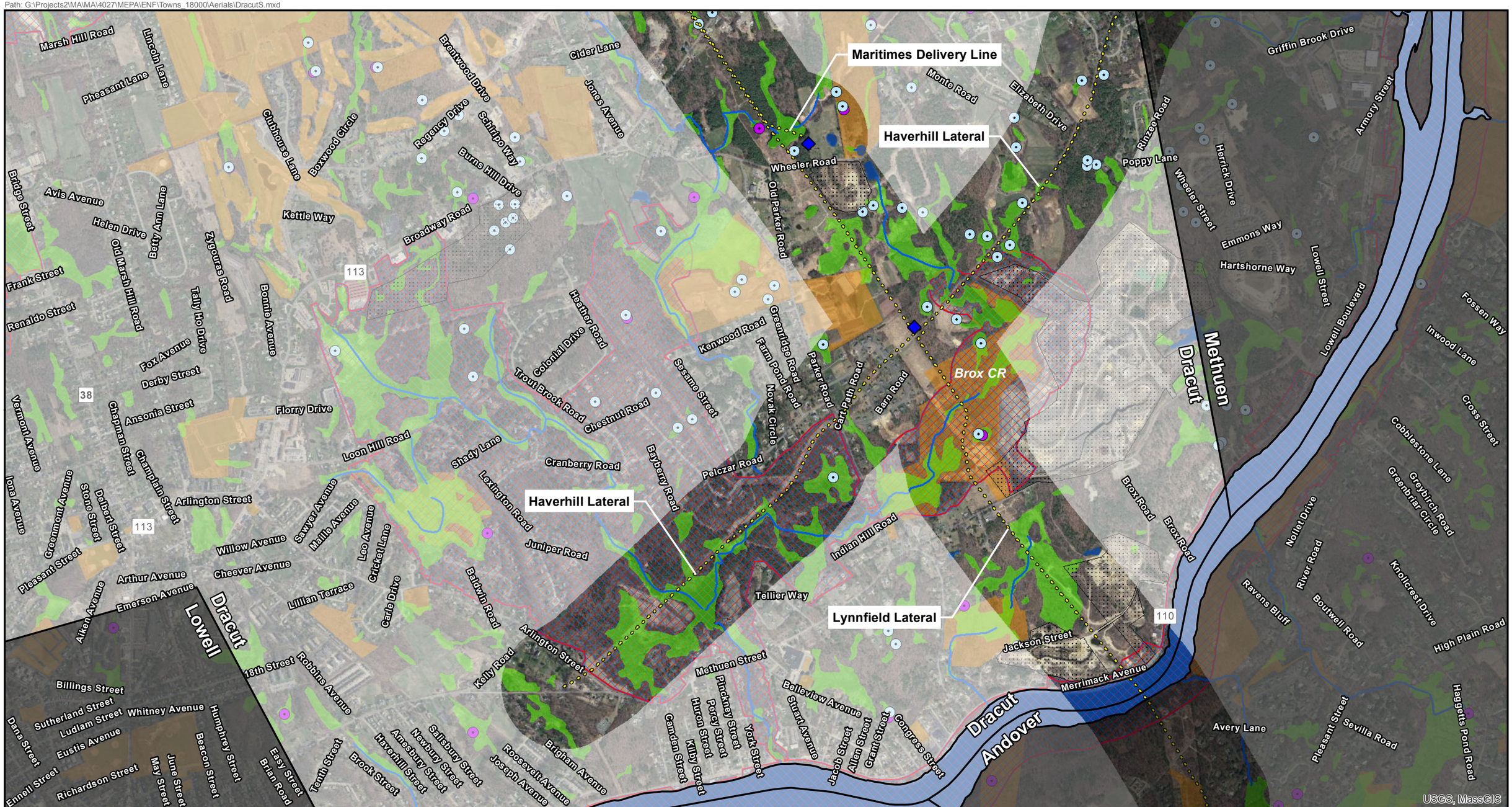
Market Path Main Line

October 2015

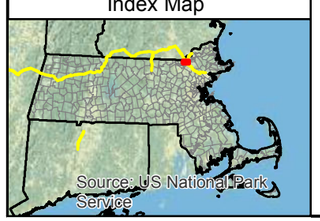
FIGURE 3.17-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\DracutS.mxd



Index Map



Legend

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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Dracut, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

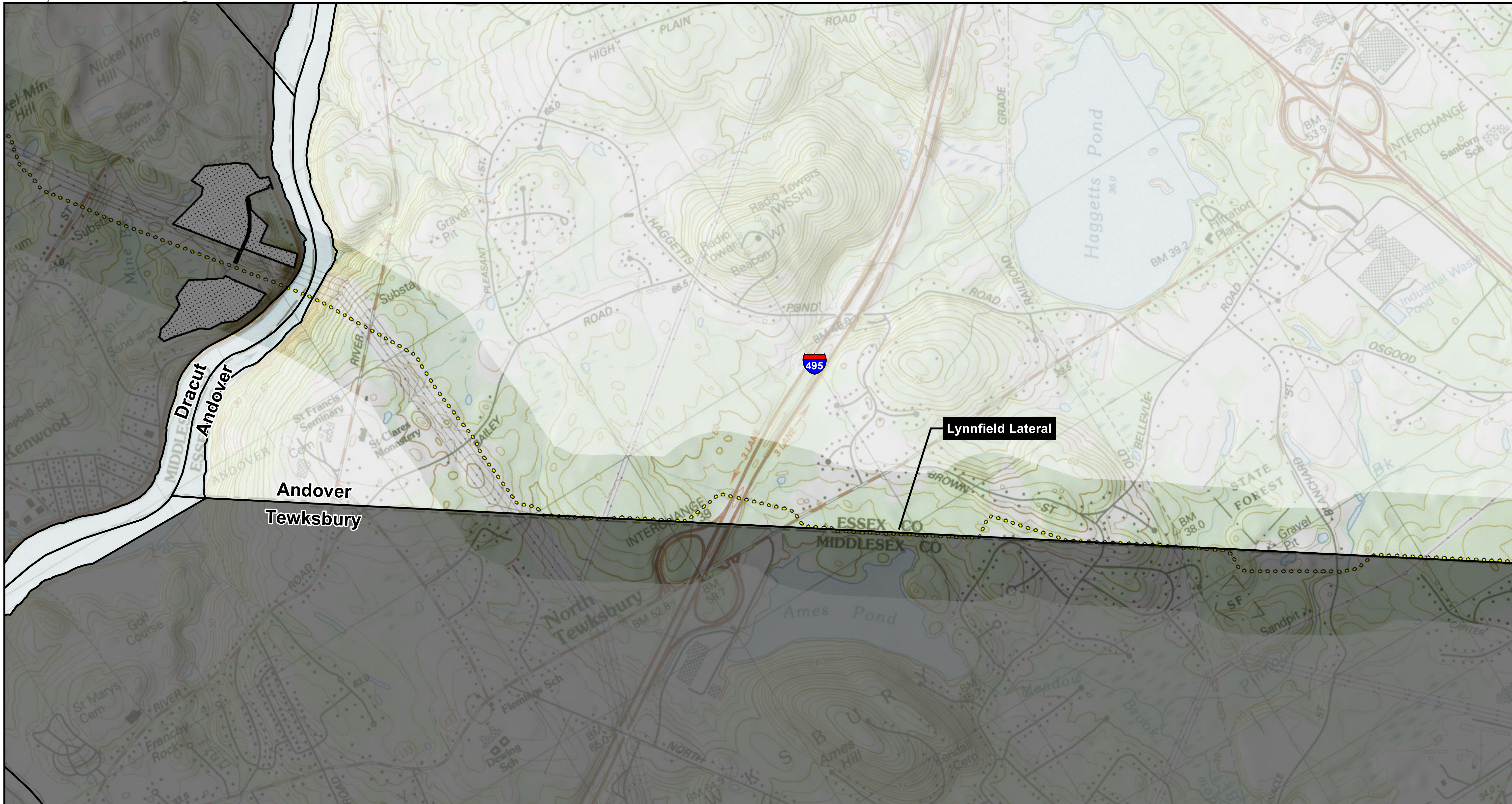
Market Path Main Line

October 2015

FIGURE 3.17-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\AndoverN.mxd



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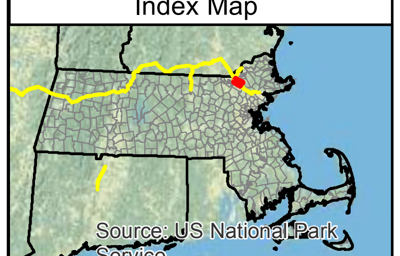


Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Andover, MA - USGS Locus Map
(Lowell and Lawrence Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon

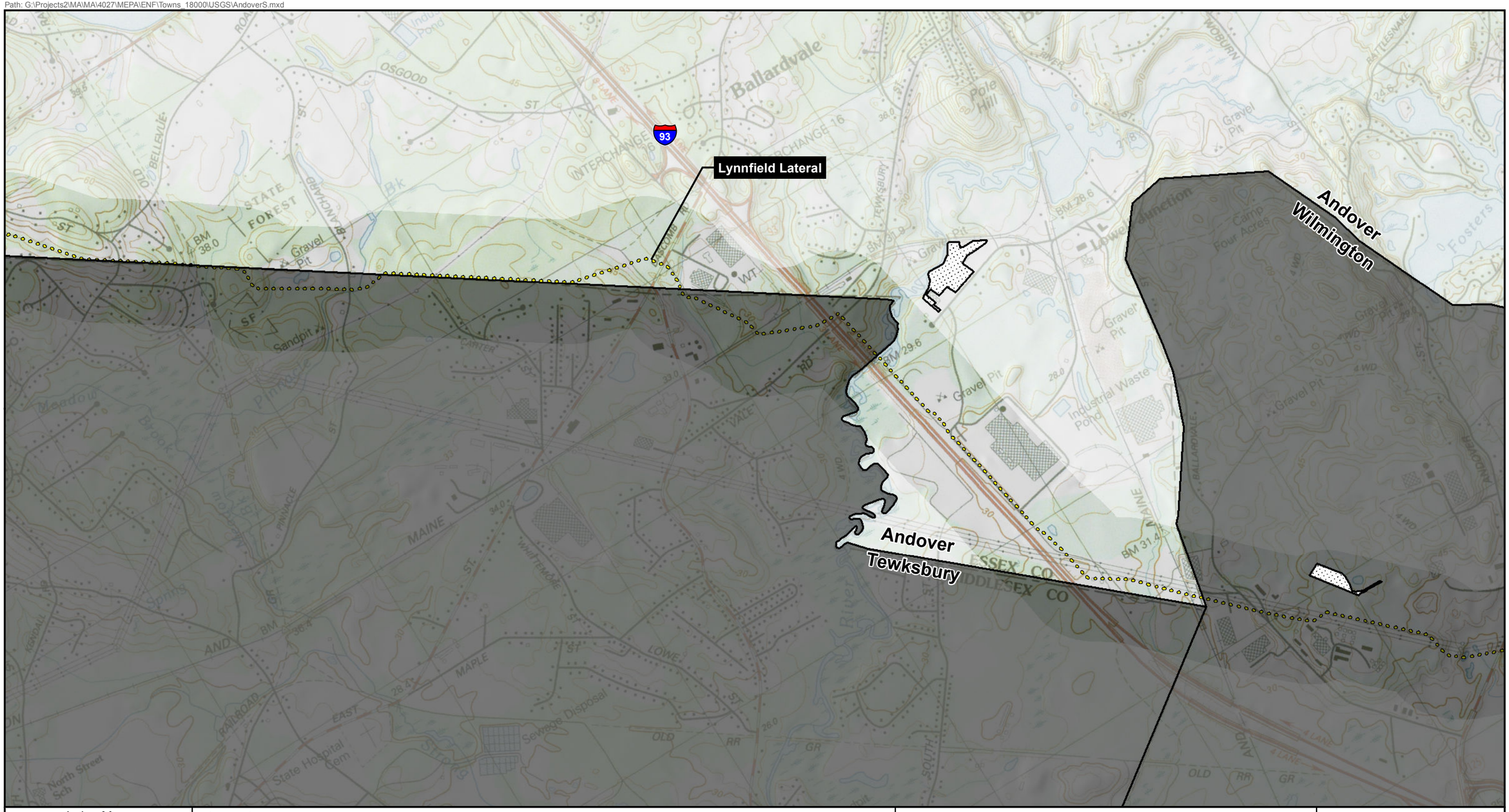
Lynnfield Lateral

October 2015

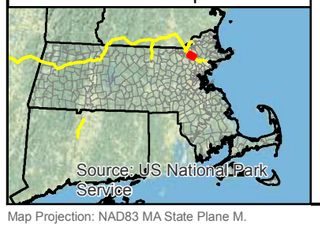
FIGURE 3.18-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\AndoverS.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Andover, MA - USGS Locus Map
(Lawrence and Reading Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

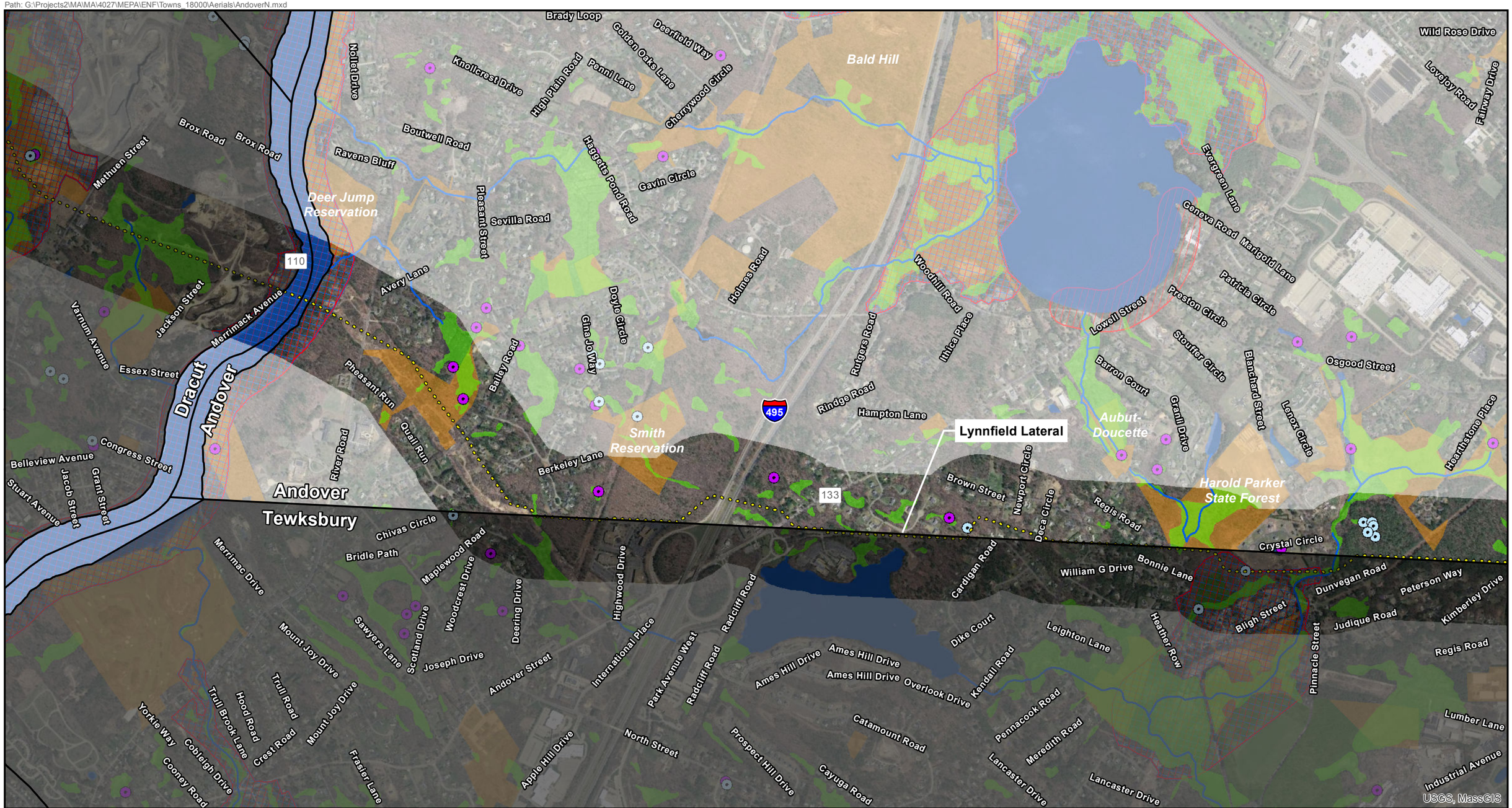
Lynnfield Lateral

October 2015

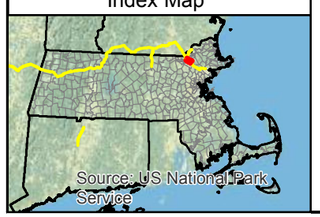
FIGURE 3.18-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\AndoverN.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
- NHESP 2008 Estimated Habitats for Rare Wildlife: For Use with the MA Wetlands Protection Act Regulations (310 CMR 10)
- NHESP 2014 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Contractor Yard

N E S W

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Andover, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

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October 2015

FIGURE 3.18-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\AndoverS.mxd

Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
- NHESP 2008 Priority Habitats for State-Protected Rare Species
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Contractor Yard

N E S W

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Andover, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

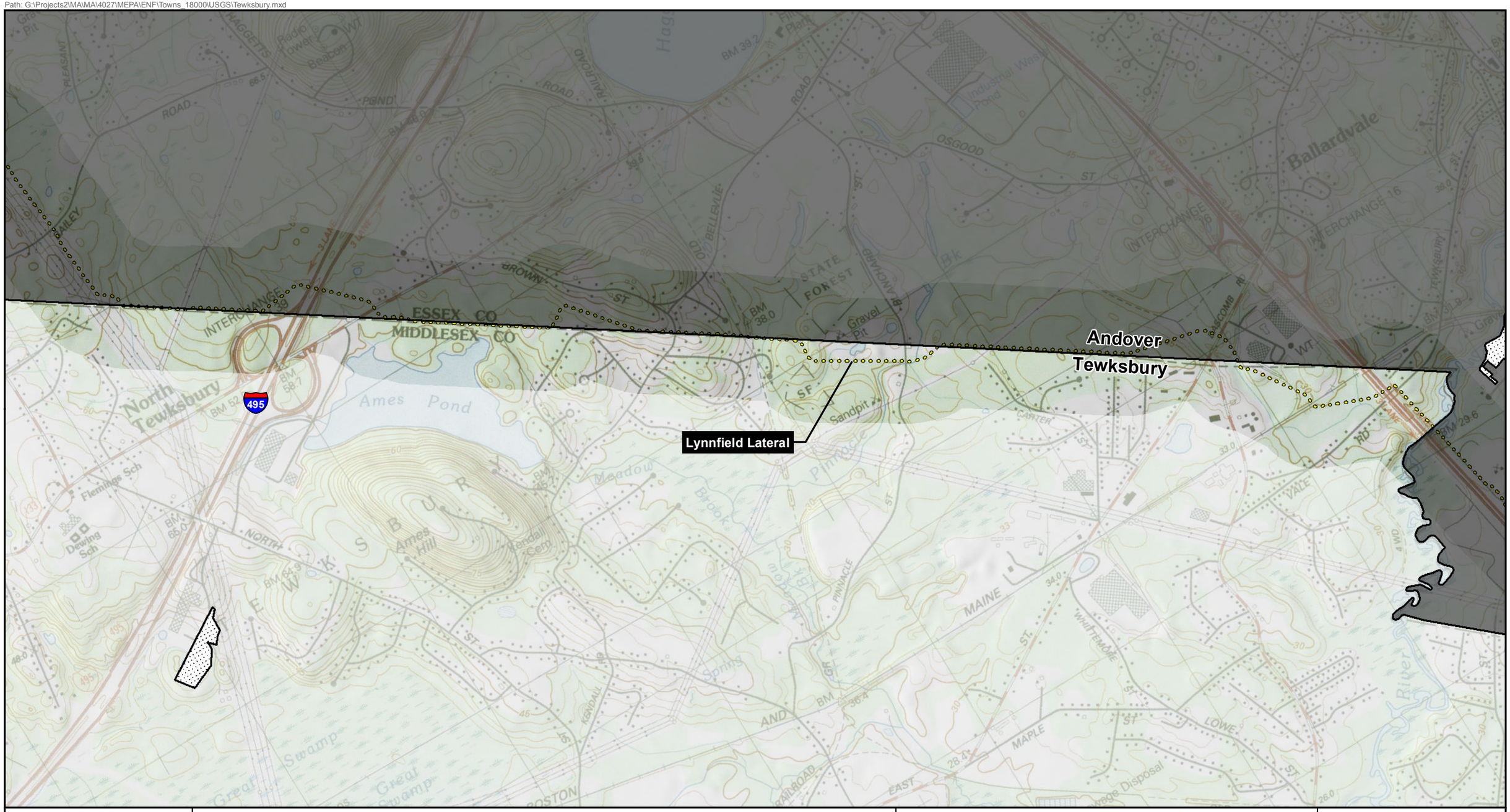
Lynnfield Lateral

October 2015

FIGURE 3.18-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Tewksbury.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Tewksbury, MA - USGS Locus Map
(Lawrence and Reading Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Lynnfield Lateral

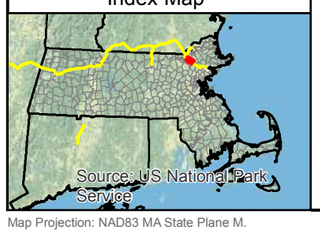
October 2015

FIGURE 3.19-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Tewksbury.mxd

Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
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- Contractor Yard

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Tewksbury, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

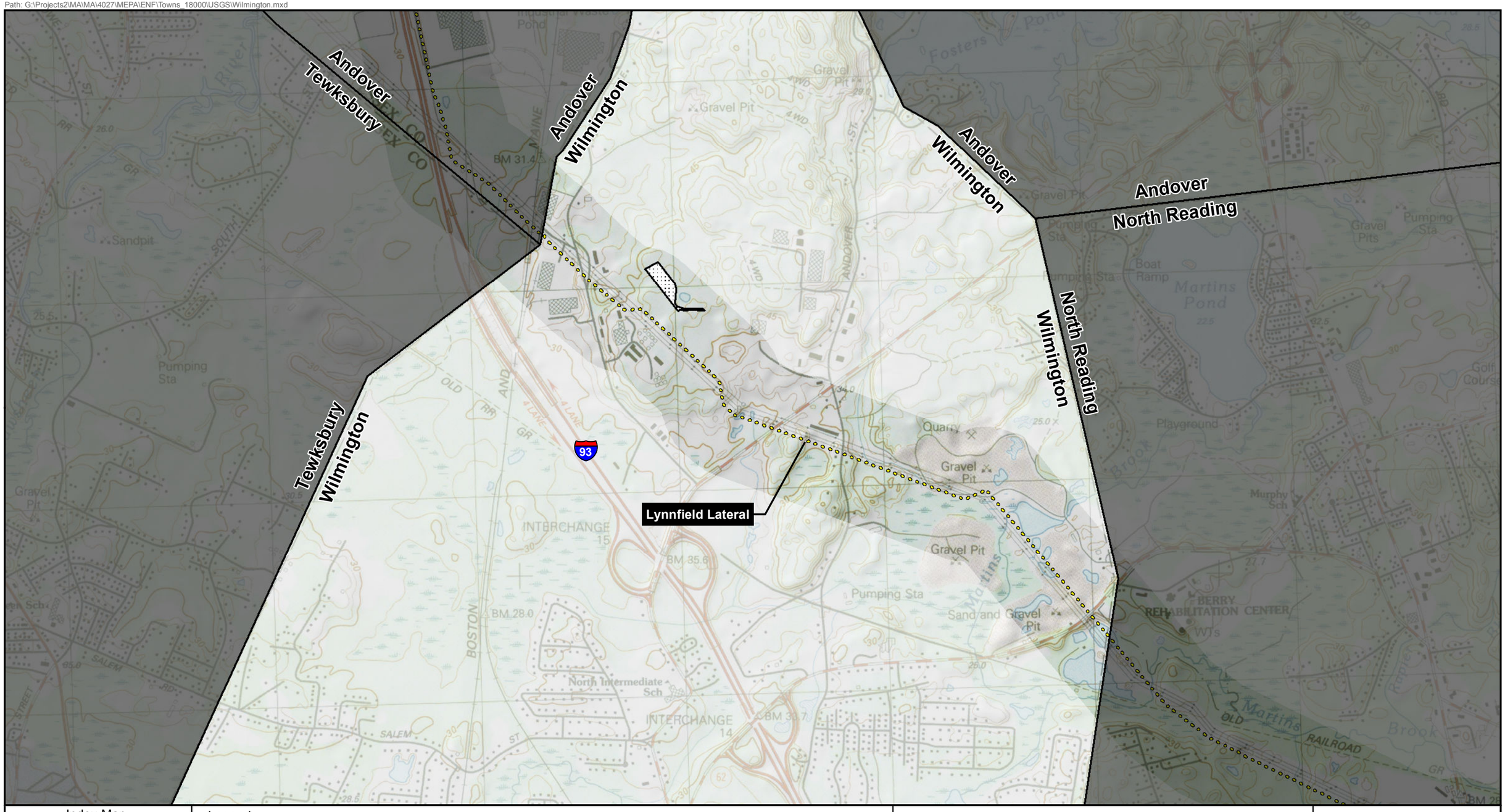
Lynnfield Lateral

October 2015

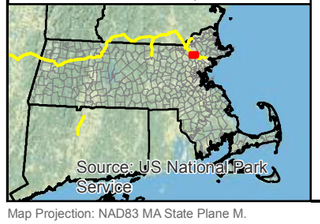
FIGURE 3.19-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Wilmington.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Wilmington, MA - USGS Locus Map
(Reading Quadrangle, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

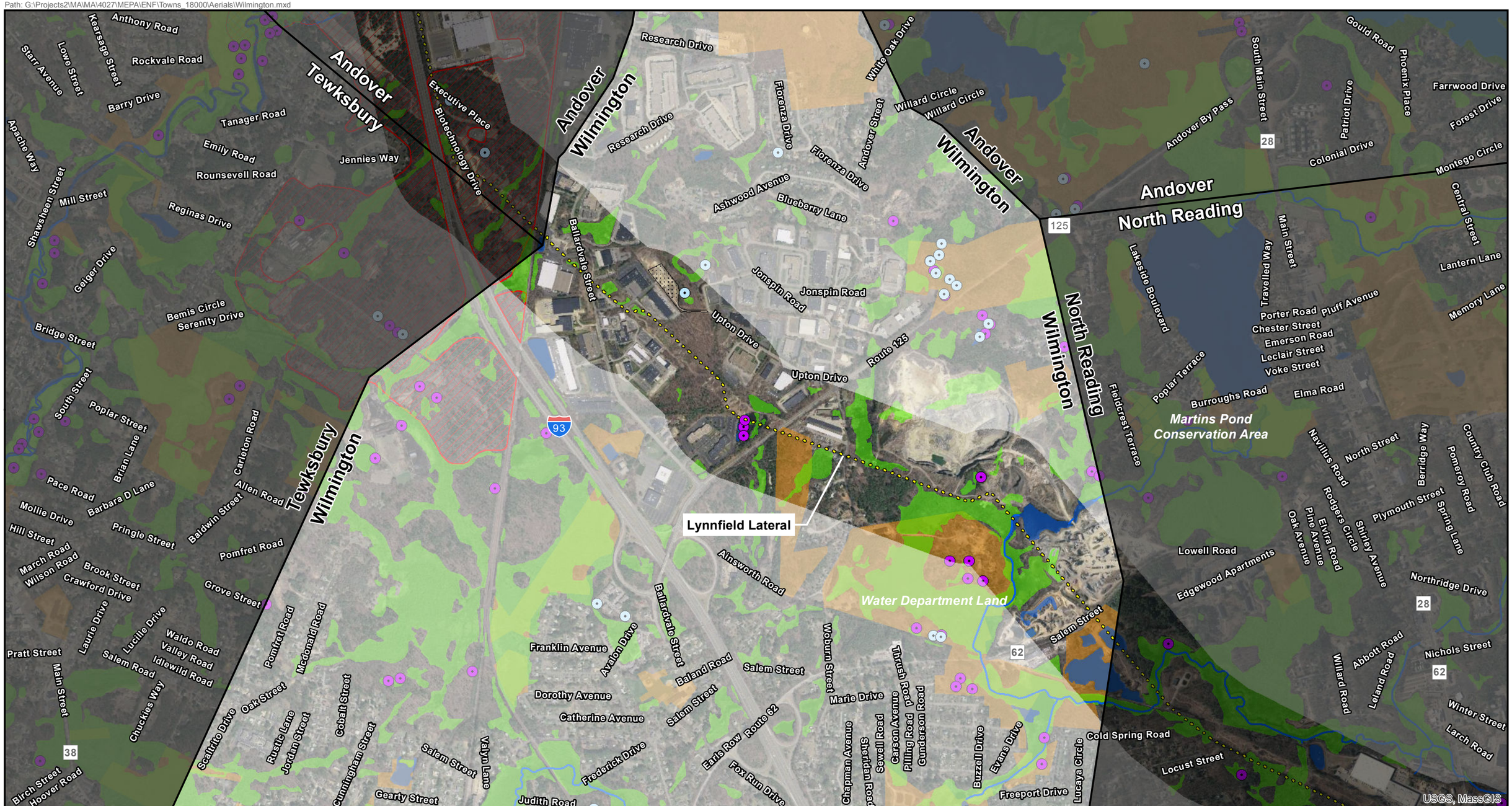
Lynnfield Lateral

October 2015

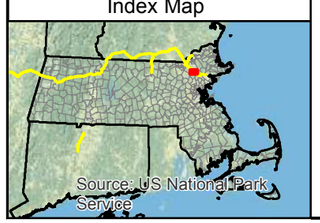
FIGURE 3.20-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Wilmington.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
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- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Wilmington, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Lynnfield Lateral

October 2015

FIGURE 3.20-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\NorthReading.mxd

Lynnfield Lateral

Wilmington

North Reading

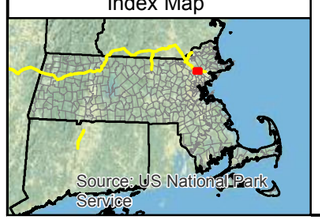
North Reading

Reading

North Reading

Lynnfield

Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

North Reading, MA - USGS Locus Map
(Reading Quadrangle, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

Lynnfield Lateral

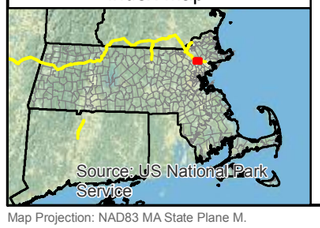
October 2015

FIGURE 3.21-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\NorthReading.mxd

Index Map



Legend

- Market Path Main Line
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- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

North Reading, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

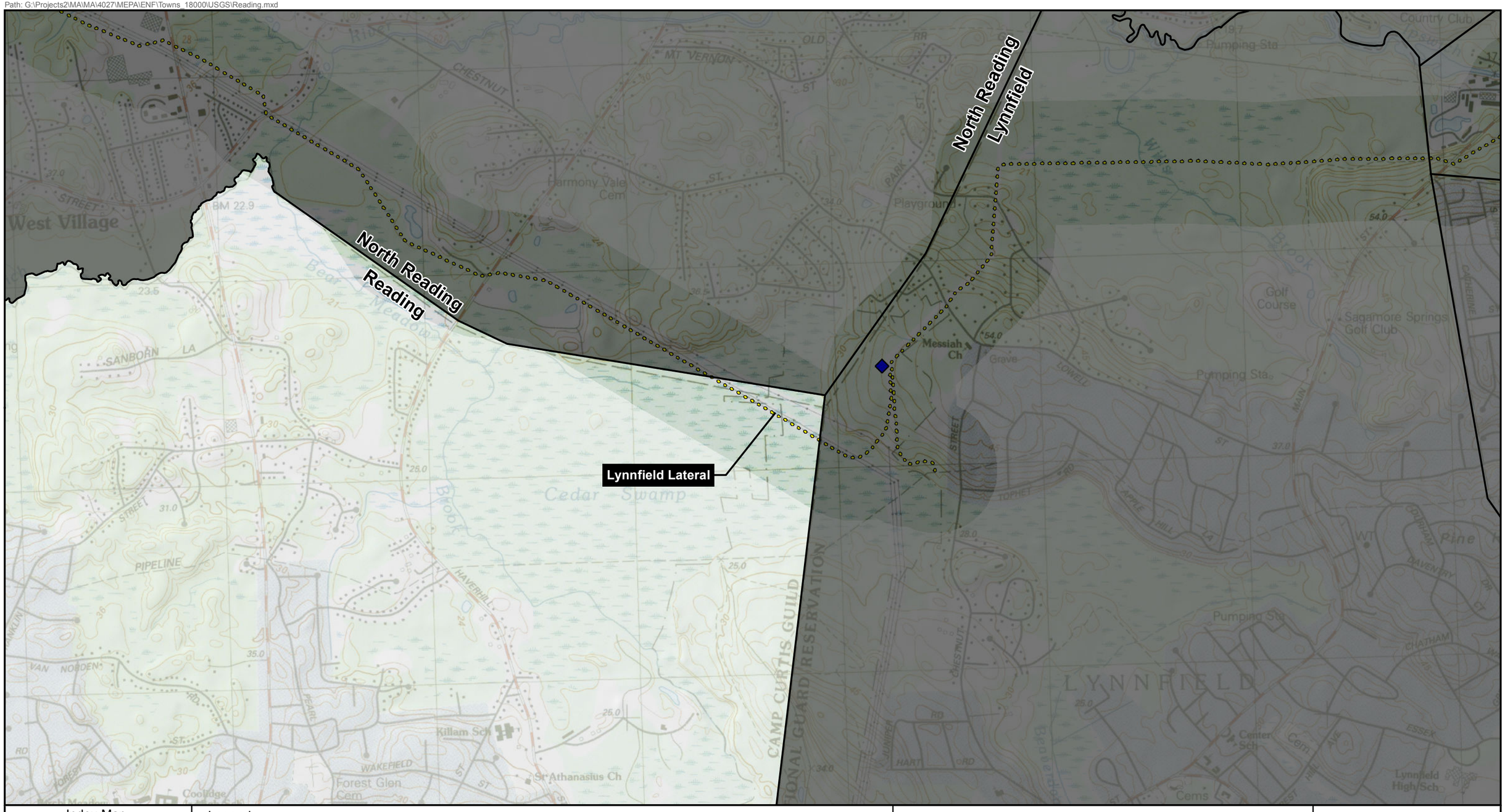
Lynnfield Lateral

October 2015

FIGURE 3.21-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Reading.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Reading, MA - USGS Locus Map
(Reading Quadrangle, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

Lynnfield Lateral

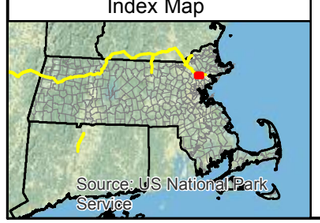
October 2015

FIGURE 3.22-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Reading.mxd

Index Map



Legend

- Market Path Main Line
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- Meter Station

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Reading, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

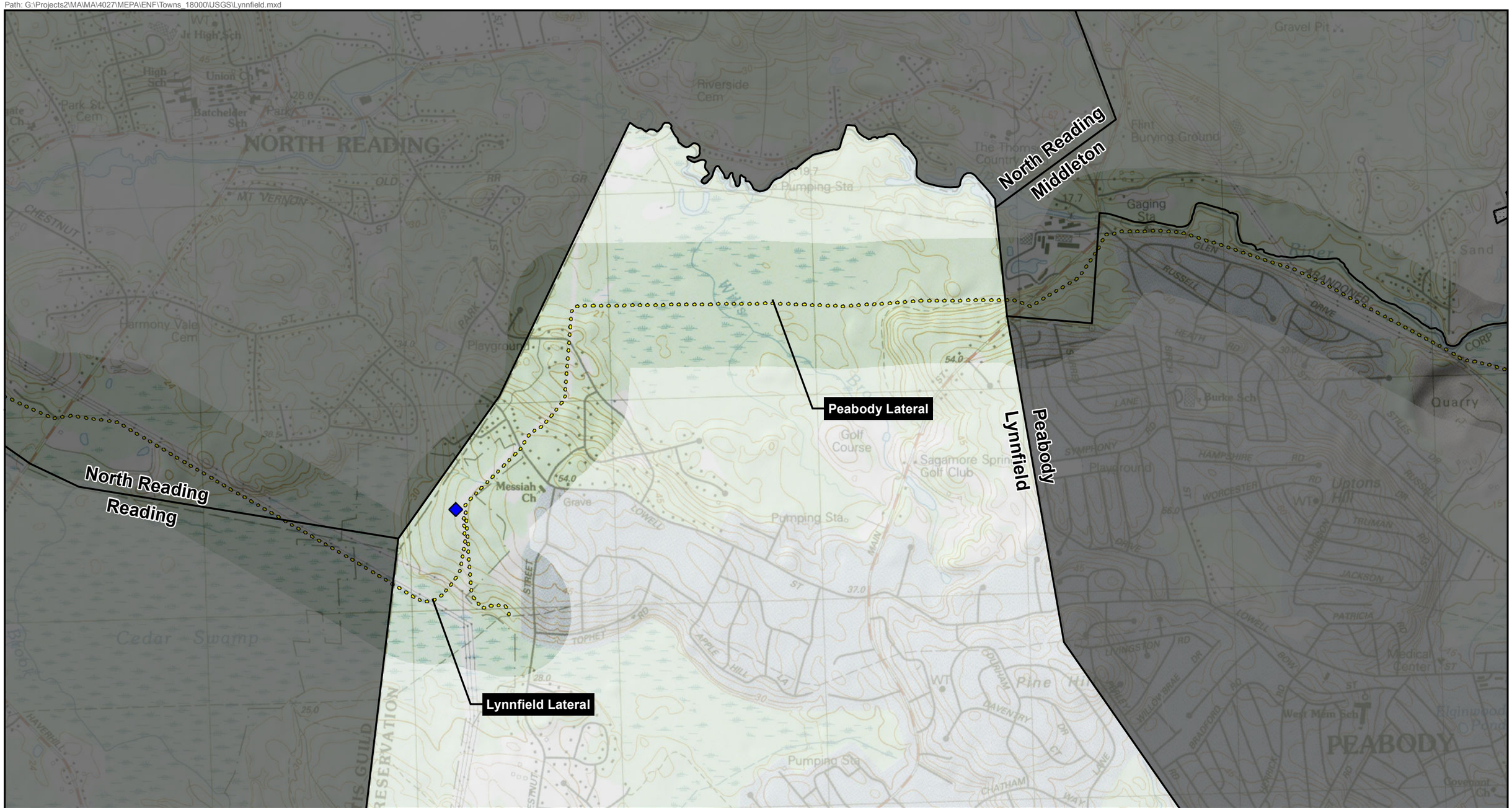
Lynnfield Lateral

October 2015

FIGURE 3.22-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Lynnfield.mxd



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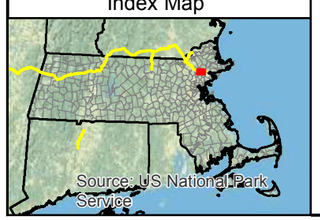


Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lynnfield, MA - USGS Locus Map
(Reading Quadrangle, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Lynnfield & Peabody Laterals

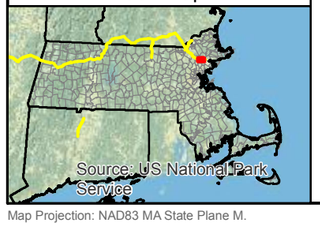
October 2015

FIGURE 3.23-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Lynnfield.mxd

Index Map



Legend

- Market Path Main Line
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Meter Station

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lynnfield, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

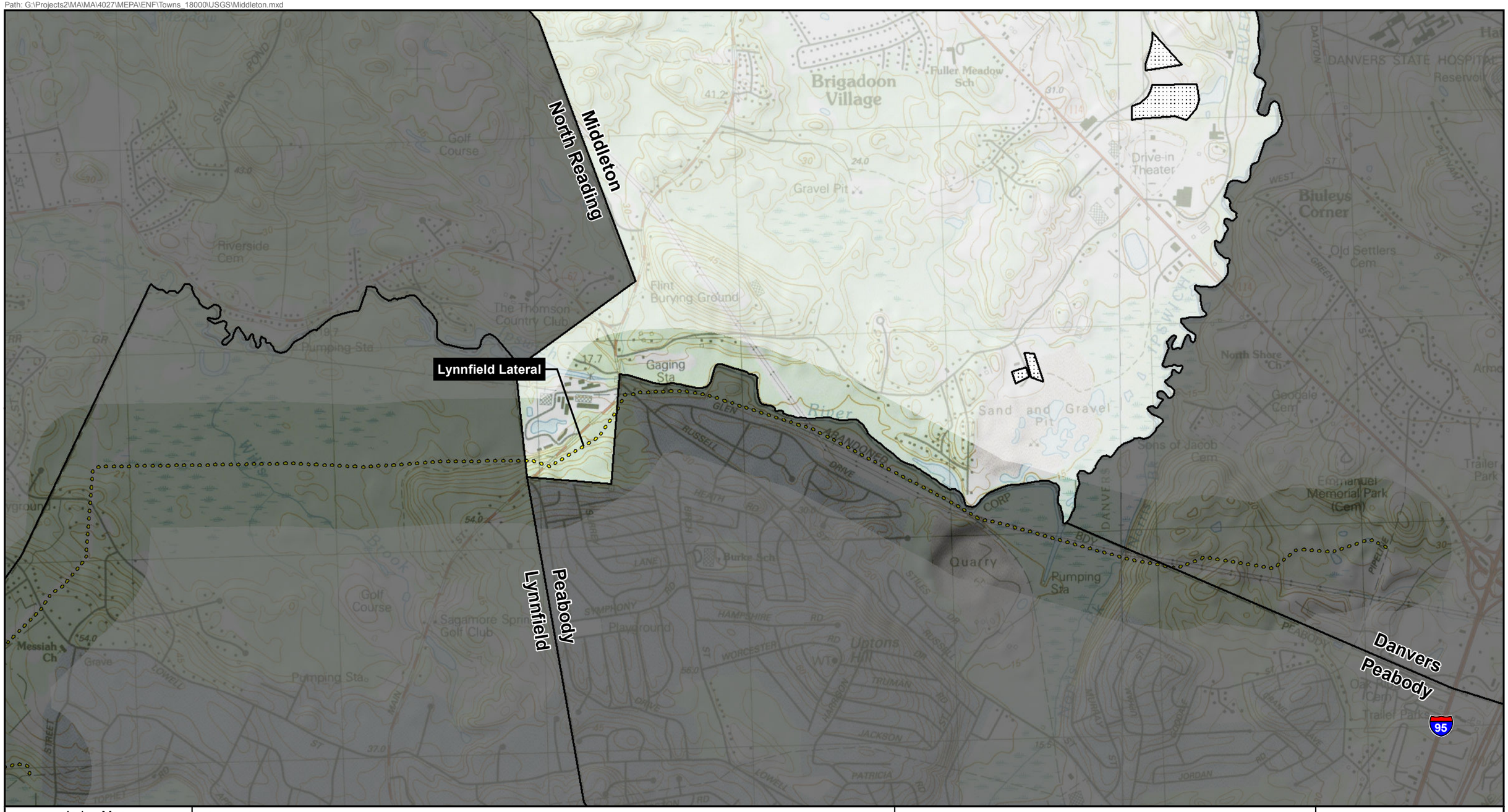
Lynnfield & Peabody Laterals

October 2015

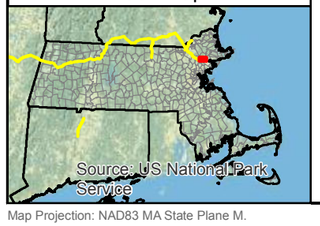
FIGURE 3.23-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Middleton.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Middleton, MA - USGS Locus Map
(Salem and Reading Quadrangles, 1985/1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Peabody Lateral

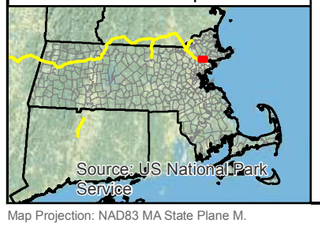
October 2015

FIGURE 3.24-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Middleton.mxd

Index Map



Legend

- Market Path Main Line
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- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Middleton, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

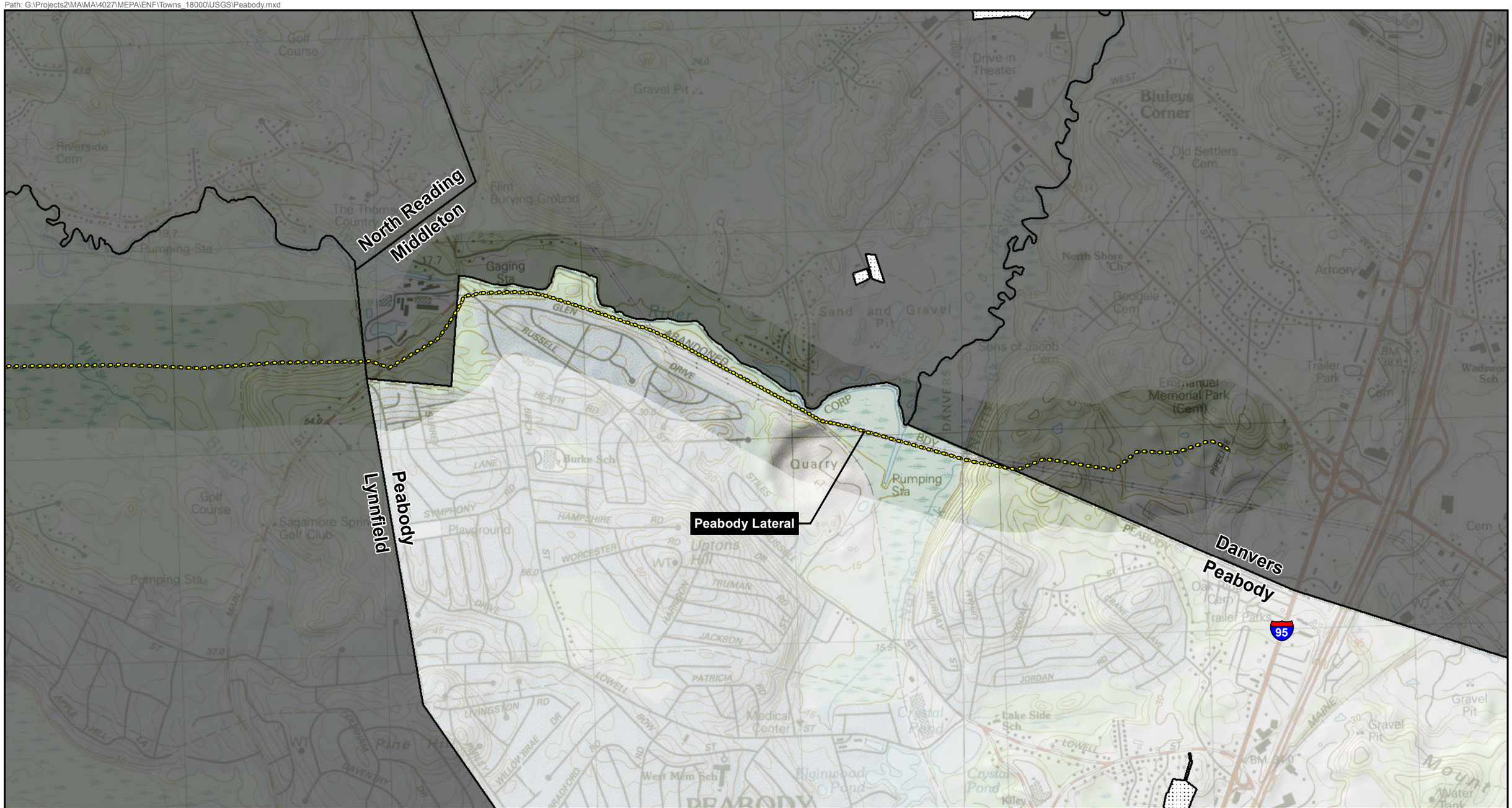
Peabody Lateral

October 2015

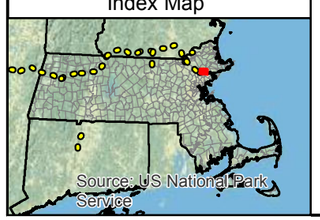
FIGURE 3.24-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Peabody.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Peabody, MA - USGS Locus Map
(Salem and Reading Quadrangles, 1985/1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

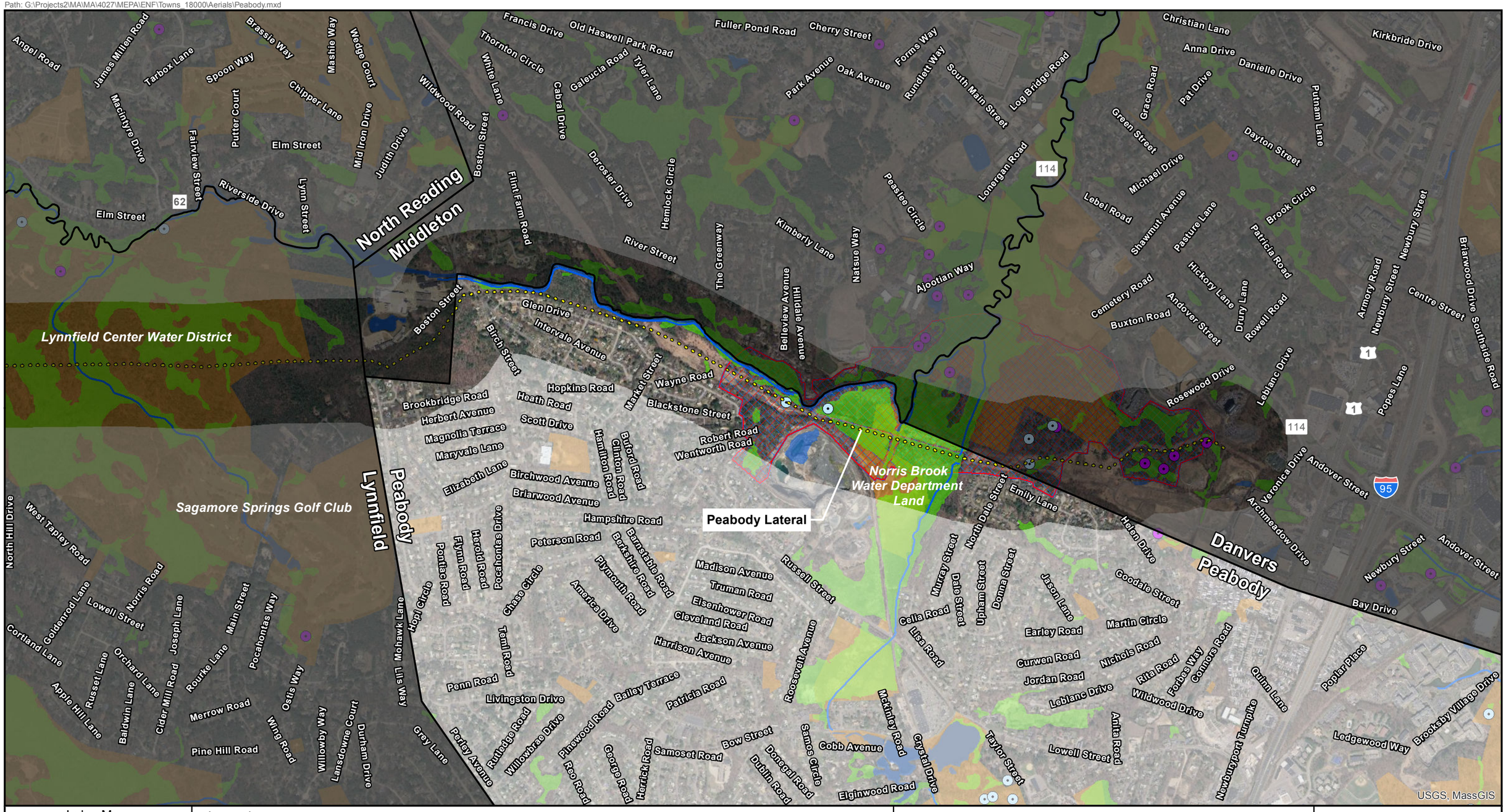
Peabody Lateral

October 2015

FIGURE 3.25-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Peabody.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
- Non State-Owned Open Space
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- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Peabody, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

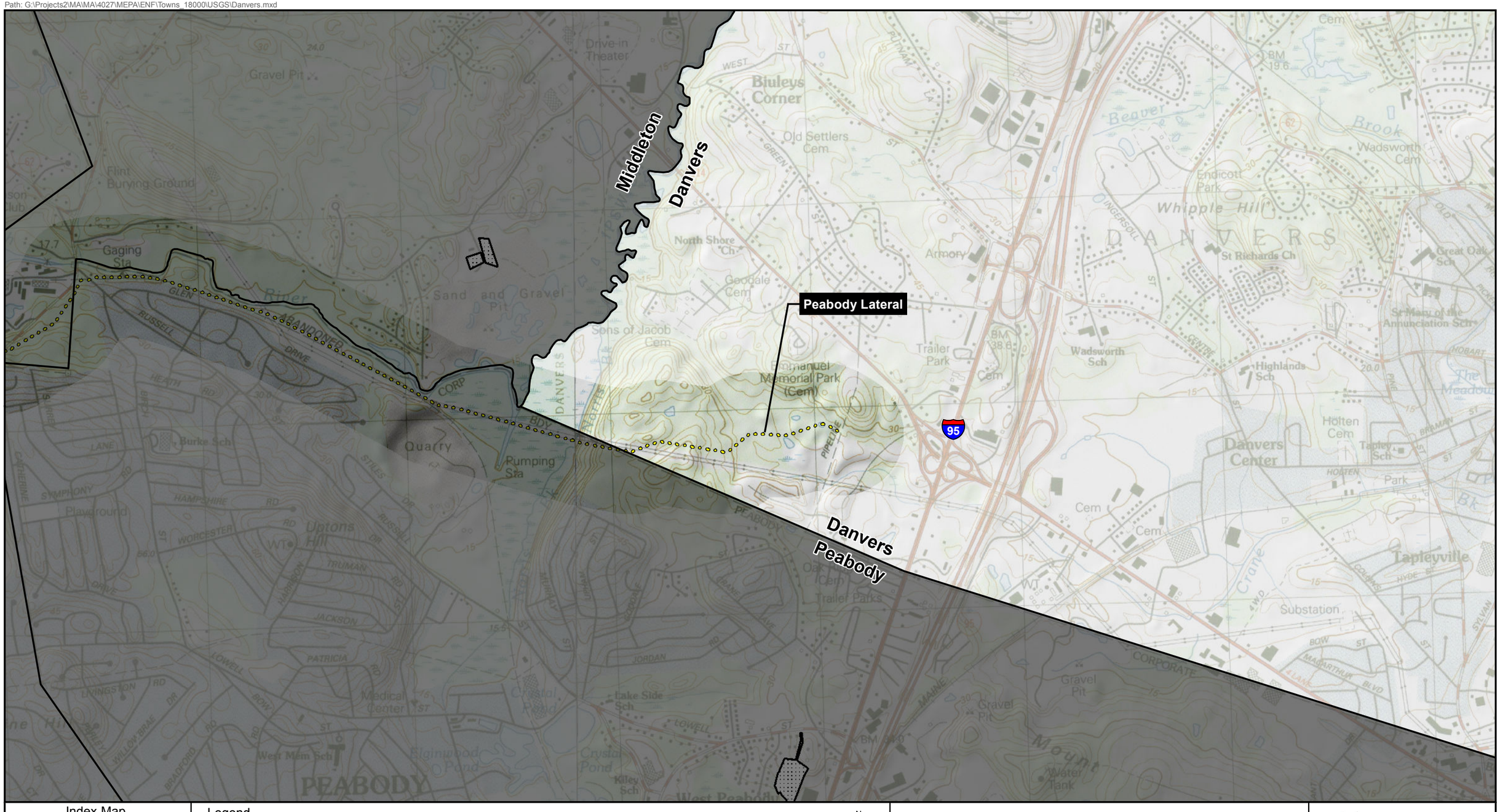
Peabody Lateral

October 2015

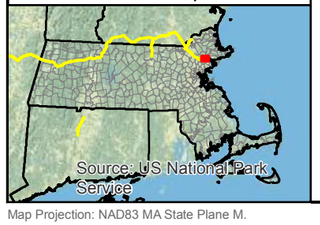
FIGURE 3.25-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Danvers.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Danvers, MA - USGS Locus Map
(Reading and Salem Quadrangles, 1985/1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Peabody Lateral

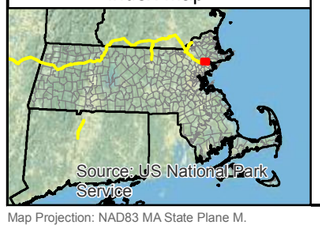
October 2015

FIGURE 3.26-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Danvers.mxd

Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Perennial Stream
- NWI & MassDEP Wetland
- Open Water
- State-Owned Open Space
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- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools
- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Danvers, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

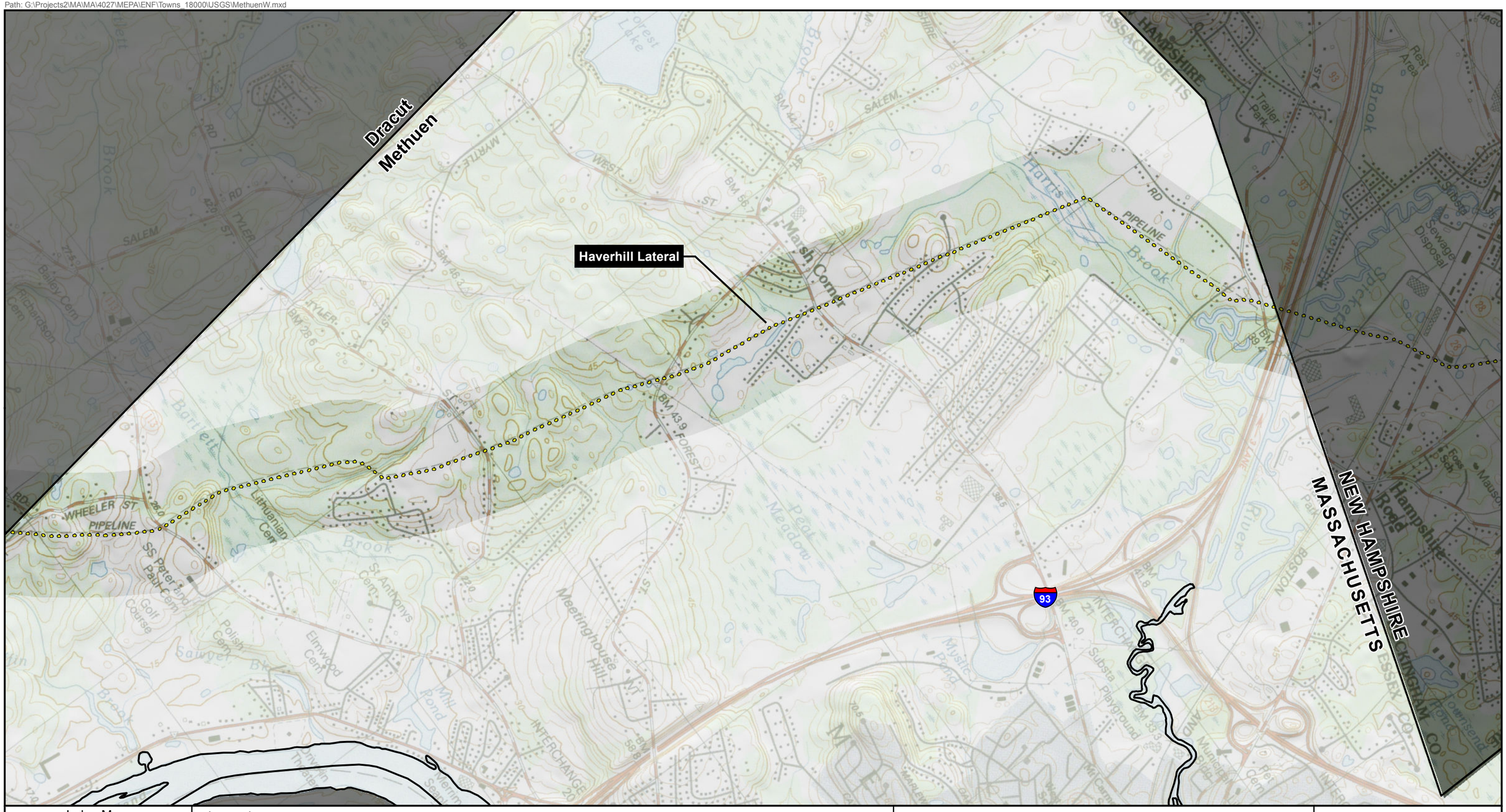
Peabody Lateral

October 2015

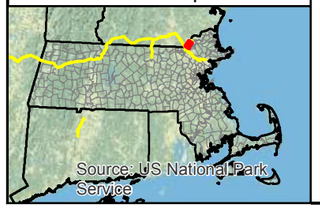
FIGURE 3.26-2

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\MethuenW.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Methuen, MA - USGS Locus Map
(Lawrence and Lowell Quadrangles, 1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

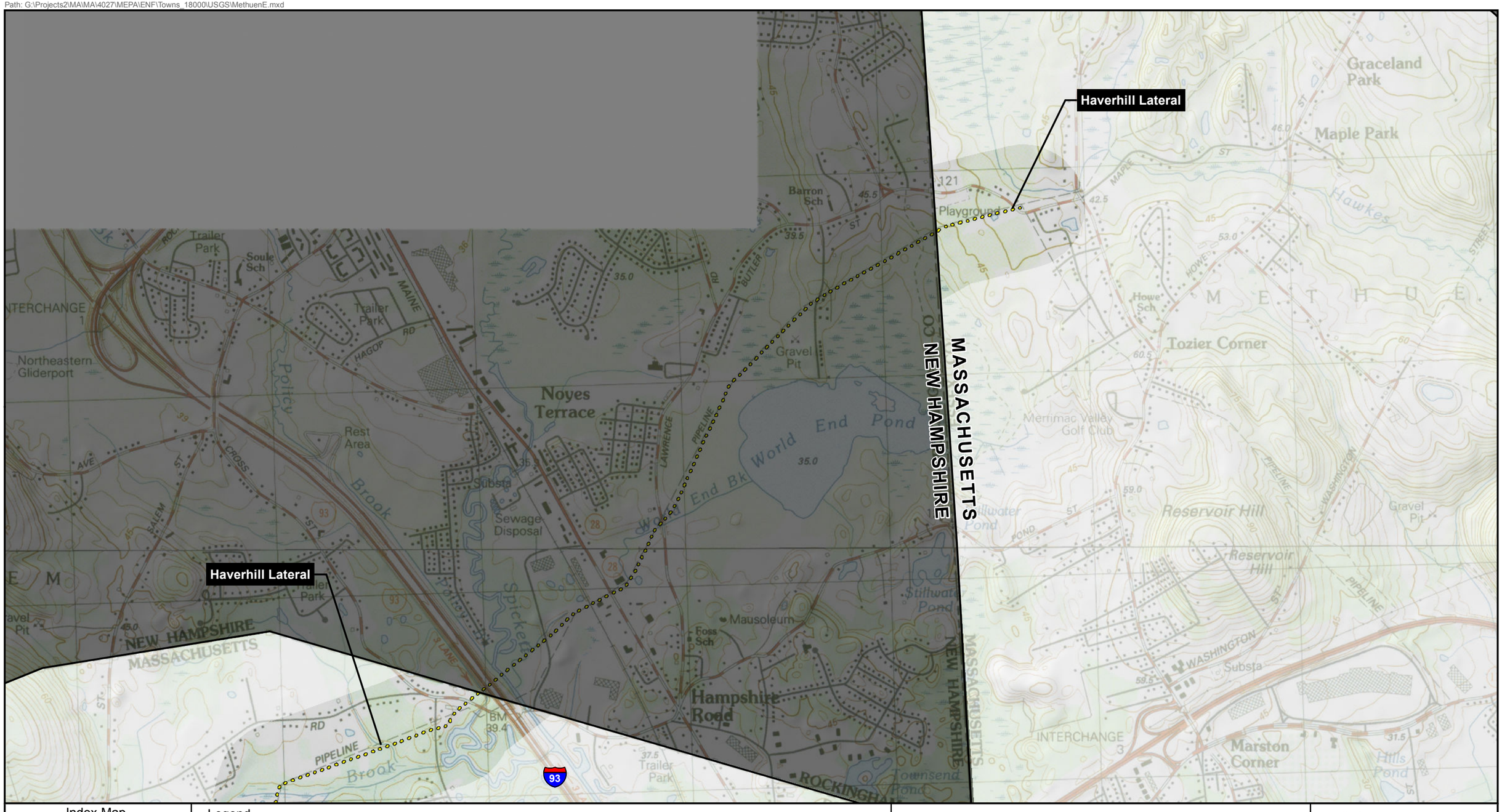
Haverhill Lateral

October 2015

FIGURE 3.27-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\MethuenE.mxd



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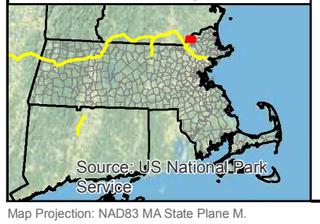


Legend

- Market Path Main Line
- Massachusetts Town/City Boundary

N
W E
S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Methuen, MA - USGS Locus Map
(Haverhill and Lawrence Quadrangles, 1985/1987)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

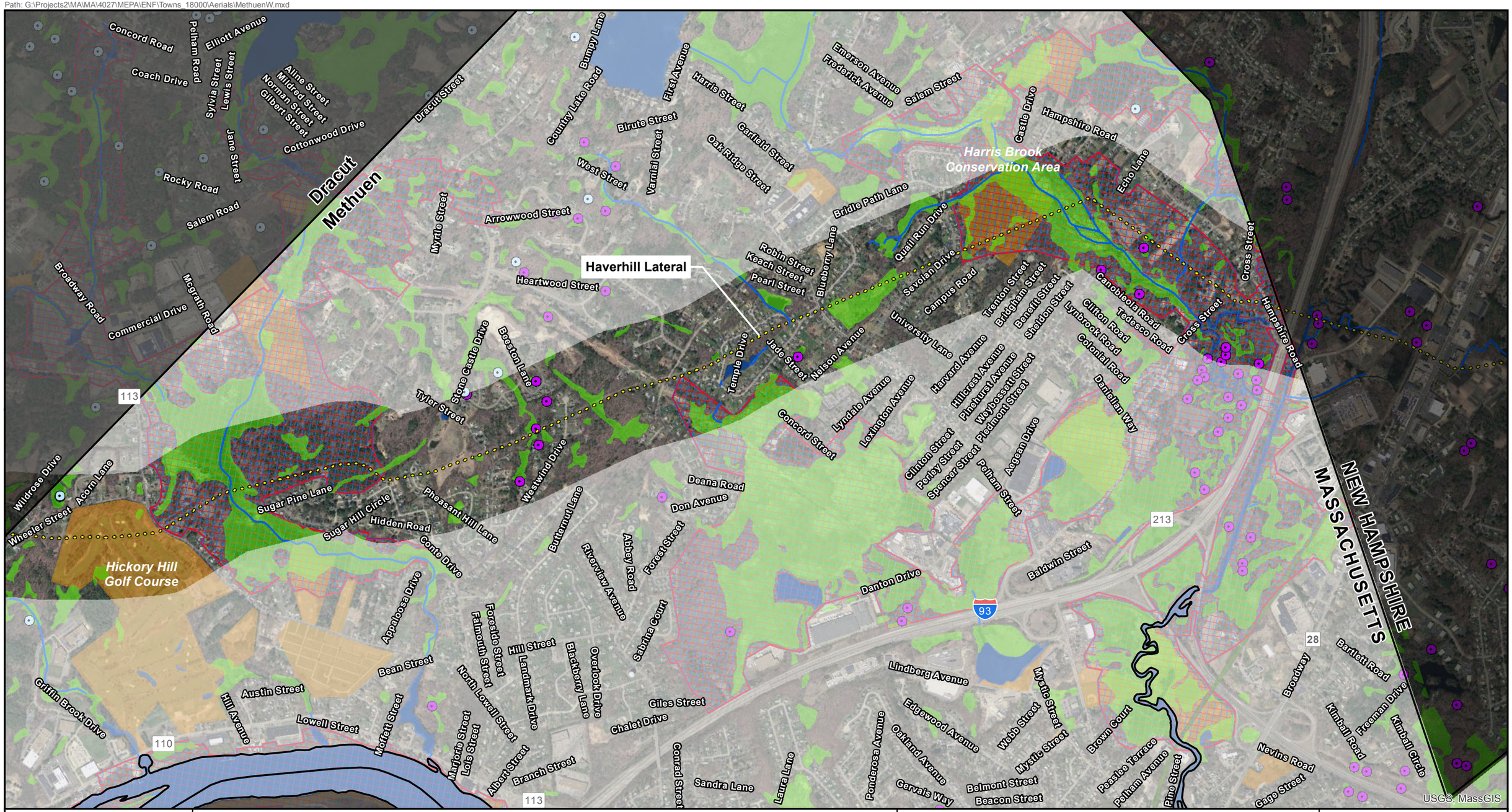
Haverhill Lateral

October 2015

FIGURE 3.27-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\MethuenW.mxd



Index Map

Legend

- Market Path Main Line
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- Open Water
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- NHESP 2014 Massachusetts Certified Vernal Pools
- NHESP Potential Vernal Pools: NOT equivalent to Certified Vernal Pools

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Methuen, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

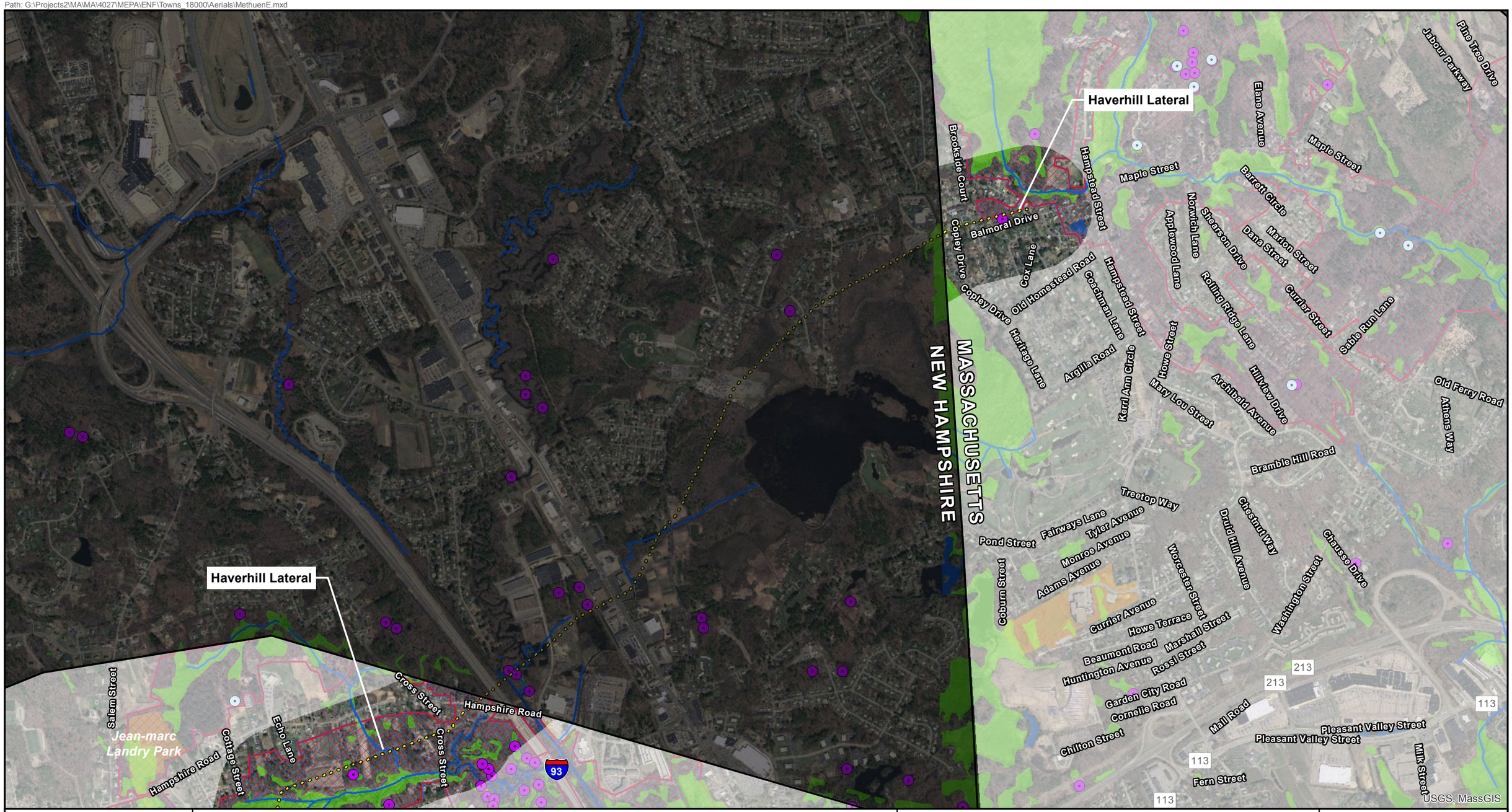
Haverhill Lateral

October 2015

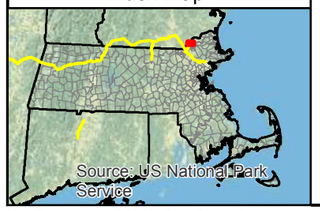
FIGURE 3.27-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\MethuenE.mxd



Index Map



Legend

- Market Path Main Line
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N
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S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Methuen, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

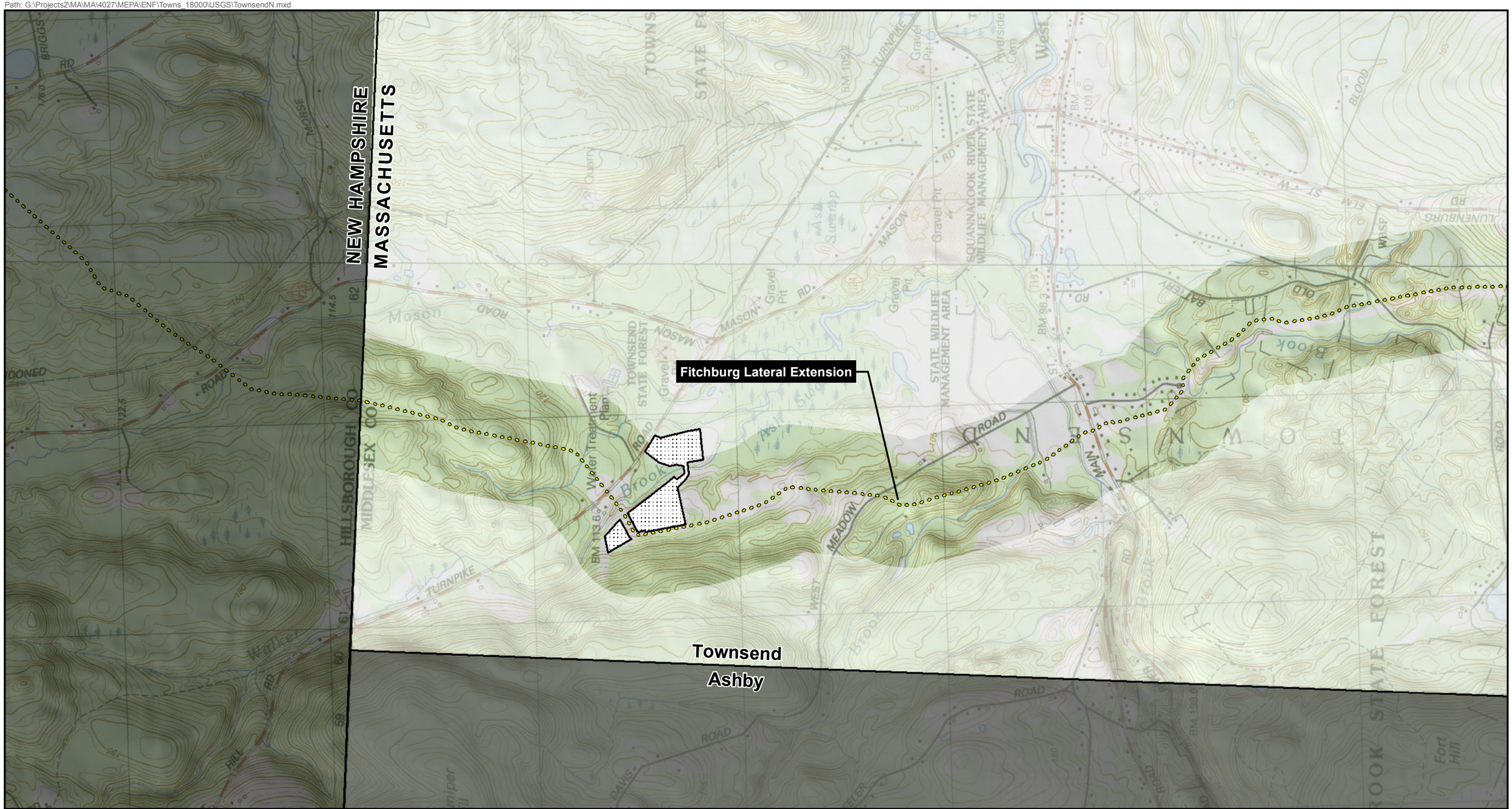
Haverhill Lateral

October 2015

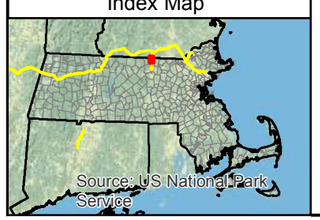
FIGURE 3.27-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\TownsendN.mxd



Index Map



Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yard

N E S W

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Townsend, MA - USGS Locus Map
(Ashburnham and Townsend Quadrangles, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

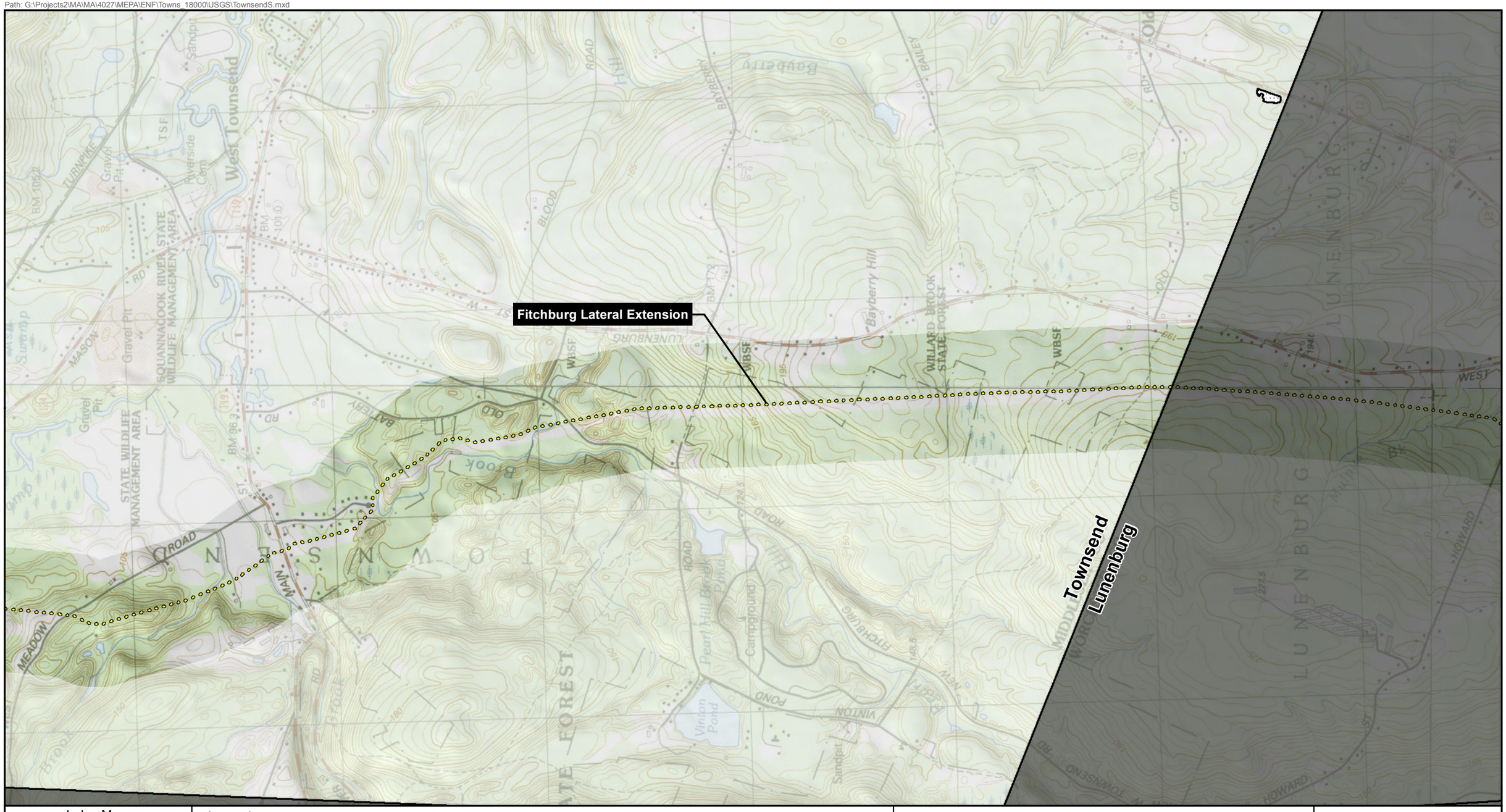
Fitchburg Lateral Extension

October 2015

FIGURE 3.28-1a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\TownsendS.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Contractor Yards

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Townsend, MA - USGS Locus Map
(Townsend and Ashburnham Quadrangles, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

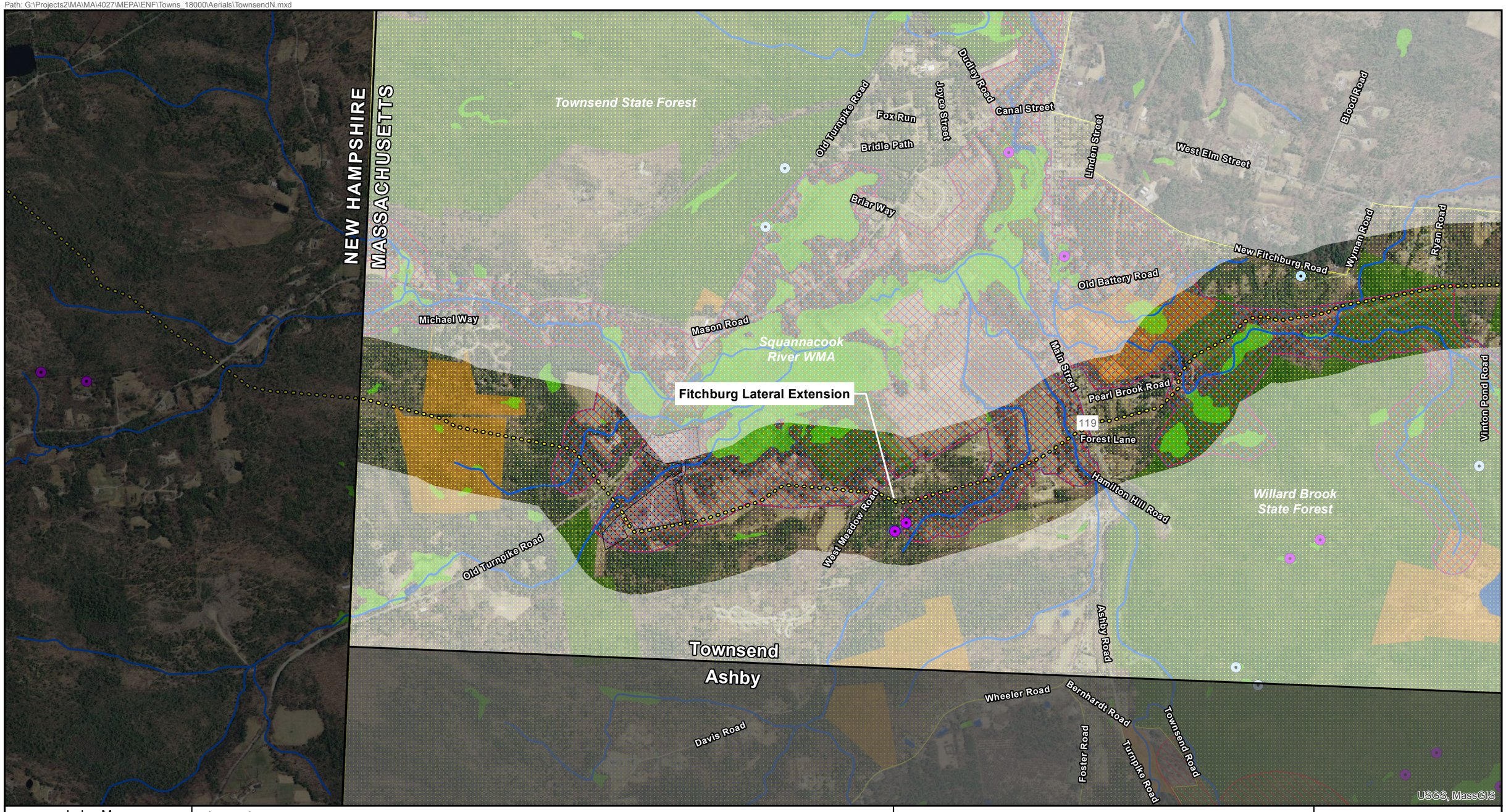
Fitchburg Lateral Extension

October 2015

FIGURE 3.28-1b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\TownsendN.mxd



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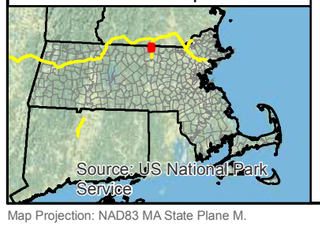

Legend

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- Squannassit Area of Critical Environmental Concern (ACEC)
- Contractor Yard

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Townsend, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

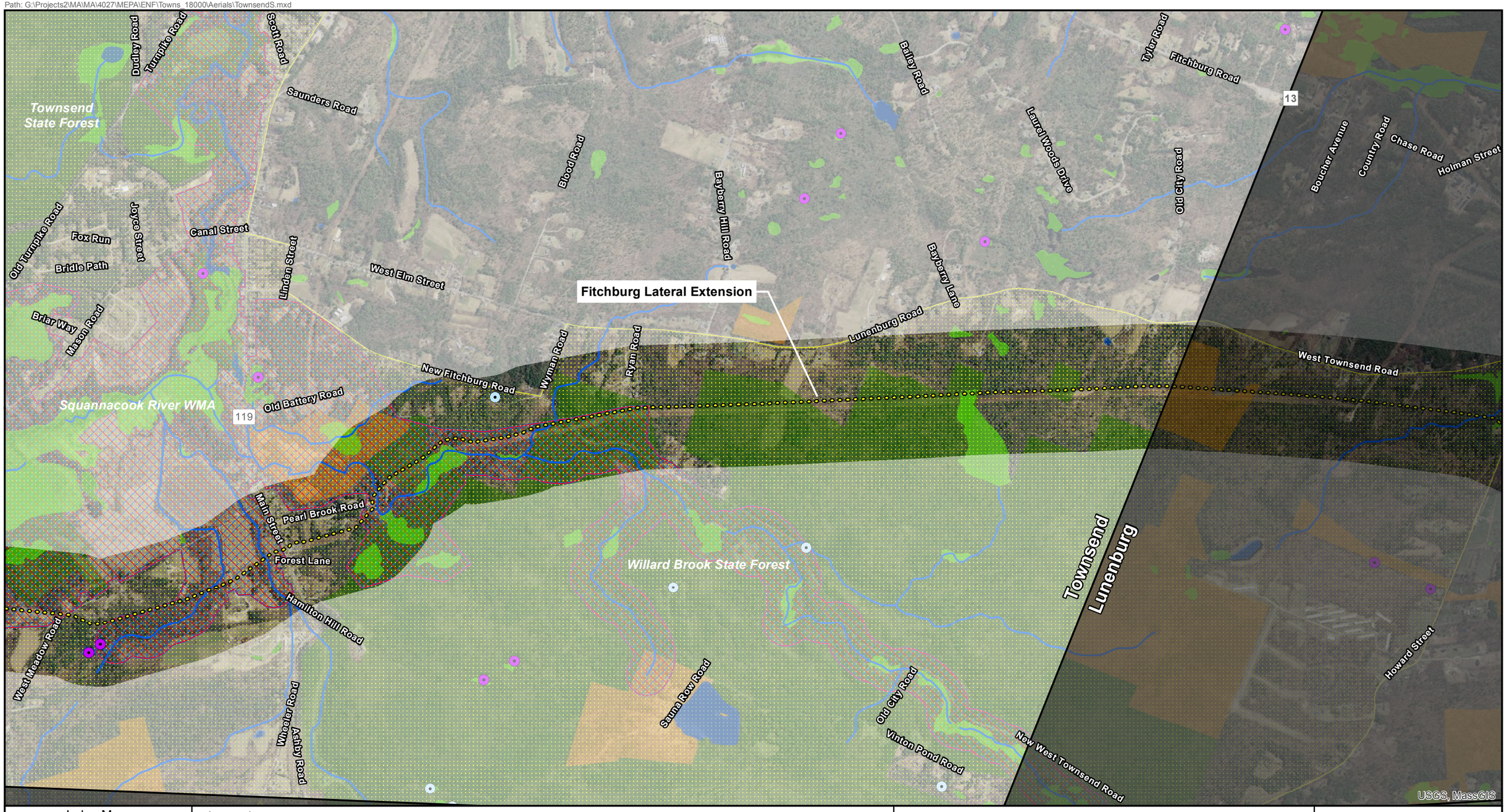
Fitchburg Lateral Extension

October 2015

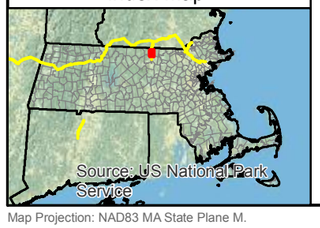
FIGURE 3.28-2a

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\TownsendS.mxd



Index Map



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N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Townsend, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

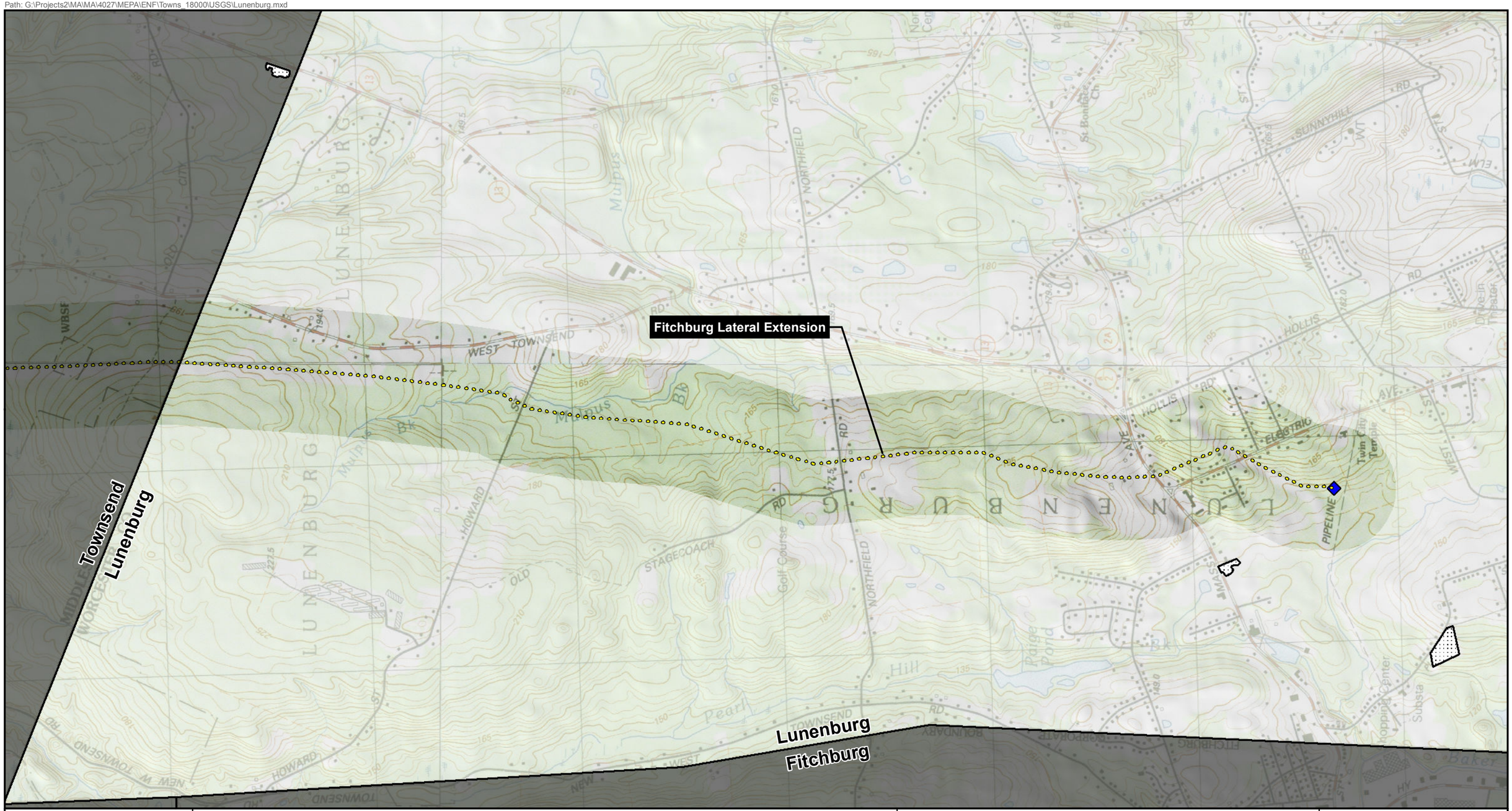
Fitchburg Lateral Extension

October 2015

FIGURE 3.28-2b

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\USGS\Lunenburg.mxd



Index Map

Legend

- Market Path Main Line
- Massachusetts Town/City Boundary
- Meter Station
- **Contractor Yard**

N W E S

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lunenburg, MA - USGS Locus Map
(Townsend, Ayer, Ashburnham, Fitchburg Quadrangles, 1988)

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates, Inc.

Fitchburg Lateral Extension

October 2015

FIGURE 3.29-1

Map Projection: NAD83 MA State Plane M.

Path: G:\Projects2\MA\MA\4027\MEPA\ENF\Towns_18000\Aerials\Lunenburg.mxd

Index Map

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N E S W

Tennessee Gas Pipeline Company, L.L.C.

Northeast Energy Direct Project

Lunenburg, MA - Environmental Constraints Map

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

Tennessee Gas Pipeline Company, L.L.C.
a Kinder Morgan company

AECOM Epsilon Associates Inc.

Fitchburg Lateral Extension

October 2015

FIGURE 3.29-2

Map Projection: NAD83 MA State Plane M.

Attachment 4

Newspaper Notices [RESERVED]

Table of Newspaper Notifications

Municipality	Local Newspaper	Publication Frequency	Submission Deadline	Expected Publication Date
Hancock	Local The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Lanesborough	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Cheshire	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Dalton	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Hinsdale	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Peru	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Windsor	The Berkshire Eagle	Daily	Noon 2 days prior to publication	
Plainfield	Daily Hampshire Gazette	6 days, no Sunday	2 days prior to publication	
Ashfield	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Conway	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Shelburne	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Deerfield	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Montague	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Erving	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Norhtfield	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Warwick	The Recorder	6 days, no Sunday	3pm 2 days prior to publication	
Dracut	The Lowell Sun	Daily	3 business days prior to publication	
Townsend	Townsend Times / Nashoba Publishing	Weekly (Friday)	5pm Monday	
Lunenburg	The Lunenburg Ledger	Weekly (Friday)	12pm Tuesday	
Methuen	Eagle Tribune	Daily	4 days prior to publication	
Tewksbury	Town Crier	Weekly (Wednesday)	10 am Tuesday before publication	
Andover	The Andover Townsman	Weekly (Thursday)	Mon 11am	
Wilmington	Town Crier	Weekly (Wednesday)	10 am Tuesday before publication	
North Reading	North Reading Transcript	Weekly (Thursday)	12pm Tuesday	
Lynnfield	Peabody & Lynnfield Weekly News	Weekly (Thursday)	5pm Monday	
Peabody	Peabody & Lynnfield Weekly News	Weekly (Thursday)	5pm Monday	
Middleton	The Salem News	6 days / week	12 pm 3 days prior to publication	
Danvers	Danvers Herald	Weekly (Thursday)	5 pm Friday prior publication	
Longmeadow	The Republican	Daily	3 business days prior to publication	
Everett	Advocate News	Weekly (Friday)	noon Wednesday	

Attachment 5

Wetlands Identified Along Pipeline Route

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TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Pipeline Facilities																			
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.47	0.50	WPI-1213	PEM	BVW	Hancock	II		0.08	0.00	0.00	0.00	0.00	0.00	0.00	75
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.39	0.44	WPI-1211	PSS	BVW	Hancock	II		0.00	0.00	0.39	0.00	0.00	0.05	0.00	236
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.43	0.45	WPI-1212	PFO	BVW	Hancock	N/A		0.00	0.05	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.46	0.50	WPI-1212	PFO	BVW	Hancock	II		0.00	0.16	0.00	0.00	0.05	0.00	0.00	69
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.50	0.51	WPI-1214	PSS	BVW	Hancock	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.52	0.55	WPI-1216	PSS	BVW	Hancock	II		0.00	0.00	0.08	0.00	0.00	0.01	0.00	11
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.73	0.76	HA-N-W001	PFO	BVW	Hancock	II		0.00	0.17	0.00	0.00	0.05	0.00	0.00	117
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	0.76	0.76	HA-N-W001	PFO	BVW	Hancock	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.09	2.10	WPI-1223	PFO	BVW	Hancock	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.21	2.24	WPI-1227	PSS	BVW	Hancock	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.24	2.32	WPI-1230	PSS	BVW	Hancock	II		0.00	0.00	0.28	0.00	0.00	0.02	0.00	333
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.26	2.26	WPI-1227	PSS	BVW	Hancock	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.27	2.28	WPI-1227	PSS	BVW	Hancock	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hancock	G	2.29	2.30	WPI-1229	PSS	BVW	Hancock	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.60	3.63	WPI-1239	PFO	BVW	Hancock	II		0.00	0.20	0.00	0.00	0.09	0.00	0.00	149
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.60	3.63	WPI-1238	PSS	BVW	Hancock	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.63	3.66	WPI-1243	PFO	BVW	Hancock	II		0.00	0.24	0.00	0.00	0.11	0.00	0.00	156
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	3.63	3.66	WPI-1242	PSS	BVW	Hancock	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.45	4.53	WPI-1245	PSS/PEM	BVW	Hancock	II		0.00	0.00	0.67	0.00	0.00	0.09	0.00	407
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.56	4.60	WPI-1245	PSS/PEM	BVW	Hancock	II		0.00	0.00	0.24	0.00	0.00	0.04	0.00	168
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.59	4.61	WPI-1246	Other	BVW	Hancock	II		0.00	0.00	0.00	0.05	0.00	0.00	0.00	27
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.61	4.61	WPI-1247	PSS/PEM	BVW	Hancock	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.96	5.01	WPI-1249	PFO	BVW	Cheshire	N/A		0.00	0.21	0.00	0.00	0.03	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	4.97	5.02	WPI-1250	PSS	BVW	Cheshire	II		0.00	0.00	0.20	0.00	0.00	0.06	0.00	241
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.70	5.73	WPI-1252	PFO	BVW	Cheshire	N/A		0.00	0.10	0.00	0.00	0.01	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.73	5.76	WPI-1256	PSS/PEM	BVW	Cheshire	II		0.00	0.00	0.14	0.00	0.00	0.02	0.00	96
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.74	5.75	WPI-1254	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.75	5.81	WPI-1258	PFO	BVW	Cheshire	II		0.00	0.32	0.00	0.00	0.10	0.00	0.00	130
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.75	5.81	WPI-1260	PSS/PEM	BVW	Cheshire	II		0.00	0.00	0.19	0.00	0.00	0.05	0.00	195
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.80	5.81	WPI-1262	PFO	BVW	Cheshire	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.81	5.84	WPI-1263	PEM	BVW	Cheshire	II		0.21	0.00	0.00	0.00	0.00	0.00	0.00	121
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.84	5.86	WPI-1265	PSS	BVW	Cheshire	N/A		0.00	0.00	0.09	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	5.84	5.89	WPI-1266	PSS/PEM	BVW	Cheshire	II		0.00	0.00	0.43	0.00	0.00	0.07	0.00	293
Wright to Dracut Pipeline Segment	Berkshire	Lanesborough	G	6.87	6.92	WPI-1269	PSS	BVW	Cheshire	II		0.00	0.00	0.46	0.00	0.00	0.06	0.00	268
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.52	7.56	WPI-1272	PSS	BVW	Cheshire	II		0.00	0.00	0.32	0.00	0.00	0.02	0.00	89
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.54	7.55	WPI-1274	PEM	BVW	Cheshire	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.56	7.57	WPI-1276	PEM	BVW	Cheshire	II		0.06	0.00	0.00	0.00	0.00	0.00	0.00	4
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.70	7.75	WPI-1280	PSS	BVW	Cheshire	II		0.00	0.00	0.30	0.00	0.00	0.02	0.00	90
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	7.71	7.73	NWI-111	PSS/EM	BVW	Cheshire	N/A		0.00	0.00	0.09	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	8.26	8.32	CS-M-W002	PEM	BVW	Cheshire	II		0.46	0.00	0.00	0.00	0.00	0.00	0.00	254
Wright to Dracut Pipeline Segment	Berkshire	Cheshire	G	8.32	8.35	WPI-1285	PEM	BVW	Cheshire	II		0.17	0.00	0.00	0.00	0.00	0.00	0.00	104
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.51	9.51	WPI-1291	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.69	9.71	WPI-1292	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.71	9.72	WPI-1293	PFO	BVW	Cheshire	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.74	9.78	WPI-1293	PFO	BVW	Cheshire	N/A		0.00	0.15	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.79	9.80	WPI-1294	PFO	BVW	Cheshire	II		0.00	0.03	0.00	0.00	0.01	0.00	0.00	15
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.79	9.83	WPI-1295	PSS/PEM	BVW	Cheshire	II		0.00	0.00	0.20	0.00	0.00	0.03	0.00	129
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	9.81	9.82	WPI-1297	PFO	BVW	Cheshire	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	13
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.28	10.30	WPI-1298	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.35	10.37	WPI-1298	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.09	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.47	10.48	WPI-1300	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.71	10.73	WPI-1301	PSS	BVW	Cheshire	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.77	10.78	WPI-1303	PFO	BVW	Cheshire	II		0.00	0.04	0.00	0.00	0.02	0.00	0.00	28
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.78	10.78	WPI-1304	PSS/PEM	BVW	Cheshire	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.78	10.81	WPI-1305	PSS/PEM	BVW	Cheshire	II		0.00	0.00	0.18	0.00	0.00	0.02	0.00	108
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	10.80	10.81	WPI-1306	PFO	BVW	Cheshire	II		0.00	0.06	0.00	0.00	0.02	0.00	0.00	24
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.33	11.33	WPI-1310	PSS	BVW	Pittsfield East	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.47	11.48	WPI-1311	PSS	BVW	Pittsfield East	II		0.00	0.00	0.05	0.00	0.00	0.01	0.00	29
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.76	11.77	WPI-1312	PSS	BVW	Pittsfield East	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.84	11.84	WPI-1314	PEM	BVW	Pittsfield East	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.84	11.84	WPI-1315	PEM	BVW	Pittsfield East	II		0.02	0.00	0.00	0.00	0.00	0.00	0.00	17
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.97	12.00	WPI-1317	PSS	BVW	Pittsfield East	II		0.00	0.00	0.17	0.00	0.00	0.02	0.00	99
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	11.98	11.99	WPI-1316	PEM	BVW	Pittsfield East	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	4
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.25	12.30	WPI-1318	PEM	BVW	Peru	II		0.20	0.00	0.00	0.00	0.00	0.00	0.00	115
Wright to Dracut Pipeline Segment	Berkshire	Dalton	G	12.31	12.32	WPI-1319	PSS	BVW	Peru	II		0.00	0.00	0.08	0.00	0.00	0.01	0.00	53
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.14	13.15	HN-N-W006	PSS	BVW	Peru	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.27	13.29	WPI-1320	PEM	BVW	Peru	N/A		0.04	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.52	13.56	HN-M-W001	PFO	BVW	Peru	II		0.00	0.29	0.00	0.00	0.11	0.00	0.00	172
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.55	13.56	HN-M-W001	PFO	BVW	Peru	II		0.00	0.04	0.00	0.00	0.02	0.00	0.00	26
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.59	13.63	HN-M-W002	PFO	BVW	Peru	II		0.00	0.21	0.00	0.00	0.11	0.00	0.00	170
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.59	13.63	HN-M-W002	PSS	BVW	Peru	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	13.96	13.96	HN-M-W005	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.01	14.05	HN-M-W005	PFO	BVW	Peru	II		0.00	0.17	0.00	0.00	0.06	0.00	0.00	101
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.03	14.06	HN-M-W005	PSS	BVW	Peru	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.65	14.67	HN-M-W007	PEM	BVW	Peru	II		0.12	0.00	0.00	0.00	0.00	0.00	0.00	86

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.72	14.77	HN-M-W006	PSS	BVW	Peru	II		0.00	0.00	0.34	0.00	0.00	0.04	0.00	195
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.90	14.91	HN-N-W001	PSS	BVW	Peru	II		0.00	0.00	0.04	0.00	0.00	0.01	0.00	32
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.98	14.99	HN-N-W002	PFO	BVW	Peru	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	7
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	14.99	14.99	HN-M-W002	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.00	15.00	HN-N-W002	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.15	15.18	HN-M-W008	PFO	BVW	Peru	II		0.00	0.23	0.00	0.00	0.09	0.00	0.00	130
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.22	15.29	HN-M-W008	PSS	BVW	Peru	II		0.00	0.00	0.62	0.00	0.00	0.08	0.00	351
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.44	15.45	HN-N-W005	PFO	BVW	Peru	II		0.00	0.03	0.00	0.00	0.01	0.00	0.00	2
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.54	15.55	HN-M-W009	PFO	BVW	Peru	II		0.00	0.05	0.00	0.00	0.01	0.00	0.00	15
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.59	15.59	HN-M-W011	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.59	15.62	HN-M-W010	PSS	BVW	Peru	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Hinsdale	G	15.63	15.70	HN-M-W010	PSS	BVW	Peru	II		0.00	0.00	0.23	0.00	0.00	0.03	0.00	105
Wright to Dracut Pipeline Segment	Berkshire	Peru	G	16.00	16.01	WPI-1334	PSS	BVW	Peru	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Peru	G	16.03	16.04	WPI-1336	PSS	BVW	Peru	II		0.00	0.00	0.06	0.00	0.00	0.01	0.00	24
Wright to Dracut Pipeline Segment	Berkshire	Peru	G	16.04	16.08	WPI-1337	PFO	BVW	Peru	II		0.00	0.36	0.00	0.00	0.14	0.00	0.00	205
Wright to Dracut Pipeline Segment	Berkshire	Peru	G	16.08	16.13	WPI-1338	PFO	BVW	Peru	II		0.00	0.49	0.00	0.00	0.20	0.00	0.00	288
Wright to Dracut Pipeline Segment	Berkshire	Peru	G	16.14	16.22	WPI-1342	PFO	BVW	Peru	II		0.00	0.51	0.00	0.00	0.20	0.00	0.00	304
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	16.86	16.90	WPI-1352	PFO	BVW	Peru	II		0.00	0.32	0.00	0.00	0.13	0.00	0.00	192
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.02	17.03	WR-M-W022	PFO	BVW	Peru	II		0.00	0.05	0.00	0.00	0.01	0.00	0.00	20
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.15	17.15	WR-M-W023	PEM	BVW	Peru	II		0.02	0.00	0.00	0.00	0.00	0.00	0.00	15
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.16	17.16	WR-M-W023	PEM	BVW	Peru	II		0.02	0.00	0.00	0.00	0.00	0.00	0.00	10
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.17	17.22	WR-M-W004	PFO	BVW	Peru	II		0.00	0.31	0.00	0.00	0.12	0.00	0.00	225
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.31	17.32	WR-M-W005	PSS	BVW	Peru	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	17.99	18.00	WPI-1356	PFO	BVW	Peru	II		0.00	0.11	0.00	0.00	0.04	0.00	0.00	62
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.04	18.05	WPI-1358	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.14	18.14	WPI-1361	PSS	BVW	Peru	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.67	18.74	WR-M-W012	PSS	BVW	Peru	II		0.00	0.00	0.39	0.00	0.00	0.05	0.00	258
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.74	18.76	WR-M-W012	PSS	BVW	Peru	II		0.00	0.00	0.02	0.00	0.00	0.01	0.00	10
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	18.75	18.75	WR-M-W012	PSS	BVW	Peru	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.06	19.09	WR-N-W002	PFO	BVW	Peru	N/A		0.00	0.05	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.09	19.10	WR-N-W002	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.10	19.11	WR-N-W002	PFO	BVW	Peru	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.11	19.13	WR-N-W002	PFO	BVW	Peru	II		0.00	0.15	0.00	0.00	0.05	0.00	0.00	78
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.15	19.17	WR-N-W002	PFO	BVW	Peru	II		0.00	0.06	0.00	0.00	0.04	0.00	0.00	86
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	19.17	19.21	WR-N-W002	PSS	BVW	Peru	II		0.00	0.00	0.14	0.00	0.00	0.02	0.00	92
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.36	20.38	WR-M-W015	PFO	BVW	Plainfield	II		0.00	0.14	0.00	0.00	0.05	0.00	0.00	71
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.42	20.44	WR-M-W016	PFO	BVW	Plainfield	II		0.00	0.15	0.00	0.00	0.06	0.00	0.00	91
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.62	20.63	WR-M-W020	PFO	BVW	Plainfield	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.78	20.79	WPI-1368	PSS	BVW	Plainfield	II		0.00	0.00	0.05	0.00	0.00	0.01	0.00	30
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	20.80	20.83	WPI-1369	PFO	BVW	Plainfield	II		0.00	0.20	0.00	0.00	0.07	0.00	0.00	107
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	21.18	21.20	WPI-1373	PFO	BVW	Plainfield	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	74
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	21.18	21.21	WPI-1374	PSS	BVW	Plainfield	II		0.00	0.00	0.04	0.00	0.00	0.01	0.00	21
Wright to Dracut Pipeline Segment	Berkshire	Windsor	G	21.19	21.21	WPI-1372	PFO	BVW	Plainfield	II		0.00	0.06	0.00	0.00	0.02	0.00	0.00	30
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.53	21.54	WPI-1375	PSS	BVW	Plainfield	II		0.00	0.00	0.07	0.00	0.00	0.01	0.00	47
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.54	21.55	WPI-1376	PEM	BVW	Plainfield	II		0.05	0.00	0.00	0.00	0.00	0.00	0.00	23
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.56	21.57	WPI-1376	PEM	BVW	Plainfield	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	21.98	21.99	PL-M-W006	PFO	BVW	Plainfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.02	22.03	PL-M-W004	PFO	BVW	Plainfield	II		0.00	0.07	0.00	0.00	0.03	0.00	0.00	40
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.05	22.05	PL-E-W001	PFO	BVW	Plainfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	22.87	22.88	WPI-1379	PSS	BVW	Plainfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	23.27	23.28	PL-M-W002	PEM	BVW	Plainfield	II		0.04	0.00	0.00	0.00	0.00	0.00	0.00	19
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	23.42	23.43	PL-M-W001	PFO	BVW	Plainfield	II		0.00	0.05	0.00	0.00	0.02	0.00	0.00	34
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	23.43	23.44	PL-M-W007	PSS	BVW	Plainfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	23.98	24.05	WPI-1386	PFO	BVW	Plainfield	II		0.00	0.47	0.00	0.00	0.20	0.00	0.00	288
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.04	24.05	WPI-1387	PSS	BVW	Plainfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.04	24.06	WPI-1388	PSS	BVW	Plainfield	II		0.00	0.00	0.08	0.00	0.00	0.01	0.00	52
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.07	24.08	WPI-1390	PEM	BVW	Plainfield	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.07	24.09	WPI-1395	PSS	BVW	Plainfield	II		0.00	0.00	0.11	0.00	0.00	0.01	0.00	57
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.08	24.09	WPI-1392	PSS	BVW	Plainfield	II		0.00	0.00	0.06	0.00	0.00	0.01	0.00	44
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.09	24.17	WPI-1397	PFO	BVW	Plainfield	II		0.00	0.67	0.00	0.00	0.27	0.00	0.00	389
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.64	24.66	WPI-1400	PEM	BVW	Plainfield	II		0.09	0.00	0.00	0.00	0.00	0.00	0.00	58
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.65	24.66	WPI-1401	PSS	BVW	Plainfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	24.68	24.71	WPI-1399	PSS	BVW	Plainfield	II		0.00	0.00	0.05	0.00	0.00	0.01	0.00	25
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.07	25.09	PL-E-W003	PEM	BVW	Plainfield	N/A		0.09	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.07	25.08	PL-E-W003	PFO	BVW	Plainfield	II		0.00	0.03	0.00	0.00	0.02	0.00	0.00	54
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.07	25.07	WPI-1402	PSS	BVW	Plainfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.13	25.23	PL-E-W003	PEM	BVW	Plainfield	N/A		0.47	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.14	25.26	PL-E-W003	PFO	BVW	Plainfield	II		0.00	0.27	0.00	0.00	0.13	0.00	0.00	333
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.21	25.30	PL-E-W003	PSS	BVW	Plainfield	II		0.00	0.00	0.50	0.00	0.00	0.04	0.00	356
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.26	25.29	PL-E-W003	PFO	BVW	Plainfield	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.48	25.49	PL-E-W002	PFO	BVW	Plainfield	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	69
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.49	25.58	PL-E-W002	PFO	BVW	Plainfield	II		0.00	0.67	0.00	0.00	0.16	0.00	0.00	399
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.57	25.59	PL-E-W002	PFO	BVW	Plainfield	II		0.00	0.08	0.00	0.00	0.02	0.00	0.00	36
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.95	25.96	WPI-1410	PFO	BVW	Plainfield	II		0.00	0.05	0.00	0.00	0.03	0.00	0.00	44
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.96	25.97	WPI-1412	PSS	BVW	Plainfield	II		0.00	0.00	0.05	0.00	0.00	0.01	0.00	23
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.97	25.98	WPI-1411	PFO	BVW	Plainfield	II		0.00	0.04	0.00	0.00	0.02	0.00	0.00	30

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	25.97	25.98	WPI-1413	PSS	BVW	Plainfield	II		0.00	0.00	0.07	0.00	0.00	0.01	0.00	48
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.23	26.24	WPI-1415	PFO	BVW	Plainfield	II		0.00	0.10	0.00	0.00	0.04	0.00	0.00	58
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.24	26.25	WPI-1419	PFO	BVW	Plainfield	II		0.00	0.05	0.00	0.00	0.02	0.00	0.00	33
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.34	26.34	WPI-1422	PEM	BVW	Plainfield	II		0.02	0.00	0.00	0.00	0.00	0.00	0.00	9
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.46	26.47	WPI-1425	PFO	BVW	Plainfield	II		0.00	0.05	0.00	0.00	0.03	0.00	0.00	41
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.72	26.72	PL-M-W009	PEM	BVW	Plainfield	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.72	26.75	PL-M-W009	PFO	BVW	Plainfield	N/A		0.00	0.21	0.00	0.00	0.03	0.00	0.00	0
Wright to Dracut Pipeline Segment	Hampshire	Plainfield	G	26.76	26.83	PL-M-W010	PFO	BVW	Plainfield	II		0.00	0.48	0.00	0.00	0.23	0.00	0.00	332
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	26.96	26.99	AS-M-W001	PFO	BVW	Plainfield	II		0.00	0.20	0.00	0.00	0.08	0.00	0.00	121
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	26.99	27.07	AS-M-W001	PFO	BVW	Ashfield	II		0.00	0.66	0.00	0.00	0.27	0.00	0.00	398
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.06	27.10	AS-M-W001	PSS	BVW	Ashfield	II		0.00	0.00	0.25	0.00	0.00	0.03	0.00	133
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.07	27.08	AS-M-W001	PFO	BVW	Ashfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.10	27.10	AS-M-W001	PSS	BVW	Ashfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.10	27.13	AS-M-W001	PSS	BVW	Ashfield	II		0.00	0.00	0.15	0.00	0.00	0.02	0.00	78
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.12	27.15	AS-M-W001	PFO	BVW	Ashfield	II		0.00	0.17	0.00	0.00	0.05	0.00	0.00	96
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.16	27.20	AS-M-W001	PFO	BVW	Ashfield	II		0.00	0.23	0.00	0.00	0.06	0.00	0.00	88
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.21	27.22	AS-M-W001	PFO	BVW	Ashfield	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.28	27.32	WPI-1440	PFO	BVW	Ashfield	II		0.00	0.31	0.00	0.00	0.12	0.00	0.00	173
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.50	27.59	AS-M-W004	PFO	BVW	Ashfield	II		0.00	0.57	0.00	0.00	0.24	0.00	0.00	363
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.86	27.92	AS-M-W005	PFO	BVW	Ashfield	II		0.00	0.34	0.00	0.00	0.12	0.00	0.00	178
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	27.92	27.97	AS-M-W005	PFO	BVW	Ashfield	II		0.00	0.45	0.00	0.00	0.18	0.00	0.00	259
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.05	28.05	AS-M-W005	PSS	BVW	Ashfield	II		0.00	0.00	0.04	0.00	0.00	0.01	0.00	23
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.15	28.18	AS-M-W006	PFO	BVW	Ashfield	II		0.00	0.06	0.00	0.00	0.03	0.00	0.00	34
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.84	28.87	AS-M-W008	PFO	BVW	Ashfield	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.92	28.95	AS-M-W009	PFO	BVW	Ashfield	II		0.00	0.14	0.00	0.00	0.07	0.00	0.00	104
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.96	28.99	WPI-1446	PFO	BVW	Ashfield	N/A		0.00	0.07	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	28.99	29.00	AS-M-W010	PFO	BVW	Ashfield	II		0.00	0.08	0.00	0.00	0.03	0.00	0.00	41
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.05	29.06	AS-M-W011	PFO	BVW	Ashfield	II		0.00	0.03	0.00	0.00	0.02	0.00	0.00	22
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.05	29.06	WPI-1450	PSS/PEM	BVW	Ashfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.06	29.11	AS-M-W011	PFO	BVW	Ashfield	II		0.00	0.35	0.00	0.00	0.18	0.00	0.00	256
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.06	29.11	WPI-1455	PFO	BVW	Ashfield	N/A		0.00	0.09	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.06	29.07	WPI-1453	PSS/PEM	BVW	Ashfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.16	29.17	AS-M-W012	PFO	BVW	Ashfield	II		0.00	0.08	0.00	0.00	0.04	0.00	0.00	60
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.16	29.19	WPI-1457	PFO	BVW	Ashfield	N/A		0.00	0.07	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.17	29.19	AS-M-W012	PFO	BVW	Ashfield	II		0.00	0.08	0.00	0.00	0.07	0.00	0.00	103
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.17	29.19	WPI-1458	PSS/PEM	BVW	Ashfield	N/A	BioMap2 Wetland Core - 1346	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.20	29.21	AS-M-W013	PEM	BVW	Ashfield	N/A		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.26	29.29	WPI-1459	PSS	BVW	Ashfield	II		0.00	0.00	0.16	0.00	0.00	0.03	0.00	114
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.28	29.33	WPI-1460	PSS/PEM	BVW	Ashfield	II		0.00	0.00	0.30	0.00	0.00	0.04	0.00	192
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.49	29.50	AS-M-W014	PEM	BVW	Ashfield	II		0.03	0.00	0.00	0.00	0.00	0.00	0.00	8
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.51	29.52	AS-M-W014	PEM	BVW	Ashfield	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	1
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.53	29.58	AS-M-W014	PFO	BVW	Ashfield	II		0.00	0.32	0.00	0.00	0.14	0.00	0.00	211
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.59	29.70	AS-M-W015	PFO	BVW	Ashfield	II		0.00	0.96	0.00	0.00	0.38	0.00	0.00	546
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.74	29.77	AS-M-W016	PFO	BVW	Ashfield	II		0.00	0.20	0.00	0.00	0.08	0.00	0.00	121
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.78	29.79	AS-M-W016	PFO	BVW	Ashfield	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	29.91	29.94	AS-M-W017	PSS	BVW	Ashfield	N/A		0.00	0.00	0.15	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	31.48	31.51	AS-M-W018	PFO	BVW	Ashfield	II		0.00	0.18	0.00	0.00	0.09	0.00	0.00	134
Wright to Dracut Pipeline Segment	Franklin	Ashfield	G	31.71	31.72	AS-M-W021	PEM	BVW	Ashfield	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	6
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	1.14	1.15	WPI-1481	Other	BVW	Shelburne Falls	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	1.15	1.15	WPI-1481	Other	BVW	Shelburne Falls	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	1.34	1.39	NWI-391	PSS	BVW	Shelburne Falls	II		0.00	0.00	0.23	0.00	0.00	0.03	0.00	149
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	1.36	1.38	WPI-1483	PEM	BVW	Shelburne Falls	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Ashfield	H	1.38	1.38	WPI-1488	PSS	BVW	Shelburne Falls	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	1.90	1.92	WPI-1492	PSS/PEM	BVW	Shelburne Falls	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.25	3.26	WPI-1502	PSS	BVW	Shelburne Falls	II		0.00	0.00	0.02	0.00	0.00	0.01	0.00	9
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.25	3.27	WPI-1502	PSS	BVW	Shelburne Falls	II		0.00	0.00	0.09	0.00	0.00	0.01	0.00	53
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.92	3.93	WPI-1504	PFO	BVW	Shelburne Falls	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	5
Wright to Dracut Pipeline Segment	Franklin	Conway	H	3.93	3.94	WPI-1508	PFO	BVW	Shelburne Falls	II		0.00	0.07	0.00	0.00	0.02	0.00	0.00	32
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.18	4.19	CN-M-W002	PFO	BVW	Shelburne Falls	II		0.00	0.10	0.00	0.00	0.04	0.00	0.00	57
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.23	4.24	CN-M-W002	PEM	BVW	Shelburne Falls	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.39	4.40	CN-M-W003	PFO	BVW	Shelburne Falls	II		0.00	0.07	0.00	0.00	0.03	0.00	0.00	51
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.39	4.40	CN-M-W003	PSS	BVW	Shelburne Falls	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.40	4.41	CN-M-W003	PSS	BVW	Shelburne Falls	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.48	4.52	CN-M-W004	PFO	BVW	Shelburne Falls	II		0.00	0.16	0.00	0.00	0.06	0.00	0.00	88
Wright to Dracut Pipeline Segment	Franklin	Conway	H	4.63	4.64	CN-M-W003	PFO	BVW	Shelburne Falls	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	8.75	8.77	WPI-1524	PEM	BVW	Greenfield	II		0.08	0.00	0.00	0.00	0.00	0.00	0.00	27
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.21	9.23	WPI-1531	PEM	BVW	Greenfield	II		0.15	0.00	0.00	0.00	0.00	0.00	0.00	84
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.23	9.26	WPI-1532	PEM	BVW	Greenfield	II		0.22	0.00	0.00	0.00	0.00	0.00	0.00	131
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.91	9.92	WPI-1535	PFO	BVW	Greenfield	II		0.00	0.10	0.00	0.00	0.03	0.00	0.00	56
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.91	9.92	WPI-1534	PSS	BVW	Greenfield	II		0.00	0.00	0.04	0.00	0.00	0.01	0.00	25
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.92	9.94	WPI-1538	PFO	BVW	Greenfield	II		0.00	0.06	0.00	0.00	0.01	0.00	0.00	8
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	9.92	9.93	WPI-1537	PSS	BVW	Greenfield	II		0.00	0.00	0.03	0.00	0.00	0.01	0.00	38
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.24	10.25	WPI-1543	PSS	BVW	Greenfield	II		0.00	0.00	0.02	0.00	0.00	0.01	0.00	1
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.25	10.26	WPI-1545	PSS	BVW	Greenfield	II		0.00	0.00	0.09	0.00	0.00	0.01	0.00	53
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.64	10.65	WPI-1547	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.64	10.65	WPI-1548	PFO	BVW	Greenfield	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.64	10.64	WPI-1546	PSS	BVW	Greenfield	II		0.00	0.00	0.01	0.00	0.00	0.01	0.00	13
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.64	10.66	WPI-1551	PSS	BVW	Greenfield	II		0.00	0.00	0.08	0.00	0.00	0.02	0.00	67
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.66	10.66	WPI-1554	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.66	10.66	WPI-1553	PSS	BVW	Greenfield	II		0.00	0.00	0.01	0.00	0.00	0.01	0.00	12
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.95	10.99	WPI-1557	PFO	BVW	Greenfield	II		0.00	0.30	0.00	0.00	0.12	0.00	0.00	183
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	10.99	11.02	WPI-1558	PSS	BVW	Greenfield	II		0.00	0.00	0.31	0.00	0.00	0.04	0.00	187
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.02	11.03	WPI-1559	PFO	BVW	Greenfield	II		0.00	0.09	0.00	0.00	0.03	0.00	0.00	53
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.08	11.08	WPI-1561	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.08	11.08	WPI-1561	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.08	11.08	WPI-1561	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.08	11.08	WPI-1562	Other	BVW	Greenfield	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.08	11.08	WPI-1563	Other	BVW	Greenfield	N/A		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.26	11.27	WPI-1565	PFO	BVW	Greenfield	IV		0.00	0.09	0.00	0.00	0.05	0.00	0.00	79
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.28	11.28	WPI-1565	PFO	BVW	Greenfield	IV		0.00	0.01	0.00	0.00	0.01	0.00	0.00	8
Wright to Dracut Pipeline Segment	Franklin	Deerfield	H	11.28	11.29	WPI-1566	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.57	11.58	WPI-1569	PEM	BVW	Greenfield	IV		0.01	0.00	0.00	0.00	0.00	0.00	0.00	6
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.57	11.57	WPI-1568	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.58	11.58	WPI-1571	PEM	BVW	Greenfield	IV		0.03	0.00	0.00	0.00	0.00	0.00	0.00	24
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.58	11.58	WPI-1570	PFO	BVW	Greenfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.65	11.65	WPI-1575	PEM	BVW	Greenfield	IV		0.01	0.00	0.00	0.00	0.00	0.00	0.00	12
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.65	11.66	WPI-1576	PEM	BVW	Greenfield	IV		0.02	0.00	0.00	0.00	0.00	0.00	0.00	20
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.77	11.79	WPI-1577	PSS	BVW	Greenfield	IV		0.00	0.00	0.05	0.00	0.00	0.01	0.00	53
Wright to Dracut Pipeline Segment	Franklin	Montague	H	11.90	11.91	WPI-1579	PEM	BVW	Greenfield	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.34	15.35	WPI-1580	PFO	BVW	Millers Falls	II		0.00	0.03	0.00	0.00	0.01	0.00	0.00	17
Wright to Dracut Pipeline Segment	Franklin	Montague	H	15.34	15.43	WPI-1582	PFO	BVW	Millers Falls	II		0.00	0.65	0.00	0.00	0.23	0.00	0.00	334
Wright to Dracut Pipeline Segment	Franklin	Montague	H	16.05	16.07	WPI-1584	PFO	BVW	Millers Falls	IV		0.00	0.08	0.00	0.00	0.05	0.00	0.00	75
Wright to Dracut Pipeline Segment	Franklin	Erving	H	16.36	16.40	ER-M-W002	PFO	BVW	Millers Falls	II		0.00	0.46	0.00	0.00	0.10	0.00	0.00	123
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	18.86	18.88	WPI-1588	PFO	BVW	Millers Falls	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	73
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	18.90	18.93	WPI-1588	PFO	BVW	Millers Falls	II		0.00	0.16	0.00	0.00	0.07	0.00	0.00	99
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	19.08	19.11	WPI-1589	PFO/PSS	BVW	Millers Falls	II		0.00	0.08	0.00	0.00	0.02	0.00	0.00	12
Wright to Dracut Pipeline Segment	Franklin	Erving	H	19.96	19.97	WPI-1591	PSS	BVW	Millers Falls	II		0.00	0.00	0.02	0.00	0.00	0.01	0.00	3
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.29	20.30	WPI-1592	Other	BVW	Millers Falls	II		0.00	0.00	0.00	0.04	0.00	0.00	0.00	58
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.30	20.32	WPI-1593	PSS/PEM	BVW	Millers Falls	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.62	20.62	WPI-1595	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.76	20.77	WPI-1596	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	20.83	20.85	WPI-1598	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.55	21.57	NO-M-W003	PSS	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.61	21.63	NO-M-W004	PSS	BVW	Northfield	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.63	21.65	NO-M-W004	PSS	BVW	Northfield	II		0.00	0.00	0.08	0.00	0.00	0.01	0.00	34
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	21.80	21.83	WPI-1602	PEM	BVW	Northfield	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.27	22.28	WPI-1603	PEM	BVW	Northfield	N/A		0.07	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.28	22.32	WPI-1604	PEM	BVW	Northfield	N/A		0.14	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.39	22.42	WPI-1606	PFO	BVW	Northfield	II		0.00	0.15	0.00	0.00	0.09	0.00	0.00	127
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.40	22.43	WPI-1609	PEM	BVW	Northfield	N/A		0.08	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.57	22.58	WPI-1615	PFO	BVW	Northfield	II		0.00	0.04	0.00	0.00	0.02	0.00	0.00	29
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.57	22.58	WPI-1612	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.58	22.60	WPI-1617	PFO	BVW	Northfield	II		0.00	0.09	0.00	0.00	0.04	0.00	0.00	66
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.58	22.60	WPI-1616	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.73	22.76	WPI-1618	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	22.76	22.80	WPI-1620	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.06	23.08	NO-M-W001	PEM	BVW	Northfield	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.06	23.08	NO-M-W001	PFO	BVW	Northfield	II		0.00	0.06	0.00	0.00	0.03	0.00	0.00	50
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.22	23.23	NO-M-W002A	PEM	BVW	Northfield	II		0.11	0.00	0.00	0.00	0.00	0.00	0.00	78
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.28	23.29	WPI-1623	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.30	23.31	WPI-1624	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.32	23.34	WPI-1626	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.35	23.38	WPI-1628	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.08	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.64	23.65	NO-G-W015	PSS	BVW	Northfield	II		0.00	0.00	0.06	0.00	0.00	0.01	0.00	9
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.77	23.77	NO-L-W011	PSS	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.85	23.87	NO-L-W007	PEM	BVW	Northfield	N/A		0.04	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.87	23.87	NO-L-W006	PSS	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.87	23.88	NO-L-W006	PSS	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	23.89	23.90	NO-L-W008	PSS	BVW	Northfield	II		0.00	0.00	0.03	0.00	0.00	0.01	0.00	13
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	24.28	24.36	WPI-1632	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.17	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	24.45	24.46	WPI-1633	PSS/PEM	BVW	Northfield	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	24.85	24.89	WPI-1635	PFO	BVW	Northfield	II		0.00	0.24	0.00	0.00	0.09	0.00	0.00	126
Wright to Dracut Pipeline Segment	Franklin	Northfield	H	26.95	26.97	WPI-1645	PFO	BVW	Northfield	II		0.00	0.17	0.00	0.00	0.07	0.00	0.00	101
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	27.75	27.78	WPI-1647	PFO/PSS	BVW	Northfield	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	27.76	27.77	WK-M-W001	PFO	BVW	Northfield	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	27.76	27.77	WPI-1648	PFO	BVW	Northfield	II		0.00	0.03	0.00	0.00	0.02	0.00	0.00	43
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	27.78	27.79	WK-M-W001	PFO	BVW	Northfield	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Franklin	Warwick	H	28.46	28.48	NWI-1096	PFO	BVW	Northfield	II		0.00	0.11	0.00	0.00	0.04	0.00	0.00	60
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.07	0.08	WPI-2696	PSS	BVW	Lowell	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.26	0.34	WPI-2698	PEM	BVW	Lowell	II		0.19	0.00	0.00	0.00	0.00	0.00	0.00	150
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.26	0.40	WPI-2700	PFO	BVW	Lowell	II		0.00	0.56	0.00	0.00	0.16	0.00	0.00	261

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.31	0.32	WPI-2699	PSS/PEM	BVW	Lowell	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.32	0.40	WPI-2699	PSS/PEM	BVW	Lowell	II		0.00	0.00	0.35	0.00	0.00	0.08	0.00	326
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.37	0.38	NWI-1402	PSS/FO	BVW	Lowell	N/A		0.00	0.00	0.08	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.68	0.70	WPI-2701	PSS	BVW	Lowell	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.76	0.80	WPI-2702	PSS	BVW	Lowell	N/A		0.00	0.00	0.10	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	0.96	0.97	DR-N-W011	PFO	BVW	Lowell	N/A		0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.00	1.02	DR-N-W010	PFO	BVW	Lowell	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.23	1.24	WPI-2703	PSS	BVW	Lowell	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.24	1.27	WPI-2704	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.66	1.67	WPI-2715	PSS	BVW	Lowell	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.69	1.69	DR-J-W004	PSS	BVW	Lowell	II		0.00	0.00	0.01	0.00	0.00	0.01	0.00	2
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.69	1.76	DR-J-W004	PEM	BVW	Lowell	II		0.57	0.00	0.00	0.00	0.00	0.00	0.00	325
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.74	1.79	DR-J-W004	PSS	BVW	Lowell	II		0.00	0.00	0.20	0.00	0.00	0.04	0.00	169
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	1.78	1.79	DR-J-W003	PFO	BVW	Lowell	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	2.02	2.19	NWI-1125	PSS/FO	BVW	Lowell	II		0.00	0.00	1.47	0.00	0.00	0.19	0.00	821
Wright to Dracut Pipeline Segment	Middlesex	Dracut	K	2.20	2.23	NWI-1126	PEM	BVW	Lowell	N/A		0.13	0.00	0.00	0.00	0.00	0.00	0.00	0
Wright to Dracut Pipeline / Maritimes Delivery Line	Middlesex	Dracut	L	0.13	0.18	DR-N-W004	PFO	BVW	Lowell	II		0.00	0.18	0.00	0.00	0.12	0.00	0.00	208
Wright to Dracut Pipeline / Maritimes Delivery Line	Middlesex	Dracut	L	0.19	0.27	WPI-3137	PFO	BVW	Lowell	II		0.00	0.96	0.00	0.00	0.56	0.00	0.00	890
Maritimes Delivery Line	Middlesex	Dracut	L	0.65	0.66	DR-J-W004	PSS	BVW	Lowell	II		0.00	0.00	0.02	0.00	0.00	0.01	0.00	12
Maritimes Delivery Line	Middlesex	Dracut	L	0.66	0.74	DR-J-W004	PEM	BVW	Lowell	II		0.67	0.00	0.00	0.00	0.00	0.00	0.00	406
Maritimes Delivery Line	Middlesex	Dracut	L	0.68	0.69	WPI-3142	PFO	BVW	Lowell	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Maritimes Delivery Line	Middlesex	Dracut	L	0.69	0.70	WPI-3143	PEM	BVW	Lowell	N/A		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.67	0.68	WPI-2735	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.68	0.69	WPI-2735	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.69	0.70	WPI-2735	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.70	0.75	WPI-2736	PEM	BVW	Lowell	N/A		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.74	0.79	WPI-2738	PFO	BVW	Lowell	II		0.00	0.36	0.00	0.00	0.14	0.00	0.00	212
Lynnfield Lateral	Middlesex	Dracut	N	0.77	0.78	WPI-2736	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.78	0.80	WPI-2736	PEM	BVW	Lowell	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.78	0.81	WPI-2739	PFO	BVW	Lowell	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	70
Lynnfield Lateral	Middlesex	Dracut	N	0.80	0.81	WPI-2736	PEM	BVW	Lawrence	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.80	0.81	WPI-2739	PFO	BVW	Lawrence	II		0.00	0.04	0.00	0.00	0.03	0.00	0.00	49
Lynnfield Lateral	Middlesex	Dracut	N	0.82	0.84	WPI-2736	PEM	BVW	Lawrence	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.82	0.84	WPI-2740	PFO	BVW	Lawrence	II		0.00	0.11	0.00	0.00	0.06	0.00	0.00	93
Lynnfield Lateral	Middlesex	Dracut	N	0.83	1.05	WPI-2745	PFO	BVW	Lawrence	II		0.00	2.07	0.00	0.00	0.63	0.00	0.00	961
Lynnfield Lateral	Middlesex	Dracut	N	0.85	0.89	WPI-2736	PEM	BVW	Lawrence	N/A		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	0.91	0.95	WPI-2744	PSS	BVW	Lawrence	II		0.00	0.00	0.07	0.00	0.00	0.01	0.00	25
Lynnfield Lateral	Middlesex	Dracut	N	0.95	0.96	WPI-2736	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	1.01	1.06	WPI-2736	PEM	BVW	Lawrence	N/A		0.16	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	1.08	1.08	WPI-2747	Other	BVW	Lawrence	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Dracut	N	1.11	1.14	WPI-2748	Other	BVW	Lawrence	N/A		0.00	0.00	0.00	0.05	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	1.78	1.80	WPI-2750	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	1.83	1.84	WPI-2752	PSS	BVW	Lawrence	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	1.94	1.96	WPI-2753	PFO	BVW	Lawrence	II		0.00	0.20	0.00	0.00	0.08	0.00	0.00	123
Lynnfield Lateral	Essex	Andover	N	2.00	2.01	WPI-2754	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	2.21	2.25	WPI-2755	PSS	BVW	Lawrence	II		0.00	0.00	0.13	0.00	0.00	0.01	0.00	49
Lynnfield Lateral	Essex	Andover	N	2.32	2.33	WPI-2757	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	2.33	2.34	WPI-2757	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	2.88	2.89	WPI-2758	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	2.98	3.01	AN-K-W002	PFO	BVW	Lawrence	II		0.00	0.12	0.00	0.00	0.06	0.00	0.00	105
Lynnfield Lateral	Essex	Andover	N	3.10	3.13	AN-K-W003	PFO	BVW	Lawrence	II		0.00	0.17	0.00	0.00	0.10	0.00	0.00	171
Lynnfield Lateral	Essex	Andover	N	3.15	3.17	WPI-2761	PFO	BVW	Lawrence	II		0.00	0.21	0.00	0.00	0.08	0.00	0.00	120
Lynnfield Lateral	Essex	Andover	N	3.17	3.22	WPI-2763	PFO	BVW	Lawrence	II		0.00	0.34	0.00	0.00	0.16	0.00	0.00	232
Lynnfield Lateral	Middlesex	Tewksbury	N	3.18	3.21	WPI-2763	PFO	BVW	Lawrence	N/A		0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	3.26	3.28	TK-K-W002	PFO	BVW	Lawrence	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.26	3.27	TK-K-W002	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.30	3.34	WPI-2767	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.35	3.36	WPI-2767	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.35	3.37	WPI-2765	Other	BVW	Lawrence	N/A		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.37	3.38	WPI-2766	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.49	3.52	WPI-2770	PSS	BVW	Lawrence	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.52	3.59	WPI-2775	PFO	BVW	Lawrence	II		0.00	0.34	0.00	0.00	0.20	0.00	0.00	313
Lynnfield Lateral	Middlesex	Tewksbury	N	3.52	3.53	WPI-2774	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	3.64	3.70	WPI-2776	PFO	BVW	Lawrence	II		0.00	0.53	0.00	0.00	0.21	0.00	0.00	309
Lynnfield Lateral	Essex	Andover	N	3.69	3.77	WPI-2776	PFO	BVW	Lawrence	II		0.00	0.51	0.00	0.00	0.23	0.00	0.00	342
Lynnfield Lateral	Essex	Andover	N	3.80	3.81	WPI-2777	PSS	BVW	Lawrence	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	4.02	4.03	WPI-2778	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.02	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.02	4.03	WPI-2778	PFO	BVW	Lawrence	II		0.00	0.01	0.00	0.00	0.01	0.00	0.00	48
Lynnfield Lateral	Essex	Andover	N	4.16	4.17	WPI-2780	PFO	BVW	Lawrence	N/A		0.00	0.08	0.00	0.00	0.02	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.16	4.17	WPI-2780	PFO	BVW	Lawrence	II		0.00	0.01	0.00	0.00	0.01	0.00	0.00	47
Lynnfield Lateral	Essex	Andover	N	4.35	4.40	WPI-2781	PFO	BVW	Lawrence	N/A		0.00	0.14	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.36	4.40	WPI-2781	PFO	BVW	Lawrence	N/A		0.00	0.07	0.00	0.00	0.03	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.38	4.40	TK-K-W001	PFO	BVW	Lawrence	II		0.00	0.04	0.00	0.00	0.03	0.00	0.00	60
Lynnfield Lateral	Middlesex	Tewksbury	N	4.39	4.40	TK-K-W001	PFO	BVW	Lawrence	II		0.00	0.01	0.00	0.00	0.01	0.00	0.00	12

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Lynnfield Lateral	Essex	Andover	N	4.40	4.43	WPI-2782	PFO	BVW	Lawrence	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.40	4.42	WPI-2782	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.67	4.69	WPI-2784	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.72	4.72	WPI-2784	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.74	4.80	WPI-2785	PSS/PEM	BVW	Lawrence	II		0.00	0.00	0.13	0.00	0.00	0.01	0.00	26
Lynnfield Lateral	Middlesex	Tewksbury	N	4.80	4.85	WPI-2787	PSS/PEM	BVW	Lawrence	II		0.00	0.00	0.23	0.00	0.00	0.04	0.00	190
Lynnfield Lateral	Middlesex	Tewksbury	N	4.82	4.85	WPI-2786	PSS/PEM	BVW	Lawrence	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.85	4.88	WPI-2789	PFO	BVW	Lawrence	N/A		0.00	0.04	0.00	0.00	0.01	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	4.85	4.90	WPI-2790	PFO	BVW	Lawrence	II		0.00	0.18	0.00	0.00	0.10	0.00	0.00	156
Lynnfield Lateral	Essex	Andover	N	5.44	5.47	WPI-2791	PFO	BVW	Lawrence	II		0.00	0.13	0.00	0.00	0.03	0.00	0.00	55
Lynnfield Lateral	Essex	Andover	N	5.46	5.48	WPI-2791	PFO	BVW	Wilmington	II		0.00	0.10	0.00	0.00	0.07	0.00	0.00	103
Lynnfield Lateral	Middlesex	Tewksbury	N	5.46	5.48	WPI-2791	PFO	BVW	Wilmington	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	5.55	5.59	WPI-2791	PFO	BVW	Wilmington	II		0.00	0.24	0.00	0.00	0.09	0.00	0.00	135
Lynnfield Lateral	Essex	Andover	N	5.85	5.92	AN-K-W006	PFO	BVW	Wilmington	II		0.00	0.30	0.00	0.00	0.14	0.00	0.00	202
Lynnfield Lateral	Essex	Andover	N	5.90	5.92	AN-K-W006	PFO	BVW	Wilmington	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	77
Lynnfield Lateral	Middlesex	Tewksbury	N	5.92	5.95	AN-K-W006	PFO	BVW	Wilmington	II		0.00	0.05	0.00	0.00	0.01	0.00	0.00	2
Lynnfield Lateral	Middlesex	Tewksbury	N	6.04	6.12	WPI-2793	PFO	BVW	Wilmington	II		0.00	0.58	0.00	0.00	0.26	0.00	0.00	380
Lynnfield Lateral	Middlesex	Tewksbury	N	6.12	6.13	TK-K-W004	PFO	BVW	Wilmington	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	6.16	6.17	TK-K-W004	PFO	BVW	Wilmington	N/A		0.00	0.04	0.00	0.00	0.01	0.00	0.00	0
Lynnfield Lateral	Middlesex	Tewksbury	N	6.20	6.21	TK-K-W005	PFO	BVW	Wilmington	II		0.00	0.04	0.00	0.00	0.03	0.00	0.00	58
Lynnfield Lateral	Middlesex	Tewksbury	N	6.28	6.30	TK-K-W005	PFO	BVW	Wilmington	II		0.00	0.12	0.00	0.00	0.06	0.00	0.00	80
Lynnfield Lateral	Middlesex	Tewksbury	N	6.31	6.34	TK-K-W005	PFO	BVW	Wilmington	II		0.00	0.18	0.00	0.00	0.05	0.00	0.00	75
Lynnfield Lateral	Middlesex	Tewksbury	N	6.33	6.35	TK-K-W005	PEM	BVW	Wilmington	II		0.05	0.00	0.00	0.00	0.00	0.00	0.00	35
Lynnfield Lateral	Middlesex	Tewksbury	N	6.34	6.36	TK-K-W005	PFO	BVW	Wilmington	II		0.00	0.06	0.00	0.00	0.01	0.00	0.00	29
Lynnfield Lateral	Essex	Andover	N	6.64	6.64	WPI-2799	PEM	BVW	Wilmington	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	6.64	6.64	WPI-2799	PEM	BVW	Wilmington	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	6.64	6.68	WPI-2798	PFO	BVW	Wilmington	IV		0.00	0.18	0.00	0.00	0.11	0.00	0.00	164
Lynnfield Lateral	Essex	Andover	N	6.64	6.65	WPI-2798	PFO	BVW	Wilmington	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	6.65	6.70	WPI-2799	PEM	BVW	Wilmington	N/A		0.08	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	6.66	6.70	WPI-2799	PEM	BVW	Wilmington	IV		0.14	0.00	0.00	0.00	0.00	0.00	0.00	127
Lynnfield Lateral	Essex	Andover	N	6.69	6.70	WPI-2800	PFO	BVW	Wilmington	IV		0.00	0.02	0.00	0.00	0.01	0.00	0.00	4
Lynnfield Lateral	Essex	Andover	N	6.71	6.73	WPI-2801	Other	BVW	Wilmington	N/A		0.00	0.00	0.00	0.04	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	6.71	6.73	WPI-2801	Other	BVW	Wilmington	N/A		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	7.32	7.32	AN-K-W008	PFO	BVW	Wilmington	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	7.32	7.32	AN-K-W008	PFO	BVW	Wilmington	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	7.49	7.55	WPI-2802	PEM	BVW	Wilmington	II		0.47	0.00	0.00	0.00	0.00	0.00	0.00	292
Lynnfield Lateral	Essex	Andover	N	7.53	7.54	WPI-2803	PFO	BVW	Wilmington	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	7.70	7.75	AN-M-W001	PEM	BVW	Wilmington	II		0.18	0.00	0.00	0.00	0.00	0.00	0.00	159
Lynnfield Lateral	Essex	Andover	N	7.74	7.77	AN-M-W001	PEM	BVW	Wilmington	II		0.19	0.00	0.00	0.00	0.00	0.00	0.00	106
Lynnfield Lateral	Essex	Andover	N	7.87	7.87	AN-K-W011	PEM	BVW	Wilmington	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Andover	N	7.87	7.87	AN-K-W011	PFO	BVW	Wilmington	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Wilmington	N	8.02	8.07	AN-G-W002	PSS	BVW	Wilmington	II		0.00	0.00	0.29	0.00	0.00	0.04	0.00	197
Lynnfield Lateral	Middlesex	Wilmington	N	8.15	8.19	WPI-2804	PEM	BVW	Wilmington	N/A		0.13	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Wilmington	N	8.22	8.24	WPI-2805	PEM	BVW	Wilmington	II		0.11	0.00	0.00	0.00	0.00	0.00	0.00	41
Lynnfield Lateral	Middlesex	Wilmington	N	8.28	8.32	WL-K-W002	PEM	BVW	Wilmington	II		0.22	0.00	0.00	0.00	0.00	0.00	0.00	124
Lynnfield Lateral	Middlesex	Wilmington	N	8.33	8.33	WL-K-W002	PEM	BVW	Wilmington	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Wilmington	N	9.11	9.13	WPI-2808	PEM	BVW	Wilmington	N/A		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Wilmington	N	9.15	9.25	WPI-2808	PEM	BVW	Wilmington	II		0.48	0.00	0.00	0.00	0.00	0.00	0.00	512
Lynnfield Lateral	Middlesex	Wilmington	N	9.32	9.37	WPI-2809	PFO	BVW	Wilmington	II		0.00	0.36	0.00	0.00	0.13	0.00	0.00	187
Lynnfield Lateral	Middlesex	Wilmington	N	9.41	9.55	WPI-2811	PEM	BVW	Wilmington	II		0.93	0.00	0.00	0.00	0.00	0.00	0.00	460
Lynnfield Lateral	Middlesex	Wilmington	N	9.59	9.68	WPI-2811	PEM	BVW	Wilmington	II		0.59	0.00	0.00	0.00	0.00	0.00	0.00	267
Lynnfield Lateral	Middlesex	Wilmington	N	9.67	9.71	WPI-2812	PEM	BVW	Wilmington	II		0.14	0.00	0.00	0.00	0.00	0.00	0.00	80
Lynnfield Lateral	Middlesex	Wilmington	N	9.73	9.76	WPI-2813	Other	BVW	Wilmington	II		0.00	0.00	0.00	0.06	0.00	0.00	0.00	36
Lynnfield Lateral	Middlesex	Wilmington	N	9.81	9.85	WPI-2814	PEM	BVW	Wilmington	N/A		0.12	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	Wilmington	N	10.07	10.11	WPI-2815	PFO	BVW	Wilmington	II		0.00	0.31	0.00	0.00	0.13	0.00	0.00	194
Lynnfield Lateral	Middlesex	Wilmington	N	10.10	10.12	WPI-2816	PEM	BVW	Wilmington	II		0.11	0.00	0.00	0.00	0.00	0.00	0.00	59
Lynnfield Lateral	Middlesex	Wilmington	N	10.12	10.17	WPI-2817	Other	BVW	Wilmington	II		0.00	0.00	0.00	0.37	0.00	0.00	0.00	201
Lynnfield Lateral	Middlesex	North Reading	N	10.15	10.19	WPI-2817	Other	BVW	Wilmington	II		0.00	0.00	0.00	0.19	0.00	0.00	0.00	133
Lynnfield Lateral	Middlesex	North Reading	N	10.17	10.20	WPI-2816	PEM	BVW	Wilmington	II		0.14	0.00	0.00	0.00	0.00	0.00	0.00	77
Lynnfield Lateral	Middlesex	North Reading	N	10.28	10.31	WPI-2818	PSS	BVW	Wilmington	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	10.31	10.36	WPI-2819	PEM	BVW	Wilmington	II		0.43	0.00	0.00	0.00	0.00	0.00	0.00	231
Lynnfield Lateral	Middlesex	North Reading	N	10.44	10.58	WPI-2820	PFO	BVW	Wilmington	II		0.00	1.09	0.00	0.00	0.43	0.00	0.00	619
Lynnfield Lateral	Middlesex	North Reading	N	10.69	10.82	WPI-2825	PFO	BVW	Reading	N/A		0.00	0.57	0.00	0.00	0.11	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	10.69	10.82	WPI-2824	PSS	BVW	Reading	II		0.00	0.00	0.52	0.00	0.00	0.15	0.00	684
Lynnfield Lateral	Middlesex	North Reading	N	10.83	10.87	WPI-2826	PEM	BVW	Reading	II		0.24	0.00	0.00	0.00	0.00	0.00	0.00	221
Lynnfield Lateral	Middlesex	North Reading	N	10.83	10.83	WPI-2827	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	10.84	10.87	WPI-2827	PFO	BVW	Reading	N/A		0.00	0.11	0.00	0.00	0.01	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	10.87	10.91	WPI-2828	PEM	BVW	Reading	II		0.10	0.00	0.00	0.00	0.00	0.00	0.00	33
Lynnfield Lateral	Middlesex	North Reading	N	10.87	10.91	WPI-2829	PSS/PEM	BVW	Reading	II		0.00	0.00	0.23	0.00	0.00	0.03	0.00	156
Lynnfield Lateral	Middlesex	North Reading	N	10.91	10.92	WPI-2831	PFO	BVW	Reading	II		0.00	0.03	0.00	0.00	0.01	0.00	0.00	5
Lynnfield Lateral	Middlesex	North Reading	N	11.06	11.11	WPI-2833	PFO	BVW	Reading	II		0.00	0.32	0.00	0.00	0.10	0.00	0.00	260
Lynnfield Lateral	Middlesex	North Reading	N	11.06	11.11	WPI-2832	PSS	BVW	Reading	N/A		0.00	0.00	0.13	0.00	0.00	0.02	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	11.22	11.24	WPI-2837	PEM	BVW	Reading	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	11.46	11.57	WPI-2841	PFO	BVW	Reading	II		0.00	0.83	0.00	0.00	0.33	0.00	0.00	498
Lynnfield Lateral	Middlesex	North Reading	N	11.47	11.48	WPI-2838	PEM	BVW	Reading	II		0.04	0.00	0.00	0.00	0.00	0.00	0.00	6
Lynnfield Lateral	Middlesex	North Reading	N	11.48	11.51	WPI-2840	PSS	BVW	Reading	N/A		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Lynnfield Lateral	Middlesex	North Reading	N	11.69	11.75	WPI-2843	PFO	BVW	Reading	II		0.00	0.49	0.00	0.00	0.18	0.00	0.00	260
Lynnfield Lateral	Middlesex	North Reading	N	11.82	11.84	WPI-2846	PSS	BVW	Reading	II		0.00	0.00	0.09	0.00	0.00	0.01	0.00	62
Lynnfield Lateral	Middlesex	North Reading	N	11.83	11.91	WPI-2847	PSS/PEM	BVW	Reading	II		0.00	0.00	0.69	0.00	0.00	0.09	0.00	379
Lynnfield Lateral	Middlesex	North Reading	N	11.91	11.94	WPI-2849	PEM	BVW	Reading	II		0.12	0.00	0.00	0.00	0.00	0.00	0.00	132
Lynnfield Lateral	Middlesex	North Reading	N	11.92	11.96	WPI-2848	PFO	BVW	Reading	N/A		0.00	0.17	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	12.23	12.35	WPI-2850	PFO	BVW	Reading	II		0.00	0.99	0.00	0.00	0.38	0.00	0.00	556
Lynnfield Lateral	Middlesex	North Reading	N	12.41	12.42	WPI-2850	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	12.44	12.54	WPI-2850	PFO	BVW	Reading	II		0.00	0.84	0.00	0.00	0.33	0.00	0.00	473
Lynnfield Lateral	Middlesex	North Reading	N	12.61	12.64	WPI-2852	PFO	BVW	Reading	II		0.00	0.19	0.00	0.00	0.07	0.00	0.00	99
Lynnfield Lateral	Middlesex	North Reading	N	12.74	12.77	WPI-2853	PFO	BVW	Reading	II		0.00	0.24	0.00	0.00	0.10	0.00	0.00	141
Lynnfield Lateral	Middlesex	North Reading	N	12.77	12.84	WPI-2855	PEM	BVW	Reading	II		0.46	0.00	0.00	0.00	0.00	0.00	0.00	318
Lynnfield Lateral	Middlesex	North Reading	N	12.81	12.89	WPI-2856	PFO/PSS	BVW	Reading	II		0.00	0.38	0.00	0.00	0.13	0.00	0.00	245
Lynnfield Lateral	Middlesex	North Reading	N	12.82	12.85	WPI-2857	PFO	BVW	Reading	N/A		0.00	0.02	0.00	0.00	0.01	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	12.86	12.98	WPI-2860	PSS	BVW	Reading	II		0.00	0.00	0.35	0.00	0.00	0.06	0.00	201
Lynnfield Lateral	Middlesex	North Reading	N	12.97	13.00	WPI-2861	PFO	BVW	Reading	N/A		0.00	0.09	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	13.11	13.13	WPI-2862	Other	BVW	Reading	II		0.00	0.00	0.00	0.14	0.00	0.00	0.00	96
Lynnfield Lateral	Middlesex	North Reading	N	13.27	13.44	WPI-2864	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.84	0.00	0.00	0.17	0.00	0.00	0
Lynnfield Lateral	Middlesex	North Reading	N	13.29	13.35	WPI-2863	PEM	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.18	0.00	0.00	0.00	0.00	0.00	0.00	273
Lynnfield Lateral	Middlesex	North Reading	N	13.34	13.46	WPI-2866	PSS/PEM	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.00	0.41	0.00	0.00	0.13	0.00	561
Lynnfield Lateral	Middlesex	Reading	N	13.42	13.55	WPI-2864	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.64	0.00	0.00	0.14	0.00	0.00	0
Lynnfield Lateral	Middlesex	Reading	N	13.44	13.56	WPI-2866	PSS/PEM	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.00	0.39	0.00	0.00	0.12	0.00	582
Lynnfield Lateral	Middlesex	Reading	N	13.54	13.60	RD-K-W001	PFO	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.24	0.00	0.00	0.05	0.00	0.00	71
Lynnfield Lateral	Middlesex	Reading	N	13.56	13.62	RD-K-W001	PSS	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.00	0.25	0.00	0.00	0.05	0.00	217
Lynnfield Lateral	Middlesex	Reading	N	13.59	13.83	WPI-2872	PFO	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	1.32	0.00	0.00	0.34	0.00	0.00	595
Lynnfield Lateral	Middlesex	Reading	N	13.61	13.82	WPI-2871	PSS/PEM	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.00	0.67	0.00	0.00	0.16	0.00	556
Lynnfield Lateral	Middlesex	Reading	N	13.82	13.83	WPI-2873	PEM	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Lynnfield	N	13.83	13.83	WPI-2873	PEM	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.01	0.00	0.00	0.00	0.00	0.00	0.00	4
Lynnfield Lateral	Essex	Lynnfield	N	13.83	13.84	WPI-2872	PFO	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.02	0.00	0.00	0.01	0.00	0.00	16
Lynnfield Lateral	Essex	Lynnfield	N	13.98	14.02	WPI-2874	PFO	BVW	Reading	II	BioMap2 Wetland Core - 1364	0.00	0.30	0.00	0.00	0.12	0.00	0.00	175
Lynnfield Lateral	Essex	Lynnfield	N	14.11	14.12	LY-D-W002	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Lynnfield	N	14.15	14.15	LY-D-W002	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Lynnfield Lateral	Essex	Lynnfield	N	14.16	14.19	LY-D-W002	PFO	BVW	Reading	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.05	0.06	WPI-2876	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.06	0.08	LY-D-W001	PEM	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.06	0.06	WPI-2875	PSS/PEM	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.07	0.10	WPI-2875	PSS/PEM	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.08	0.09	WPI-2876	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.10	0.10	WPI-2876	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.10	0.10	LY-P-W001	PFO	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.13	0.15	LY-P-W001	PSS	BVW	Reading	N/A	BioMap2 Wetland Core - 1364	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.20	0.30	LY-D-W002	PEM	BVW	Reading	II		0.29	0.00	0.00	0.00	0.00	0.00	0.00	513
Peabody Lateral	Essex	Lynnfield	O	0.20	0.22	LY-D-W002	PFO	BVW	Reading	N/A		0.00	0.44	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.47	0.49	LY-D-W003	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.47	0.55	LY-M-W002	PFO	BVW	Reading	II		0.00	0.36	0.00	0.00	0.25	0.00	0.00	360
Peabody Lateral	Essex	Lynnfield	O	0.49	0.52	LY-D-W003	PFO	BVW	Reading	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.54	0.55	LY-D-W003	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.84	0.88	WPI-2877	PFO	BVW	Reading	II		0.00	0.22	0.00	0.00	0.11	0.00	0.00	166
Peabody Lateral	Essex	Lynnfield	O	0.87	0.87	WPI-2879	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Lynnfield	O	0.87	0.91	WPI-2879	PFO	BVW	Reading	II		0.00	0.30	0.00	0.00	0.12	0.00	0.00	181
Peabody Lateral	Essex	Lynnfield	O	0.91	0.98	WPI-2881	PFO	BVW	Reading	II		0.00	0.56	0.00	0.00	0.23	0.00	0.00	335
Peabody Lateral	Essex	Lynnfield	O	1.14	1.22	WPI-2883	PFO	BVW	Reading	II		0.00	0.45	0.00	0.00	0.27	0.00	0.00	388
Peabody Lateral	Essex	Lynnfield	O	2.37	2.39	WPI-2899	PFO	BVW	Reading	N/A		0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Peabody	O	2.91	3.42	WPI-2902	PFO	BVW	Reading	N/A		0.00	1.49	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Peabody	O	3.41	3.43	WPI-2907	PSS	BVW	Reading	N/A		0.00	0.00	0.07	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Peabody	O	3.62	3.65	WPI-2910	PSS	BVW	Reading	N/A		0.00	0.00	0.07	0.00	0.00	0.00	0.00	0

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Peabody Lateral	Essex	Peabody	O	3.71	3.98	WPI-2911	PFO	BVW	Reading	N/A		0.00	0.35	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Peabody	O	3.75	3.82	WPI-2910	PSS	BVW	Reading	II		0.00	0.00	0.27	0.00	0.00	0.04	0.00	176
Peabody Lateral	Essex	Peabody	O	4.02	4.07	WPI-2917	PSS	BVW	Reading	II		0.00	0.00	0.22	0.00	0.00	0.04	0.00	174
Peabody Lateral	Essex	Peabody	O	4.06	4.23	WPI-2922	PSS	BVW	Reading	II		0.00	0.00	1.50	0.00	0.00	0.20	0.00	885
Peabody Lateral	Essex	Peabody	O	4.23	4.26	WPI-2924	PEM	BVW	Reading	II		0.22	0.00	0.00	0.00	0.00	0.00	0.00	125
Peabody Lateral	Essex	Peabody	O	4.25	4.26	WPI-2926	PFO	BVW	Reading	II		0.00	0.05	0.00	0.00	0.02	0.00	0.00	30
Peabody Lateral	Essex	Peabody	O	4.27	4.42	WPI-2931	PEM	BVW	Reading	II		1.37	0.00	0.00	0.00	0.00	0.00	0.00	790
Peabody Lateral	Essex	Peabody	O	4.38	4.38	NWI-1417	PFO	BVW	Reading	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Peabody	O	4.39	4.40	NWI-1415	PFO	BVW	Reading	N/A		0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
Peabody Lateral	Essex	Danvers	O	4.70	4.78	WPI-2938	PEM	BVW	Salem	II		0.27	0.00	0.00	0.00	0.00	0.00	0.00	36
Peabody Lateral	Essex	Danvers	O	4.98	5.13	WPI-2940	PFO	BVW	Salem	II		0.00	1.02	0.00	0.00	0.44	0.00	0.00	602
Peabody Lateral	Essex	Danvers	O	5.13	5.14	WPI-2941	Other	BVW	Salem	II		0.00	0.00	0.00	0.12	0.00	0.00	0.00	67
Peabody Lateral	Essex	Danvers	O	5.24	5.26	WPI-2944	Other	BVW	Salem	N/A		0.00	0.00	0.00	0.10	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	0.25	0.30	NWI-1134	PSS	BVW	Lowell	N/A		0.00	0.00	0.39	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	0.41	0.45	NWI-1137	Other	BVW	Lowell	II		0.00	0.00	0.00	0.26	0.00	0.00	0.00	160
Haverhill Lateral	Middlesex	Dracut	P	0.44	0.52	NWI-1138	PSS/FO	BVW	Lowell	N/A		0.00	0.00	0.62	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	0.60	0.65	NWI-1139	PSS	BVW	Lowell	N/A		0.00	0.00	0.13	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	0.93	0.96	WPI-2955	PSS	BVW	Lowell	N/A		0.00	0.00	0.12	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	1.67	1.68	NWI-1142	PSS	BVW	Lowell	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	1.82	1.84	NWI-1145	PSS	BVW	Lowell	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	2.07	2.08	NWI-1152	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	2.09	2.13	NWI-1153	PFO	BVW	Lawrence	N/A		0.00	0.18	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	2.49	2.50	NWI-1156	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Middlesex	Dracut	P	2.72	2.75	NWI-1157	PFO	BVW	Lawrence	N/A		0.00	0.16	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	3.46	3.52	NWI-1160	PSS	BVW	Lawrence	II		0.00	0.00	0.36	0.00	0.00	0.00	0.00	294
Haverhill Lateral	Essex	Methuen	P	3.50	3.54	NWI-1161	PEM	BVW	Lawrence	II		0.18	0.00	0.00	0.00	0.00	0.00	0.00	72
Haverhill Lateral	Essex	Methuen	P	3.91	3.94	NWI-1164	PFO	BVW	Lawrence	N/A		0.00	0.10	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.25	4.27	NWI-1165	PFO	BVW	Lawrence	N/A		0.00	0.13	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.42	4.47	NWI-1167	PFO	BVW	Lawrence	N/A		0.00	0.43	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.62	4.67	WPI-3028	PFO	BVW	Lawrence	N/A		0.00	0.11	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.63	4.63	NWI-1169	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.63	4.67	WPI-3029	PFO	BVW	Lawrence	N/A		0.00	0.05	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	4.76	4.78	ME-P-W004	PEM	BVW	Lawrence	II		0.05	0.00	0.00	0.00	0.00	0.00	0.00	25
Haverhill Lateral	Essex	Methuen	P	4.78	4.78	ME-P-W004	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.03	5.05	WPI-3039	Other	BVW	Lawrence	N/A		0.00	0.00	0.00	0.03	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.14	5.28	WPI-3043	PFO	BVW	Lawrence	N/A		0.00	0.45	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.41	5.45	WPI-3051	PFO	BVW	Lawrence	N/A		0.00	0.11	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.44	5.46	ME-P-W005	PSS	BVW	Lawrence	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.48	5.51	ME-P-W005	PSS	BVW	Lawrence	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.51	5.53	ME-P-W005	PSS	BVW	Lawrence	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.55	5.59	ME-P-W005	PEM	BVW	Lawrence	II		0.07	0.00	0.00	0.00	0.00	0.00	0.00	100
Haverhill Lateral	Essex	Methuen	P	5.59	5.60	ME-P-W005	PSS	BVW	Lawrence	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.62	5.68	WPI-3055	PEM	BVW	Lawrence	II		0.25	0.00	0.00	0.00	0.00	0.00	0.00	268
Haverhill Lateral	Essex	Methuen	P	5.64	5.68	WPI-3060	PFO	BVW	Lawrence	N/A		0.00	0.17	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.65	5.65	ME-P-W005	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.66	5.66	ME-P-W005	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	5.84	5.87	WPI-3061	PEM	BVW	Lawrence	II		0.15	0.00	0.00	0.00	0.00	0.00	0.00	118
Haverhill Lateral	Essex	Methuen	P	5.87	5.94	WPI-3062	PFO	BVW	Lawrence	N/A		0.00	0.18	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.10	6.15	WPI-3064	PFO	BVW	Lawrence	N/A		0.00	0.51	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.15	6.18	WPI-3065	PEM	BVW	Lawrence	II		0.19	0.00	0.00	0.00	0.00	0.00	0.00	118
Haverhill Lateral	Essex	Methuen	P	6.18	6.18	WPI-3069	PEM	BVW	Lawrence	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	10
Haverhill Lateral	Essex	Methuen	P	6.18	6.25	WPI-3067	PEM	BVW	Lawrence	II		0.47	0.00	0.00	0.00	0.00	0.00	0.00	239
Haverhill Lateral	Essex	Methuen	P	6.18	6.23	WPI-3070	PFO	BVW	Lawrence	N/A		0.00	0.15	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.25	6.25	WPI-3070	PFO	BVW	Lawrence	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.26	6.28	ME-P-W001	PEM	BVW	Lawrence	II		0.12	0.00	0.00	0.00	0.00	0.00	0.00	73
Haverhill Lateral	Essex	Methuen	P	6.28	6.30	WPI-3068	PFO	BVW	Lawrence	N/A		0.00	0.11	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.30	6.31	ME-P-W001	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.30	6.31	ME-P-W001	PEM	BVW	Lawrence	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.32	6.42	ME-P-W001	PEM	BVW	Lawrence	II		0.79	0.00	0.00	0.00	0.00	0.00	0.00	526
Haverhill Lateral	Essex	Methuen	P	6.32	6.35	ME-P-W001	PFO	BVW	Lawrence	N/A		0.00	0.03	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.46	6.48	WPI-3070	PFO	BVW	Lawrence	II		0.00	0.16	0.00	0.00	0.00	0.00	0.00	93
Haverhill Lateral	Essex	Methuen	P	6.49	6.53	ME-P-W001	PEM	BVW	Lawrence	II		0.07	0.00	0.00	0.00	0.00	0.00	0.00	46
Haverhill Lateral	Essex	Methuen	P	6.55	6.62	WPI-3072	PFO	BVW	Lawrence	N/A		0.00	0.30	0.00	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.66	6.69	ME-E-W001	PEM	BVW	Lawrence	II		0.07	0.00	0.00	0.00	0.00	0.00	0.00	89
Haverhill Lateral	Essex	Methuen	P	6.87	6.88	WPI-3079	PSS	BVW	Lawrence	N/A		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	6.89	6.91	WPI-3079	PSS	BVW	Lawrence	IV		0.00	0.00	0.14	0.00	0.00	0.02	0.00	70
Haverhill Lateral	Essex	Methuen	P	6.95	6.96	WPI-3081	PFO	BVW	Lawrence	IV		0.00	0.01	0.00	0.00	0.01	0.00	0.00	18
Haverhill Lateral	Essex	Methuen	P	6.96	6.97	ME-P-W007	PSS	BVW	Lawrence	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Haverhill Lateral	Essex	Methuen	P	9.14	9.18	ME-E-W004	PFO	BVW	Salem Depot	N/A		0.00	0.17	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.19	5.35	WPI-3241	PFO	BVW	Ashby	II		0.00	1.26	0.00	0.00	0.30	0.00	0.00	688
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.74	5.78	WPI-3242	PFO	BVW	Ashby	II		0.00	0.26	0.00	0.00	0.10	0.00	0.00	149
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.78	5.83	WPI-3243	PFO	BVW	Ashby	II		0.00	0.19	0.00	0.00	0.06	0.00	0.00	83
Fitchburg Lateral Extension	Middlesex	Townsend	Q	5.95	5.97	WPI-3244	PFO	BVW	Ashby	II		0.00	0.11	0.00	0.00	0.05	0.00	0.00	73
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.23	6.27	WPI-3250	PFO	BVW	Ashby	II		0.00	0.15	0.00	0.00	0.04	0.00	0.00	57
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.45	6.48	WPI-3252	PEM	BVW	Ashby	II		0.18	0.00	0.00	0.00	0.00	0.00	0.00	105
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.47	6.52	WPI-3254	PSS	BVW	Ashby	II		0.00	0.00	0.23	0.00	0.00	0.01	0.00	112

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.48	6.49	WPI-3253	Other	BVW	Ashby	II		0.00	0.00	0.00	0.02	0.00	0.00	0.00	33
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.55	6.57	WPI-3254	PSS	BVW	Ashby	N/A		0.00	0.00	0.06	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.65	6.66	WPI-3257	PEM	BVW	Ashby	II		0.04	0.00	0.00	0.00	0.00	0.00	0.00	18
Fitchburg Lateral Extension	Middlesex	Townsend	Q	6.83	6.85	WPI-3259	PFO/PSS	BVW	Ashby	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.17	7.26	WPI-3260	PFO	BVW	Ashby	II		0.00	0.62	0.00	0.00	0.26	0.00	0.00	374
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.25	7.30	WPI-3261	PFO	BVW	Ashby	II		0.00	0.27	0.00	0.00	0.10	0.00	0.00	147
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.32	7.34	WPI-3264	PEM	BVW	Ashby	II		0.05	0.00	0.00	0.00	0.00	0.00	0.00	66
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.32	7.33	WPI-3263	PFO	BVW	Ashby	II		0.00	0.06	0.00	0.00	0.02	0.00	0.00	14
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.42	7.46	WPI-3265	PFO	BVW	Ashby	II		0.00	0.29	0.00	0.00	0.03	0.00	0.00	143
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.82	7.88	WPI-3269	PEM	BVW	Ashby	II		0.35	0.00	0.00	0.00	0.00	0.00	0.00	246
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.82	7.84	WPI-3266	PFO	BVW	Ashby	N/A		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.86	7.90	WPI-3270	PFO	BVW	Ashby	II		0.00	0.14	0.00	0.00	0.09	0.00	0.00	131
Fitchburg Lateral Extension	Middlesex	Townsend	Q	7.88	7.90	WPI-3271	PSS	BVW	Ashby	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.15	8.17	WPI-3272	PFO/PSS	BVW	Ashby	II		0.00	0.11	0.00	0.00	0.03	0.00	0.00	43
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.42	8.46	WPI-3274	PFO	BVW	Ashby	II		0.00	0.19	0.00	0.00	0.03	0.00	0.00	113
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.46	8.50	WPI-3277	PSS	BVW	Ashby	II		0.00	0.00	0.23	0.00	0.00	0.04	0.00	169
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.47	8.49	WPI-3276	PFO	BVW	Ashby	N/A		0.00	0.02	0.00	0.00	0.01	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.80	8.92	WPI-3284	PSS	BVW	Ashby	N/A		0.00	0.00	0.30	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.81	8.85	WPI-3282	PFO	BVW	Ashby	II		0.00	0.17	0.00	0.00	0.11	0.00	0.00	154
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.81	8.82	WPI-3281	Other	BVW	Ashby	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	8.84	8.96	WPI-3285	PFO	BVW	Ashby	II		0.00	0.69	0.00	0.00	0.42	0.00	0.00	610
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.36	9.73	WPI-3287	PSS	BVW	Ashby	N/A		0.00	0.00	1.45	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.71	9.73	WPI-3294	PFO	BVW	Townsend	II		0.00	0.04	0.00	0.00	0.02	0.00	0.00	47
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.72	9.74	WPI-3295	PEM	BVW	Ashby	N/A	BioMap2 Wetland Core - 1533	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.72	9.73	WPI-3294	PFO	BVW	Ashby	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.73	9.74	WPI-3295	PEM	BVW	Townsend	N/A	BioMap2 Wetland Core - 1533	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.73	9.80	WPI-3298	PFO	BVW	Townsend	II	BioMap2 Wetland Core - 1533	0.00	0.30	0.00	0.00	0.21	0.00	0.00	301
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.74	9.77	WPI-3296	PSS	BVW	Townsend	II	BioMap2 Wetland Core - 1533	0.00	0.00	0.02	0.00	0.00	0.01	0.00	21
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.74	9.77	WPI-3296	PSS	BVW	Ashby	N/A	BioMap2 Wetland Core - 1533	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.75	9.75	WPI-3295	PEM	BVW	Ashby	N/A	BioMap2 Wetland Core - 1533	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.76	9.91	WPI-3301	PSS	BVW	Ashby	N/A	BioMap2 Wetland Core - 1533	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.77	9.77	WPI-3298	PFO	BVW	Ashby	N/A	BioMap2 Wetland Core - 1533	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.77	10.37	WPI-3301	PSS	BVW	Townsend	N/A	BioMap2 Wetland Core - 1533	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	9.96	10.00	WPI-3299	PFO	BVW	Townsend	II		0.00	0.13	0.00	0.00	0.10	0.00	0.00	159
Fitchburg Lateral Extension	Middlesex	Townsend	Q	10.10	10.11	WPI-3302	PFO	BVW	Townsend	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Middlesex	Townsend	Q	10.20	10.21	WPI-3303	Other	BVW	Townsend	N/A		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.37	10.49	WPI-3301	PSS	BVW	Townsend	N/A	BioMap2 Wetland Core - 1533	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.57	10.60	WPI-3306	PSS	BVW	Townsend	N/A		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.59	10.62	WPI-3307	PSS	BVW	Townsend	N/A		0.00	0.00	0.05	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.66	10.67	WPI-3311	PSS	BVW	Ashby	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.67	10.67	WPI-3311	PSS	BVW	Townsend	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.67	10.68	WPI-3310	PSS	BVW	Ashby	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.67	10.68	WPI-3310	PSS	BVW	Townsend	N/A		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.80	10.83	WPI-3312	PFO	BVW	Ashby	II		0.00	0.05	0.00	0.00	0.04	0.00	0.00	70
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.80	10.82	WPI-3312	PFO	BVW	Townsend	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	10.80	10.85	WPI-3313	PSS	BVW	Ashby	II		0.00	0.00	0.26	0.00	0.00	0.03	0.00	93
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.01	11.09	WPI-3315	PFO	BVW	Ashby	II		0.00	0.65	0.00	0.00	0.25	0.00	0.00	369
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.32	11.38	WPI-3317	PFO	BVW	Fitchburg	II		0.00	0.22	0.00	0.00	0.06	0.00	0.00	88
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.37	11.38	WPI-3319	PFO	BVW	Fitchburg	N/A		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.37	11.40	WPI-3321	PSS	BVW	Fitchburg	II		0.00	0.00	0.17	0.00	0.00	0.02	0.00	98
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.39	11.42	WPI-3322	PFO	BVW	Fitchburg	II		0.00	0.20	0.00	0.00	0.09	0.00	0.00	139
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.43	11.44	WPI-3324	PFO	BVW	Fitchburg	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	17
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.43	11.49	WPI-3323	PFO	BVW	Fitchburg	II		0.00	0.42	0.00	0.00	0.13	0.00	0.00	196
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.46	11.49	WPI-3324	PFO	BVW	Fitchburg	II		0.00	0.13	0.00	0.00	0.08	0.00	0.00	109
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.49	11.54	WPI-3325	PFO	BVW	Fitchburg	II		0.00	0.45	0.00	0.00	0.19	0.00	0.00	271
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.54	11.60	WPI-3329	PFO	BVW	Fitchburg	II		0.00	0.37	0.00	0.00	0.19	0.00	0.00	286
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.56	11.61	WPI-3328	PEM	BVW	Fitchburg	II		0.17	0.00	0.00	0.00	0.00	0.00	0.00	42
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.61	11.62	WPI-3329	PFO	BVW	Fitchburg	II		0.00	0.03	0.00	0.00	0.01	0.00	0.00	16
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.71	11.72	WPI-3330	Other	BVW	Fitchburg	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.78	11.79	NWI-1175	PFO	BVW	Fitchburg	II		0.00	0.03	0.00	0.00	0.02	0.00	0.00	19
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.79	11.80	WPI-3331	PFO	BVW	Fitchburg	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.79	11.89	NWI-987	PFO	BVW	Fitchburg	II		0.00	0.84	0.00	0.00	0.36	0.00	0.00	523
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	11.88	11.92	NWI-988	PFO	BVW	Fitchburg	II		0.00	0.28	0.00	0.00	0.10	0.00	0.00	143
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.27	12.28	WPI-3336	Other	BVW	Fitchburg	N/A		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.35	12.40	WPI-3342	PFO	BVW	Fitchburg	II		0.00	0.43	0.00	0.00	0.17	0.00	0.00	252
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.39	12.40	WPI-3344	PFO	BVW	Fitchburg	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	19

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.41	12.46	WPI-3345	PFO	BVW	Fitchburg	II		0.00	0.28	0.00	0.00	0.13	0.00	0.00	180
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.43	12.48	WPI-3345	PFO	BVW	Fitchburg	II		0.00	0.24	0.00	0.00	0.07	0.00	0.00	97
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.46	12.47	WPI-3346	PEM	BVW	Fitchburg	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	12.98	12.99	WPI-3347	Other	BVW	Fitchburg	N/A		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.08	13.23	WPI-3348	PFO	BVW	Fitchburg	II		0.00	0.89	0.00	0.00	0.38	0.00	0.00	558
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.16	13.22	WPI-3349	PFO	BVW	Fitchburg	N/A		0.00	0.29	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.29	13.36	WPI-3350	PSS	BVW	Fitchburg	II		0.00	0.00	0.28	0.00	0.00	0.07	0.00	308
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.39	13.40	LK-K-W001	PEM	BVW	Fitchburg	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.39	13.40	LK-K-W0001	PFO	BVW	Fitchburg	II		0.00	0.02	0.00	0.00	0.01	0.00	0.00	6
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.39	13.39	LK-K-W001	PSS	BVW	Fitchburg	II		0.00	0.00	0.01	0.00	0.00	0.01	0.00	17
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.69	13.70	LU-D-W001	PSS	BVW	Fitchburg	IV		0.00	0.00	0.02	0.00	0.00	0.01	0.00	18
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.70	13.73	LU-D-W001	PSS	BVW	Fitchburg	IV		0.00	0.00	0.07	0.00	0.00	0.02	0.00	99
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.72	13.74	LU-D-W001	PSS	BVW	Fitchburg	IV		0.00	0.00	0.04	0.00	0.00	0.01	0.00	23
Fitchburg Lateral Extension	Worcester	Lunenburg	Q	13.86	13.88	LU-D-W001	PFO	BVW	Fitchburg	N/A		0.00	0.08	0.00	0.00	0.01	0.00	0.00	0
											Pipeline Subtotal	**16.73**	**59.64**	**28.80**	**1.66**	**20.05**	**3.12**	**0.00**	**53,788**
Aboveground Facilities																			
Market Path Mid Station 2	Berkshire	Windsor	G	17.09		WR-M-W023	PEM	BVW	Peru	N/A		0.01	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Market Path Mid Station 3	Franklin	Northfield	H	23.98		NO-L-W002	PFO	BVW	Northfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	N/A
Market Path Mid Station 3	Franklin	Northfield	H	23.98		NO-L-W007	PEM	BVW	Northfield	N/A		0.02	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Market Path Mid Station 3	Franklin	Northfield	H	23.98		NO-L-W016	PFO	BVW	Northfield	N/A		0.00	0.01	0.00	0.00	0.00	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W003	PFO	BVW	Lowell	N/A		0.00	0.02	0.00	0.00	0.02	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W004	PFO	BVW	Lowell	N/A		0.00	0.08	0.00	0.00	0.08	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W004	PFO	BVW	Lowell	N/A		0.00	0.16	0.00	0.00	0.16	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W004	PFO	BVW	Lowell	N/A		0.00	0.01	0.00	0.00	0.01	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W004	PFO	BVW	Lowell	N/A		0.00	0.12	0.00	0.00	0.12	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W005	PFO	BVW	Lowell	N/A		0.00	0.01	0.00	0.00	0.01	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W009	PFO	BVW	Lowell	N/A		0.00	0.07	0.00	0.00	0.07	0.00	0.00	N/A
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W010	PFO	BVW	Lowell	II		0.00	0.07	0.00	0.00	0.07	0.00	0.00	48
Market Path Tail Station	Middlesex	Dracut	K	1.05		DR-N-W011	PFO	BVW	Lowell	N/A		0.00	0.01	0.00	0.00	0.01	0.00	0.00	N/A
Maritimes	Middlesex	Dracut	L	0.75		DR-J-W004	PEM	BVW	Lowell	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	7
Maritimes	Middlesex	Dracut	L	0.75		DR-J-W004	PSS	BVW	Lowell	II		0.00	0.00	0.06	0.00	0.00	0.06	0.00	29
200-1 Check	Essex	Lynnfield	N	14.28		LY-D-W002	PEM	BVW	Reading	II		0.01	0.00	0.00	0.00	0.00	0.00	0.00	17
											Aboveground Facilities Subtotal	**0.05**	**0.57**	**0.06**	**0.00**	**0.55**	**0.06**	**0.00**	**101**
Contractor Yards																			
NED-G-0100	Berkshire	Hancock	G	1.50		NWI-1094	PEM	BVW	Hancock	V		0.24	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0200	Berkshire	Hancock	G	1.61		NWI-1016	PSS	BVW	Hancock	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		NWI-1017	PEM	BVW	Cheshire	V		0.55	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		WPI-1267	PEM	BVW	Cheshire	V		0.44	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		WPI-1265	PSS	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		WPI-1266	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		WPI-1265	PSS	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		WPI-1266	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.03	0.00	0.00	0.00	0.00	N/A
NED-G-0301	Berkshire	Lanesborough	G	5.89		NWI-1018	PEM	BVW	Cheshire	V		0.07	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0305	Berkshire	Dalton	G	11.99		WPI-1316	PEM	BVW	Pittsfield East	V		0.05	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0305	Berkshire	Dalton	G	11.99		WPI-1317	PSS	BVW	Pittsfield East	V		0.00	0.00	0.09	0.00	0.00	0.00	0.00	N/A
NED-G-0500	Berkshire	Windsor	G	16.97		NWI-1020	PSS	BVW	Peru	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-G-0700	Berkshire	Windsor	G	17.19		NWI-1021	PFO	BVW	Peru	V		0.00	0.05	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0700	Berkshire	Windsor	G	17.19		WR-M-W011	PEM	BVW	Peru	V		0.64	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0700	Berkshire	Windsor	G	17.19		WR-M-W011	PEM	BVW	Peru	V		0.10	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0701	Berkshire	Windsor	G	18.73		NWI-1022	PEM	BVW	Peru	V		0.17	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-G-0704	Franklin	Ashfield	G	30.57		NWI-1023	PEM	BVW	Ashfield	V		0.13	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-D-W002	PFO	BVW	Lowell	V		0.00	0.11	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.16	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.34	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.31	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-D-W003	PFO	BVW	Lowell	V		0.00	0.27	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.62	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-D-W004	PFO	BVW	Lowell	V		0.00	0.14	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-D-W005	PFO	BVW	Lowell	V		0.00	0.15	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.02	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-G-W001	PFO	BVW	Lowell	V		0.00	0.04	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		WPI-3161	PFO	BVW	Lowell	V		0.00	0.24	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		WPI-3160	PFO	BVW	Lowell	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-G-W003	PFO	BVW	Lowell	V		0.00	0.29	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.21	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.02	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-G-W005	PFO	BVW	Lowell	V		0.00	0.03	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	K	1.48		DR-G-W005	PFO	BVW	Lowell	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1041	PEM	BVW	Lawrence	V		0.51	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1042	PSS	BVW	Lawrence	V		0.00	0.00	0.08	0.00	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1043	PSS	BVW	Lawrence	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1044	Other	BVW	Lawrence	V		0.00	0.00	0.00	0.16	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1045	PSS	BVW	Lawrence	V		0.00	0.00	0.34	0.00	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1046	Other	BVW	Lowell	V		0.00	0.00	0.00	0.11	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1046	Other	BVW	Lawrence	V		0.00	0.00	0.00	0.02	0.00	0.00	0.00	N/A
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1048	PFO	BVW	Lawrence	V		0.00	0.59	0.00	0.00	0.00	0.00	0.00	N/A

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
NED-N-0200	Middlesex	Dracut	N	1.05		NWI-1049	Other	BVW	Lawrence	V		0.00	0.00	0.00	0.14	0.00	0.00	0.00	N/A
NED-N-0400	Essex	Andover	N	6.60		NWI-1050	PEM	BVW	Wilmington	V		0.46	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1052	PFO	BVW	Wilmington	V		0.00	1.06	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1051	PFO	BVW	Wilmington	V		0.00	0.09	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		WPI-2808	PEM	BVW	Wilmington	V		1.79	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1053	PFO	BVW	Wilmington	V		0.00	1.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1054	Other	BVW	Wilmington	V		0.00	0.00	0.00	0.15	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1058	PFO	BVW	Wilmington	V		0.00	5.49	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		WPI-2809	PFO	BVW	Wilmington	V		0.00	0.10	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1057	PSS	BVW	Wilmington	V		0.00	0.00	0.23	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1061	PFO	BVW	Wilmington	V		0.00	1.09	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-1062	PSS	BVW	Wilmington	V		0.00	0.00	0.19	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-896	PEM	BVW	Wilmington	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0500	Middlesex	Wilmington	N	9.57		NWI-896	PEM	BVW	Wilmington	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	P	1.48		WPI-3183	PEM	BVW	Lowell	V		0.09	0.00	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	P	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.03	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	P	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.15	0.00	0.00	0.00	0.00	0.00	N/A
NED-K-0100	Middlesex	Dracut	P	1.48		DR-A-W001	PFO	BVW	Lowell	V		0.00	0.66	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0100	Middlesex	Dracut	P	0.29		NWI-1144	PFO	BVW	Lawrence	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0100	Middlesex	Dracut	P	0.29		NWI-1150	PFO	BVW	Lawrence	V		0.00	0.12	0.00	0.00	0.00	0.00	0.00	N/A
NED-N-0100	Middlesex	Dracut	P	0.29		NWI-1151	Other	BVW	Lawrence	V		0.00	0.00	0.00	0.09	0.00	0.00	0.00	N/A
NED-N-0100	Essex	Methuen	P	0.29		NWI-1154	PSS	BVW	Lawrence	V		0.00	0.00	0.63	0.00	0.00	0.00	0.00	N/A
NED-Q-0100	Middlesex	Townsend	Q	6.03		WPI-3245	PSS	BVW	Ashby	V		0.00	0.00	0.08	0.00	0.00	0.00	0.00	N/A
											Contractor Yards Subtotal	**5.28**	**13.41**	**1.73**	**0.67**	**0.00**	**0.00**	**0.00**	**0**
								Access Roads											
NED-TAR-G-0300	Berkshire	Lanesborough	G	2.61		WPI-1235	PSS	BVW	Hancock	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
NED-TAR-G-0300	Berkshire	Lanesborough	G	2.61		WPI-1235	PSS	BVW	Hancock	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	5
NED-TAR-G-1000	Berkshire	Cheshire	G	8.65		WPI-1286	Other	BVW	Cheshire	V		0.00	0.00	0.00	0.02	0.00	0.00	0.00	56
NED-TAR-G-1000	Berkshire	Cheshire	G	8.65		WPI-1288	PSS	BVW	Cheshire	V		0.00	0.00	0.04	0.00	0.00	0.00	0.00	0
NED-TAR-G-1000	Berkshire	Cheshire	G	8.65		WPI-1287	Other	BVW	Cheshire	V		0.00	0.00	0.00	0.04	0.00	0.00	0.00	104
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1290	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.04	0.00	0.00	0.00	0.00	77
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1291	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.05	0.00	0.00	0.00	0.00	80
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1292	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.06	0.00	0.00	0.00	0.00	88
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1295	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.22	0.00	0.00	0.00	0.00	338
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1298	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.17	0.00	0.00	0.00	0.00	201
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1298	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.10	0.00	0.00	0.00	0.00	175
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1299	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.06	0.00	0.00	0.00	0.00	85
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1300	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.12	0.00	0.00	0.00	0.00	181
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1301	PSS	BVW	Cheshire	V		0.00	0.00	0.07	0.00	0.00	0.00	0.00	95
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1302	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1304	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	19
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1305	PSS/PEM	BVW	Cheshire	V		0.00	0.00	0.08	0.00	0.00	0.00	0.00	113
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1307	PSS	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	11
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1308	PEM	BVW	Cheshire	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	37
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1309	PSS	BVW	Cheshire	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-1100	Berkshire	Dalton	G	9.39		WPI-1310	PSS	BVW	Pittsfield East	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	10
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1379	PFO	BVW	Peru	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W002	PFO	BVW	Peru	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W002	PEM	BVW	Peru	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W004	PSS	BVW	Peru	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	5
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1380	PEM	BVW	Peru	V		0.14	0.00	0.00	0.00	0.00	0.00	0.00	208
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1441	PEM	BVW	Peru	V		0.09	0.00	0.00	0.00	0.00	0.00	0.00	122
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1381	PEM	BVW	Peru	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	50
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1443	PSS	BVW	Peru	V		0.00	0.00	0.05	0.00	0.00	0.00	0.00	91
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		NWI-1442	PEM	BVW	Peru	V		0.05	0.00	0.00	0.00	0.00	0.00	0.00	109
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W011	PFO	BVW	Peru	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W011	PFO	BVW	Peru	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W010	PSS	BVW	Peru	V		0.00	0.00	0.07	0.00	0.00	0.00	0.00	110
NED-TAR-G-1300	Berkshire	Hinsdale	G	13.57		HN-M-W010	PSS	BVW	Peru	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Peru	G	13.57		NWI-1444	PSS	BVW	Peru	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Peru	G	13.57		WPI-1344	PEM	BVW	Peru	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	20
NED-TAR-G-1300	Berkshire	Peru	G	13.57		NWI-1382	PEM	BVW	Peru	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Peru	G	13.57		WPI-1342	PFO	BVW	Peru	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	5
NED-TAR-G-1300	Berkshire	Peru	G	13.57		NWI-1383	PEM	BVW	Peru	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Peru	G	13.57		NWI-1384	PEM	BVW	Peru	V		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1300	Berkshire	Windsor	G	13.57		WPI-1350	PSS	BVW	Peru	V		0.00	0.00	0.23	0.00	0.00	0.00	0.00	340
NED-TAR-G-1300	Berkshire	Windsor	G	13.57		WPI-1351	Other	BVW	Peru	V		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WPI-1355	PSS	BVW	Peru	V		0.00	0.00	0.10	0.00	0.00	0.00	0.00	137
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WPI-1355	PSS	BVW	Peru	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WR-M-W002	PEM	BVW	Peru	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WR-M-W002	PEM	BVW	Peru	V		0.12	0.00	0.00	0.00	0.00	0.00	0.00	179
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WR-M-W002	PEM	BVW	Peru	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		NWI-1385	PEM	BVW	Peru	V		0.08	0.00	0.00	0.00	0.00	0.00	0.00	75
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WPI-1359	PEM	BVW	Peru	V		0.06	0.00	0.00	0.00	0.00	0.00	0.00	90
NED-TAR-G-1400	Berkshire	Windsor	G	17.32		WPI-1359	PEM	BVW	Peru	V		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1800	Hampshire	Plainfield	G	21.57		PL-M-W004	PEM	BVW	Plainfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
NED-TAR-G-1800	Hampshire	Plainfield	G	21.57		PL-M-W004	PEM	BVW	Plainfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-1800	Hampshire	Plainfield	G	21.57		NWI-1386	PEM	BVW	Plainfield	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	47
NED-TAR-G-1800	Hampshire	Plainfield	G	21.57		PL-E-W001	PFO	BVW	Plainfield	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2000	Hampshire	Plainfield	G	25.34		PL-E-W002	PFO	BVW	Plainfield	V		0.00	0.10	0.00	0.00	0.00	0.00	0.00	145
NED-TAR-G-2000	Hampshire	Plainfield	G	25.34		PL-E-W002	PFO	BVW	Plainfield	V		0.00	0.16	0.00	0.00	0.00	0.00	0.00	235
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		NWI-1387	PEM	BVW	Ashfield	V		0.03	0.00	0.00	0.00	0.00	0.00	0.00	75
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		AS-M-W002	PSS	BVW	Ashfield	V		0.00	0.00	0.15	0.00	0.00	0.00	0.00	230
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		WPI-1438	PSS	BVW	Ashfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		NWI-1387	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		WPI-1441	PSS	BVW	Ashfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		AS-M-W002	PSS	BVW	Ashfield	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	5
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		AS-M-W003	PSS	BVW	Ashfield	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
NED-TAR-G-2300	Franklin	Ashfield	G	27.23		NWI-1388	PEM	BVW	Ashfield	V		0.10	0.00	0.00	0.00	0.00	0.00	0.00	92
NED-TAR-G-2500	Franklin	Ashfield	G	28.56		NWI-1389	PEM	BVW	Ashfield	V		0.10	0.00	0.00	0.00	0.00	0.00	0.00	150
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W014	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		NWI-1390	PEM	BVW	Ashfield	V		0.07	0.00	0.00	0.00	0.00	0.00	0.00	100
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W014	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W014	PSS	BVW	Ashfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W014	PSS	BVW	Ashfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W015	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		WPI-1464	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-G-2600	Franklin	Ashfield	G	29.41		AS-M-W015	PEM	BVW	Ashfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1486	PSS/PEM	BVW	Shelburne Falls	V		0.00	0.00	0.10	0.00	0.00	0.00	0.00	201
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1484	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1485	PEM	BVW	Shelburne Falls	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1489	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1487	Other	BVW	Shelburne Falls	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	15
NED-TAR-H-0200	Franklin	Ashfield	H	1.23		WPI-1488	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0200	Franklin	Conway	H	1.23		WPI-1493	PSS/PEM	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		CN-M-W001	PFO	BVW	Shelburne Falls	V		0.00	0.04	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1499	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1497	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1499	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.20	0.00	0.00	0.00	0.00	341
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1497	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1498	PSS/PEM	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1501	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1502	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1503	PSS/PEM	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1507	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0300	Franklin	Conway	H	2.29		WPI-1507	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0500	Franklin	Conway	H	4.14		WPI-1509	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0500	Franklin	Conway	H	4.14		WPI-1514	PSS/PEM	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0500	Franklin	Conway	H	4.14		CN-M-W003	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0500	Franklin	Conway	H	4.14		WPI-1516	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-0500	Franklin	Conway	H	4.14		WPI-1517	PSS	BVW	Shelburne Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1100	Franklin	Montague	H	11.57		WPI-1569	PEM	BVW	Greenfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-1100	Franklin	Montague	H	11.57		WPI-1571	PEM	BVW	Greenfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-1100	Franklin	Montague	H	11.57		WPI-1572	PFO	BVW	Greenfield	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-1100	Franklin	Montague	H	11.57		WPI-1575	PEM	BVW	Greenfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	5
NED-TAR-H-1100	Franklin	Montague	H	11.57		WPI-1576	PEM	BVW	Greenfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	3
NED-TAR-H-1600	Franklin	Erving	H	16.59		WPI-1586	PSS	BVW	Millers Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1600	Franklin	Northfield	H	16.59		WPI-1590	PSS	BVW	Millers Falls	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1700	Franklin	Northfield	H	20.43		WPI-1595	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1700	Franklin	Northfield	H	20.43		WPI-1596	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1700	Franklin	Northfield	H	20.43		WPI-1597	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1700	Franklin	Northfield	H	20.43		WPI-1598	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.03	0.00	0.00	0.00	0.00	50
NED-TAR-H-1700	Franklin	Northfield	H	20.43		WPI-1599	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		NO-M-W002A	PEM	BVW	Northfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		NO-M-W002	PEM	BVW	Northfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1623	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.05	0.00	0.00	0.00	0.00	37
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1624	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1625	Other	BVW	Northfield	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1626	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1627	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1628	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.04	0.00	0.00	0.00	0.00	5
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1629	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-1800	Franklin	Northfield	H	22.91		WPI-1630	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-H-2000	Franklin	Northfield	H	24.62		WPI-1634	PSS/PEM	BVW	Northfield	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	22
NED-TAR-H-2000	Franklin	Northfield	H	24.62		WPI-1642	PEM	BVW	Northfield	V		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-2000	Franklin	Northfield	H	24.62		WPI-1643	Other	BVW	Northfield	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-H-2000	Franklin	Northfield	H	24.62		WPI-1644	PEM	BVW	Northfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-2101	Franklin	Warwick	H	0.32		NWI-1399	PFO	BVW	Northfield	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-H-2101	Franklin	Warwick	H	0.32		NWI-1392	PEM	BVW	Northfield	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-K-0100	Middlesex	Dracut	K	0.10		NWI-1402	PSS/FO	BVW	Lowell	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-K-0100	Middlesex	Dracut	K	0.10		WPI-2702	PSS	BVW	Lowell	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
NED-TAR-K-0100	Middlesex	Dracut	K	0.10		DR-D-W008	PSS	BVW	Lowell	V		0.00	0.00	0.06	0.00	0.00	0.00	0.00	95

TABLE 2.4-3
Wetlands Associated With the Project in Massachusetts

Facility Name	County	Municipality	Segment[1]	Milepost[2]		Wetland ID[3,4]	Wetland Class[5]	State Wetland Classification[6]	Quadrangle	Crossing Method[7]	Comments	Wetland Impact (acres)							Crossing Length (feet)[11]
												Construction[8]				Operation[9]			
				Begin	End							PEM	PFO	PSS	Other[10]	PFO	PSS	Other[10]	
NED-TAR-K-0100	Middlesex	Dracut	K	0.10		WPI-2704	PEM	BVW	Lowell	V		0.05	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-N-0200	Essex	Andover	N	1.37		WPI-2749	PSS	BVW	Lawrence	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-N-0200	Essex	Andover	N	1.37		WPI-2750	PEM	BVW	Lawrence	V		0.07	0.00	0.00	0.00	0.00	0.00	0.00	115
NED-TAR-N-0200	Essex	Andover	N	1.37		WPI-2751	PSS	BVW	Lawrence	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-N-0200	Essex	Andover	N	1.37		WPI-2752	PSS	BVW	Lawrence	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	25
NED-TAR-N-0200	Essex	Andover	N	1.37		WPI-2753	PFO	BVW	Lawrence	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-N-0500	Middlesex	Tewksbury	N	2.51		NWI-1403	PSS	BVW	Lawrence	V		0.00	0.00	0.03	0.00	0.00	0.00	0.00	35
NED-TAR-N-0500	Middlesex	Tewksbury	N	2.51		NWI-1404	PSS	BVW	Lawrence	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	12
NED-TAR-N-1000	Middlesex	Wilmington	N	8.53		WL-P-W003	PSS	BVW	Wilmington	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-N-1100	Middlesex	Wilmington	N	9.30		WPI-2811	PEM	BVW	Wilmington	V		0.07	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-N-1100	Middlesex	Wilmington	N	9.30		WPI-2810	Other	BVW	Wilmington	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	Wilmington	N	9.98		WPI-2816	PEM	BVW	Wilmington	V		0.25	0.00	0.00	0.00	0.00	0.00	0.00	350
NED-TAR-N-1200	Middlesex	Wilmington	N	9.98		WPI-2815	PFO	BVW	Wilmington	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		WPI-2816	PEM	BVW	Wilmington	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		NWI-1407	Other	BVW	Wilmington	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		WPI-2819	PEM	BVW	Wilmington	V		0.02	0.00	0.00	0.00	0.00	0.00	0.00	31
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		WPI-2820	PFO	BVW	Wilmington	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		WPI-2821	PSS	BVW	Wilmington	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-N-1200	Middlesex	North Reading	N	9.98		WPI-2821	PSS	BVW	Wilmington	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-N-1400	Middlesex	North Reading	N	12.66		NWI-1411	PFO	BVW	Reading	V		0.00	0.03	0.00	0.00	0.00	0.00	0.00	5
NED-TAR-N-1400	Middlesex	North Reading	N	12.66		WPI-2861	PFO	BVW	Reading	V		0.00	0.17	0.00	0.00	0.00	0.00	0.00	383
NED-TAR-N-1400	Middlesex	North Reading	N	12.66		NWI-1413	PFO	BVW	Reading	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-O-0101	Essex	Peabody	O	4.05		NWI-1416	PFO	BVW	Reading	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0100	Middlesex	Townsend	Q	6.58		WPI-3257	PEM	BVW	Ashby	V		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3287	PSS	BVW	Ashby	V		0.00	0.00	1.31	0.00	0.00	0.00	0.00	1,867
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3295	PEM	BVW	Ashby	V		0.09	0.00	0.00	0.00	0.00	0.00	0.00	138
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3296	PSS	BVW	Ashby	V		0.00	0.00	0.04	0.00	0.00	0.00	0.00	42
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3301	PSS	BVW	Ashby	V		0.00	0.00	1.53	0.00	0.00	0.00	0.00	2,370
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3300	PFO	BVW	Ashby	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	25
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3300	PFO	BVW	Ashby	V		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3301	PSS	BVW	Townsend	V		0.00	0.00	0.67	0.00	0.00	0.00	0.00	1,510
NED-TAR-Q-0600	Middlesex	Townsend	Q	9.34		WPI-3303	Other	BVW	Townsend	V		0.00	0.00	0.00	0.01	0.00	0.00	0.00	0
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3301	PSS	BVW	Townsend	V		0.00	0.00	0.47	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3306	PSS	BVW	Townsend	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3306	PSS	BVW	Ashby	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3307	PSS	BVW	Ashby	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3307	PSS	BVW	Townsend	V		0.00	0.00	0.01	0.00	0.00	0.00	0.00	20
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3311	PSS	BVW	Ashby	V		0.00	0.00	0.05	0.00	0.00	0.00	0.00	70
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3310	PSS	BVW	Ashby	V		0.00	0.00	0.02	0.00	0.00	0.00	0.00	15
NED-TAR-Q-0600	Worcester	Lunenburg	Q	9.34		WPI-3313	PSS	BVW	Ashby	V		0.00	0.00	0.13	0.00	0.00	0.00	0.00	215
Access Roads Subtotal												**1.82**	**0.65**	**7.02**	**0.15**	**0.00**	**0.00**	**0.00**	**12,297**
Massachusetts Total[12]												**23.88**	**74.27**	**37.61**	**2.48**	**20.60**	**3.18**	**0.00**	**66,186**

Source: The data sets utilized for wetlands is a combination of field surveyed data, photo interpreted LiDAR data, and publically available data. Field surveyed data was used wherever there was parcel access, photo interpreted LiDAR data was used where there was no parcel access, and publically available data was used where there was no parcel access and no photo interpreted aerial coverage. The publically available data is from the USFWS - NWI (2014).

1 Each segment is associated with its own set of mileposts beginning at MP 0.00.

2 Mileposts for Contractor Yards and Access Roads are given as nearest MP, which indicates the point at which the Access Road or Contractor Yard connects with the pipeline construction ROW, or closest MP to the construction ROW if there is no direct connection.

3 Wetland ID in the form of NWI-XXX are USFWS-NWI wetlands and wetland ID in the form WPI-XXX are photo interpreted wetlands. All other wetland ID's are surveyed wetlands.

4 Wetlands identified as "Unnamed" are wetlands delineated by AECOM that have yet to be assigned a unique Wetland ID.

5 Wetland classification is in accordance with Cowardin et al 1979: PEM = Palustrine Emergent Wetland; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested Wetland; PUB = Palustrine Unconsolidated Bottom; Other = accommodates all other wetland class types.

6 Massachusetts classifies wetlands by the MADEP under the Massachusetts Wetlands Protection Act ("WPA") (Massachusetts General Law ["MGL"] Chapter 131 Section 40 . BVW = bordering vegetated wetlands.

7 Crossing methods for wetlands are described in Section 2.3.6; I = standard crossing; II = conventional crossing; III = push/pull crossing; IV = Horizontal Directional Drill; V = Timber mats will be used to cross wetlands for Contractor Yards and Access Roads; N/A = wetland not crossed by pipeline.

8 Construction Acreage = all workspace during construction activities (TWS, ATWS, and permanent easement) that impacts wetlands. Workspace was laid out to maintain a 75 foot construction ROW through wetlands. Any construction ROW impacts greater than 75 feet are detailed in the Project- specific ECP.

9 Operation Acreage = 10-foot wide corridor permanently maintained in herbaceous vegetative cover through PSS wetlands, and 30-foot wide corridor permanently maintained through PFO wetlands where trees taller than 15 feet that could damage the pipeline coating will be selectively cut and removed. The permanently maintained corridors represent a change in cover type from PFO to PSS and PEM or PSS to PEM; there is no operation impact on PEM wetlands, since there is no change in pre- and post-construction wetland vegetation cover type. Operational acreage represents areas of new permanent easement and does not include overlap with TGP's existing pipelines. The existing permanent easement for TGP's existing pipelines are not included in the operational wetland impacts.

10 Wetland type not classified by NWI as PEM, PSS, or PFO

11 Crossing length of 0 feet indicates that a wetland is impacted by only workspace (not the pipeline centerline).

12 The totals shown in this table may not equal the sum of addends due to rounding.

Attachment 6

Massachusetts Wetland Report

Attachment 7

Relevant Agency Correspondence

Agency correspondence regarding threatened and endangered species is provided in the Tennessee Gas Pipeline Company, L.L.C Final 7(c) Certificate Application (PF14-22-000), filed November 20, 2015-Volume III, Appendix BB. (Privileged and Confidential). Information regarding rare species surveys was also filed in Volume III, Appendix FF (Privileged and Confidential).

Attachment 8

Massachusetts Environmental Construction Plan

Attachment 9

FINAL Mitigation Plans [RESERVED]

Attachment 10

FINAL MEPA Certificate [RESERVED]

Attachment 11

MassDEP Stormwater Management Form [RESERVED]

Attachment 12

Notices of Intent / Orders of Conditions [RESERVED]