

Measures Taken to Reduce Potential Adverse Environmental Impacts

Where impacts could not be avoided with trenchless technology construction, PennEast sought to minimize the impacts to wetlands, State Open Waters and riparian zones with workspace modifications. A discussion of workspace modification efforts is provided in the Alternatives Analysis (Attachment K). PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4) to further minimize or avoid adverse environmental impacts. Section 4 of this report details the range of proposed BMPs and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

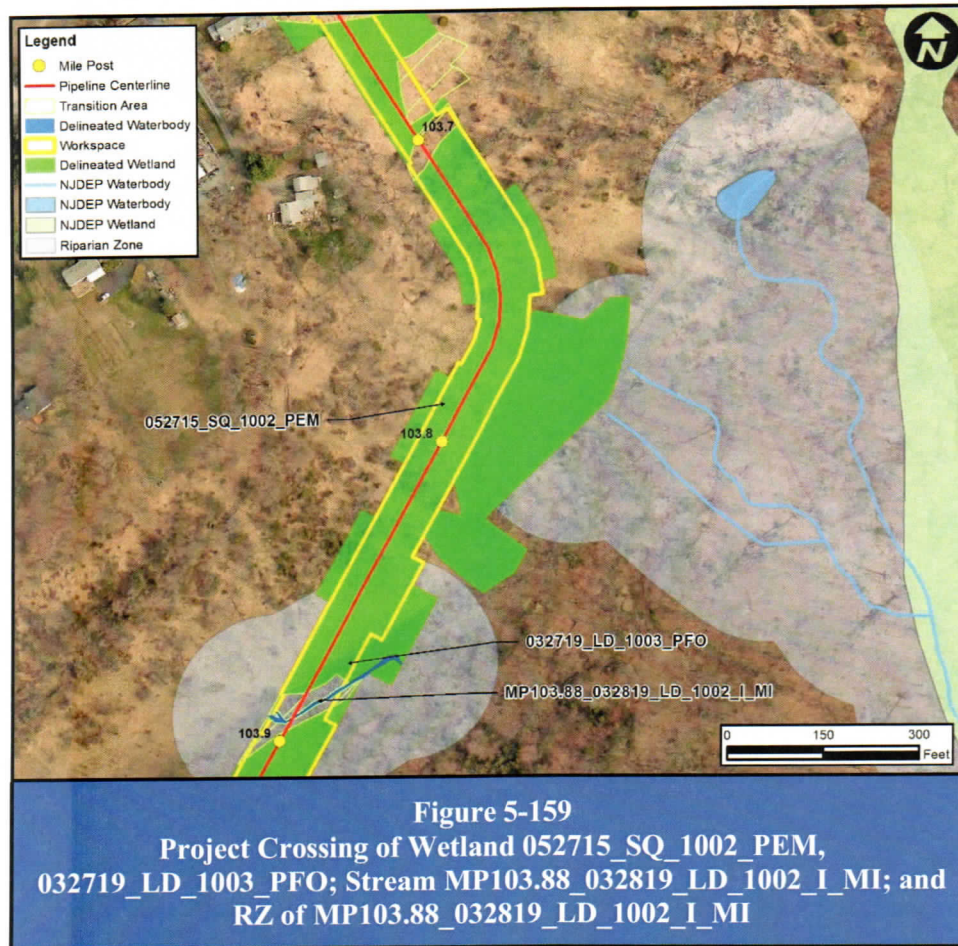
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;
- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;

- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable; no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;
- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and
- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.191 Regulated Crossing 159



INVENTORY

Wetlands

Wetland 052715_SQ_1002_PEM is a field-delineated palustrine emergent wetland. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Wetland 032819_LD_1003_PFO is a field-delineated palustrine forested wetland. It appears to share a hydrologic connection with the field-delineated wetland 052715_SQ_1002_PEM (described above); both features appear to drain to the field-delineated Stream 032819_LD_1002_I_MI. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Transition Areas

The Transition Area is assumed to be 50 feet due to the lack of exceptional characteristics associated with the wetland feature.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Wetland 052715_SQ_1002_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Wetland 032819_LD_1003_PFO has not been identified as potentially suitable habitat for any threatened or endangered species.

Stream MP103.88_032819_LD_1002_I_MI has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Stream MP103.88_032819_LD_1002_I_MI is a field-delineated intermittent, minor stream that flows northeast through forest. It is an unnamed tributary to Moores Creek.

Riparian Zones

RZ of MP103.88_032819_LD_1002_I_MI is the 150-foot riparian area associated with an off-site unnamed tributary to Moores Creek. This riparian area is actively disturbed.

Fishery Resources

According to the Surface Water Quality Standards N.J.A.C.7:9, this tributary of the Moores Creek is classified as a trout maintenance waterbody (FW2-TM).

ASSESSMENT

Analysis Potential Temporary and Permanent Adverse Environmental Impacts of the Proposed Regulated Activity

Open-cut through wetland areas and dry crossing of streams is the pipeline construction method proposed at this regulated crossing. This crossing method is proposed at locations where the use of trenchless technology is not feasible. The Alternatives Analysis, Attachment K, documents this finding. Unavoidable temporary impacts include disturbance to vegetation for temporary construction access and workspace for the Project. Temporary disturbance of wetlands and stream channels during construction is necessary for pipeline installation. Permanent impacts include the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline in compliance with FERC requirements. Temporary matting is proposed within regulated areas to reduce impacts to herbaceous vegetation. In-place restoration is proposed to minimize environmental impacts at this crossing; mitigation, as required by NJDEP rules, is proposed to compensate for adverse wetland and riparian zone impacts. As a result of these

considerations, proposed construction at this crossing is not anticipated to result in significant permanent adverse environmental impacts.

Measures Taken to Reduce Potential Adverse Environmental Impacts

Where impacts could not be avoided with trenchless technology construction, PennEast sought to minimize the impacts to wetlands, State Open Waters and riparian zones with workspace modifications. A discussion of workspace modification efforts is provided in the Alternatives Analysis (Attachment K). PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4) to further minimize or avoid adverse environmental impacts. Section 4 of this report details the range of proposed BMPs and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

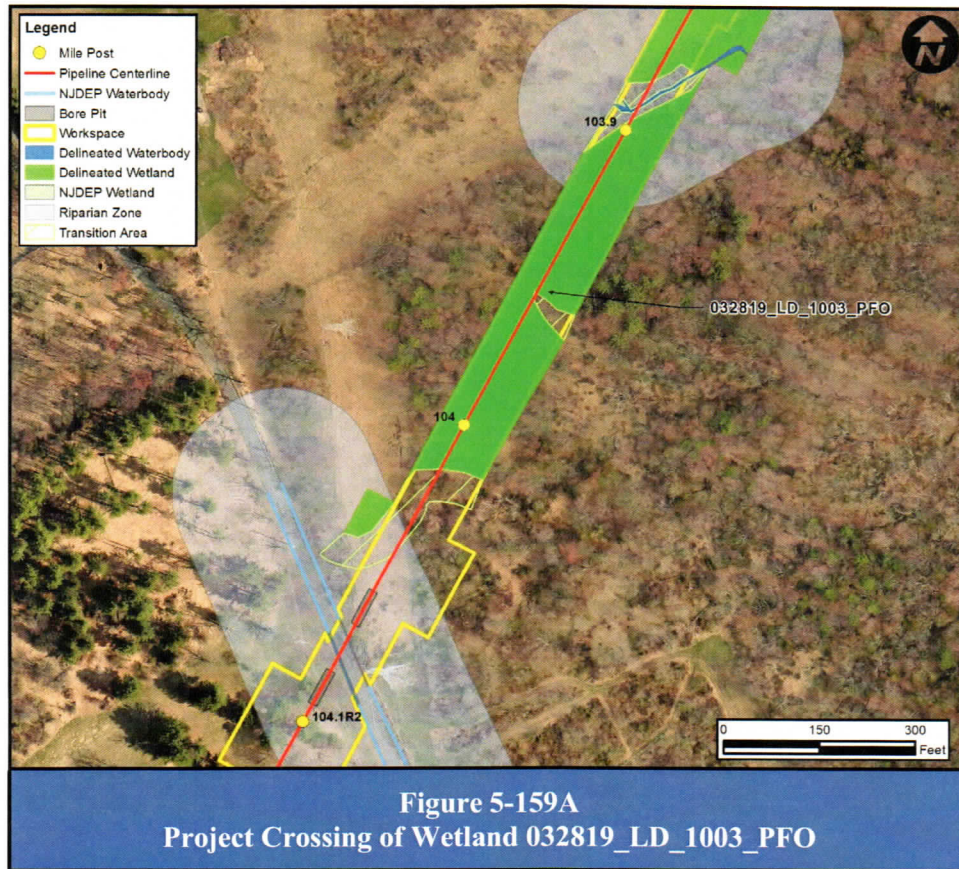
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;

- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;
- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable: no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;
- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and
- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.192 Regulated Crossing 159A



INVENTORY

Wetlands

Wetland 032819_LD_1003_PFO is a field-delineated palustrine forested wetland. It appears to share a hydrologic connection with the field-delineated wetland 052715_SQ_1002_PEM (described above); both features appear to drain to the field-delineated stream 032819_LD_1002_I_ML. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Transition Areas

The Transition Area is assumed to be 50' due to the lack of exceptional characteristics associated with the wetland feature.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Wetland 032819_LD_1003_PFO has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Based upon fieldwork and review of publicly available data, stream channels are not located at this regulated crossing.

Riparian Zones

Based upon fieldwork and review of publicly available data, riparian zones are not located at this regulated crossing.

Fishery Resources

Based upon fieldwork and review of publicly available data, fishery resources are not located at this regulated crossing.

ASSESSMENT

Analysis Potential Temporary and Permanent Adverse Environmental Impacts of the Proposed Regulated Activity

Open-cut through wetland areas is the pipeline construction method proposed at this regulated crossing. This crossing method is proposed at locations where the use of trenchless technology is not feasible. The Alternatives Analysis, Attachment K, documents this finding. Unavoidable temporary impacts include disturbance to vegetation for temporary construction access and workspace for the Project. Temporary disturbance of wetlands and stream channels during construction is necessary for pipeline installation. Permanent impacts include the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline in compliance with FERC requirements. Temporary matting is proposed within regulated areas to reduce impacts to herbaceous vegetation. In-place restoration is proposed to minimize environmental impacts at this crossing; mitigation, as required by NJDEP rules, is proposed to compensate for adverse wetland and riparian zone impacts. As a result of these considerations, proposed construction at this crossing is not anticipated to result in significant permanent adverse environmental impacts.

Measures Taken to Reduce Potential Adverse Environmental Impacts

Where impacts could not be avoided with trenchless technology construction, PennEast sought to minimize the impacts to wetlands, State Open Waters and riparian zones with workspace modifications. A discussion of workspace modification efforts is provided in the Alternatives Analysis (Attachment K). PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4) to further minimize or avoid adverse environmental impacts. Section 4 of this report details the range of proposed BMPs

and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

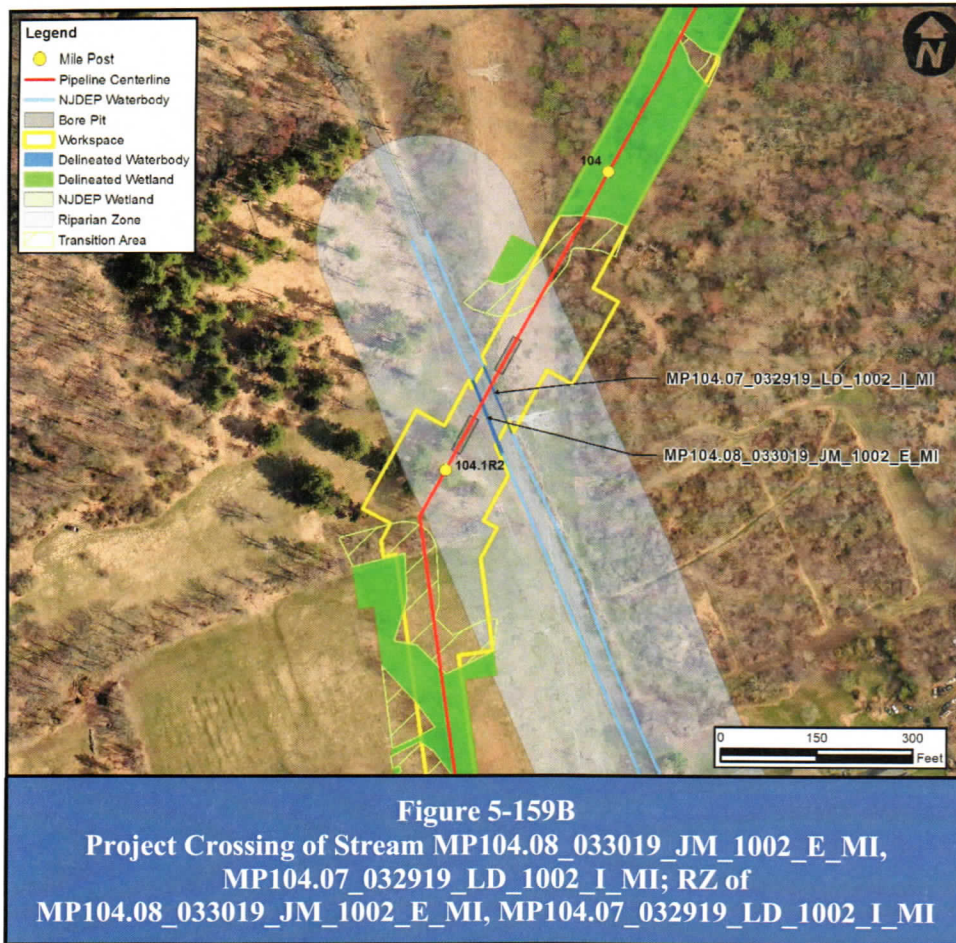
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;
- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;
- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable: no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;

- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and
- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.193 Regulated Crossing 159B



INVENTORY

Wetlands

Not present.

Transition Areas

Not present.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Stream MP104.08_032919_LD_1002_I_MI has not been identified as potentially suitable habitat for any threatened or endangered species.

Stream MP104.07_033019_JM_1002_E_MI has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Stream MP104.08_032919_LD_1002_I_MI is a field-delineated intermittent, minor roadside ditch. It flows south-southeast through a residential property adjacent to Studdiford Road and crosses beneath a private driveway via culvert.

Stream MP104.07_033019_JM_1002_E_MI is a field-delineated ephemeral, minor roadside ditch that flows south through a mowed field, along Goat Hill Road. It is an unnamed tributary to Moores Creek.

Riparian Zones

RZ of MP104.08_032919_LD_1002_I_MI is the 150-foot riparian area associated with this stream. This riparian area is mostly actively disturbed.

RZ of MP104.07_032919_LD_1002_I_MI is the 150-foot riparian area associated with this stream. This riparian area is a combination of vegetated and actively disturbed

Fishery Resources

According to the Surface Water Quality Standards N.J.A.C.7:9, Moores Creek is classified as a trout maintenance waterbody (FW2-TM).

ASSESSMENT

Analysis Potential Temporary and Permanent Adverse Environmental Impacts of the Proposed Regulated Activity

Conventional bore is the pipeline construction method proposed at this regulated crossing. Adverse environmental impacts have been reduced or eliminated by the use of trenchless technology. As demonstrated in the Alternatives Analysis, Attachment K, to the extent that temporary construction access and workspace for the Project includes disturbance of vegetation, those impacts are unavoidable. Permanent impacts include the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline as required for compliance with FERC and Pipeline and Hazardous Materials Safety Administration requirements. Temporary matting will be utilized within regulated areas to reduce impacts to herbaceous vegetation. In-place restoration is proposed to minimize environmental impacts at this crossing; mitigation, as required by NJDEP rules, is proposed to compensate for adverse wetland and riparian zone impacts. Based on the foregoing, it is not anticipated that the proposed conventional bore at this crossing will result in significant permanent adverse environmental impacts.

Measures Taken to Reduce Potential Adverse Environmental Impacts

Utilizing a conventional bore avoids in-stream impacts. However impact to environmental features above the bore cannot be avoided as compliance with FERC requirements necessitates the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline. In an effort to minimize or avoid adverse environmental impacts, PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4). Section 4 of this report details the range of proposed BMPs and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

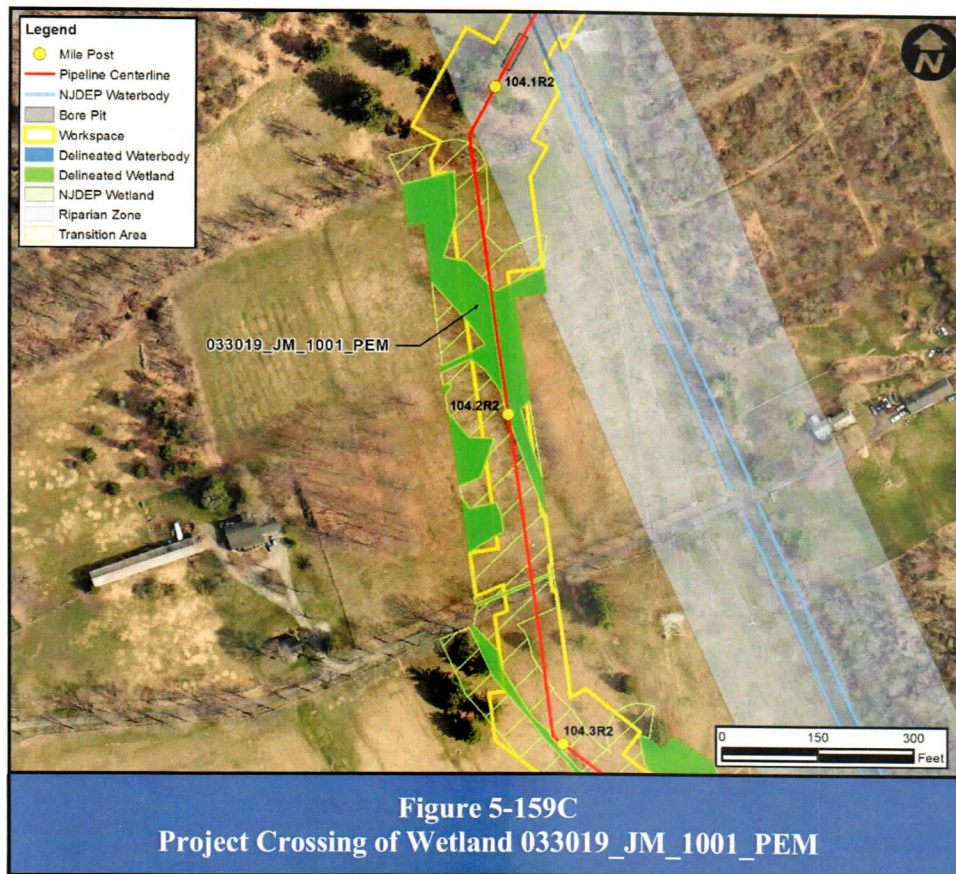
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;
- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;

- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable; no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;
- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and
- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.194 Regulated Crossing 159C



INVENTORY

Wetlands

Wetland 033019_JM_1001_PEM is a field-delineated palustrine emergent wetland occurring in a fallow field. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Transition Areas

The Transition Area is assumed to be 50 feet due to the lack of exceptional characteristics associated with the wetland feature.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Wetland 033019_JM_1001_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Based upon fieldwork and review of publicly available data, stream channels are not located at this regulated crossing.

Riparian Zones

Based upon fieldwork and review of publicly available data, riparian zones are not located at this regulated crossing.

Fishery Resources

Based upon fieldwork and review of publicly available data, fishery resources are not located at this regulated crossing.

ASSESSMENT

Analysis Potential Temporary and Permanent Adverse Environmental Impacts of the Proposed Regulated Activity

Open-cut through wetland areas is the pipeline construction method proposed at this regulated crossing. This crossing method is proposed at locations where the use of trenchless technology is not feasible. The Alternatives Analysis, Attachment K, documents this finding. Unavoidable temporary impacts include disturbance to vegetation for temporary construction access and workspace for the Project. Temporary disturbance of wetlands and stream channels during construction is necessary for pipeline installation. Permanent impacts include the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline in compliance with FERC requirements. Temporary matting is proposed within regulated areas to reduce impacts to herbaceous vegetation. In-place restoration is proposed to minimize environmental impacts at this crossing; mitigation, as required by NJDEP rules, is proposed to compensate for adverse wetland and riparian zone impacts. As a result of these considerations, proposed construction at this crossing is not anticipated to result in significant permanent adverse environmental impacts.

Measures Taken to Reduce Potential Adverse Environmental Impacts

Where impacts could not be avoided with trenchless technology construction, PennEast sought to minimize the impacts to wetlands, State Open Waters and riparian zones with workspace modifications. A discussion of workspace modification efforts is provided in the Alternatives Analysis (Attachment K). PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4) to further minimize or avoid adverse environmental impacts. Section 4 of this report details the range of proposed BMPs and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

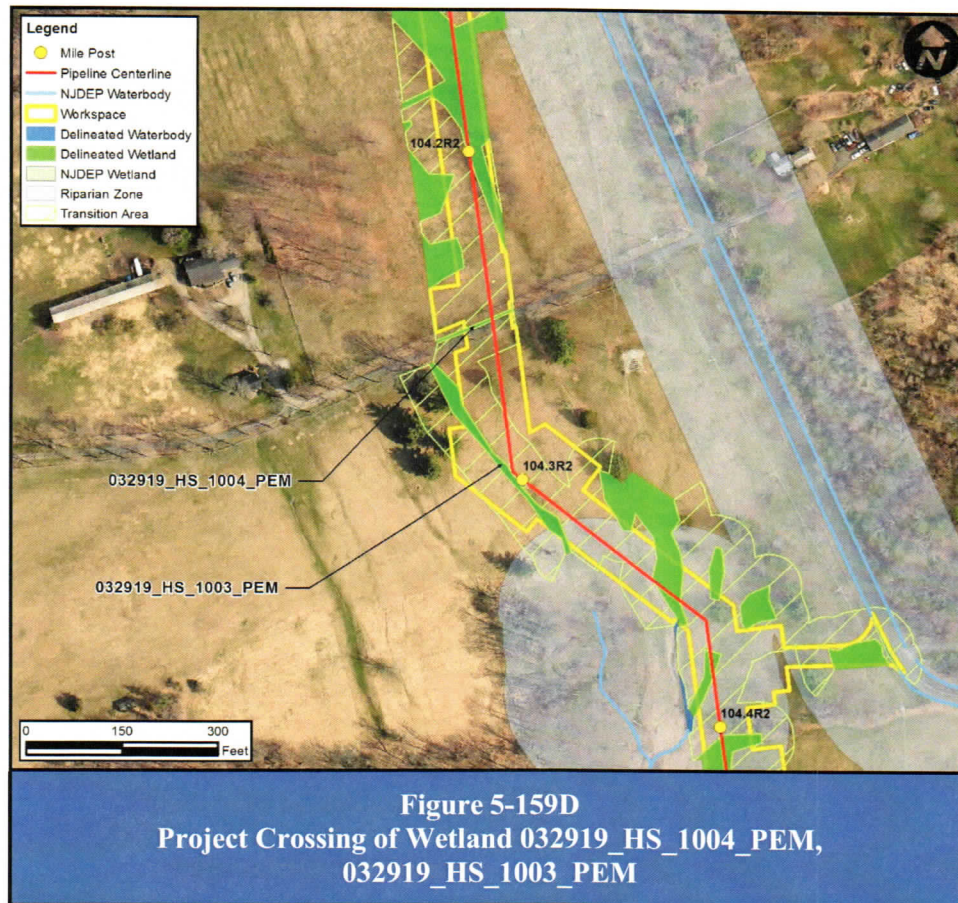
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;
- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;
- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable: no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;
- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and

- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.195 Regulated Crossing 159D



INVENTORY

Wetlands

Wetland 032919_HS_1003_PEM is a field delineated palustrine emergent wetland ditch occurring in a fallow field adjacent to an existing, maintained utility right-of-way. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Wetland 032919_HS_1004_PEM is a field-delineated palustrine emergent wetland occurring along an unnamed access road adjacent to an existing, maintained utility right-of-way. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Transition Areas

The Transition Area is assumed to be 50 feet due to the lack of exceptional characteristics associated with the wetland feature.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Wetland 032919_HS_1003_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Wetland 032919_HS_1004_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Based upon fieldwork and review of publicly available data, stream channels are not located at this regulated crossing.

Riparian Zones

Based upon fieldwork and review of publicly available data, riparian zones are not located at this regulated crossing.

Fishery Resources

Based upon fieldwork and review of publicly available data, fishery resources are not located at this regulated crossing.

ASSESSMENT

Analysis Potential Temporary and Permanent Adverse Environmental Impacts of the Proposed Regulated Activity

Open-cut through wetland areas is the pipeline construction method proposed at this regulated crossing. This crossing method is proposed at locations where the use of trenchless technology is not feasible. The Alternatives Analysis, Attachment K, documents this finding. Unavoidable temporary impacts include disturbance to vegetation for temporary construction access and workspace for the Project. Temporary disturbance of wetlands and stream channels during construction is necessary for pipeline installation. Permanent impacts include the removal of trees and shrubs located within 15 feet of the pipeline that could compromise the integrity of the pipeline in compliance with FERC requirements. Temporary matting is proposed within regulated areas to reduce impacts to herbaceous vegetation. In-place restoration is proposed to minimize environmental impacts at this crossing; mitigation, as required by NJDEP rules, is proposed to compensate for adverse wetland and riparian zone impacts. As a result of these considerations, proposed construction at this crossing is not anticipated to result in significant permanent adverse environmental impacts.

Measures Taken to Reduce Potential Adverse Environmental Impacts

Where impacts could not be avoided with trenchless technology construction, PennEast sought to minimize the impacts to wetlands, State Open Waters and riparian zones with workspace modifications. A discussion of workspace modification efforts is provided in the Alternatives Analysis (Attachment K). PennEast will implement Project specific BMPs as detailed on the Project Soil Erosion and Sedimentation Control Plans (Attachment E-4) to further minimize or avoid adverse environmental impacts. Section 4 of this report details the range of proposed BMPs and mitigation measures taken to reduce potential adverse environmental impacts. These BMPs comply with the Standards for Soil Erosion and Sediment Control in New Jersey.

The following key measures will be implemented to avoid, minimize and mitigate potential adverse environmental impacts:

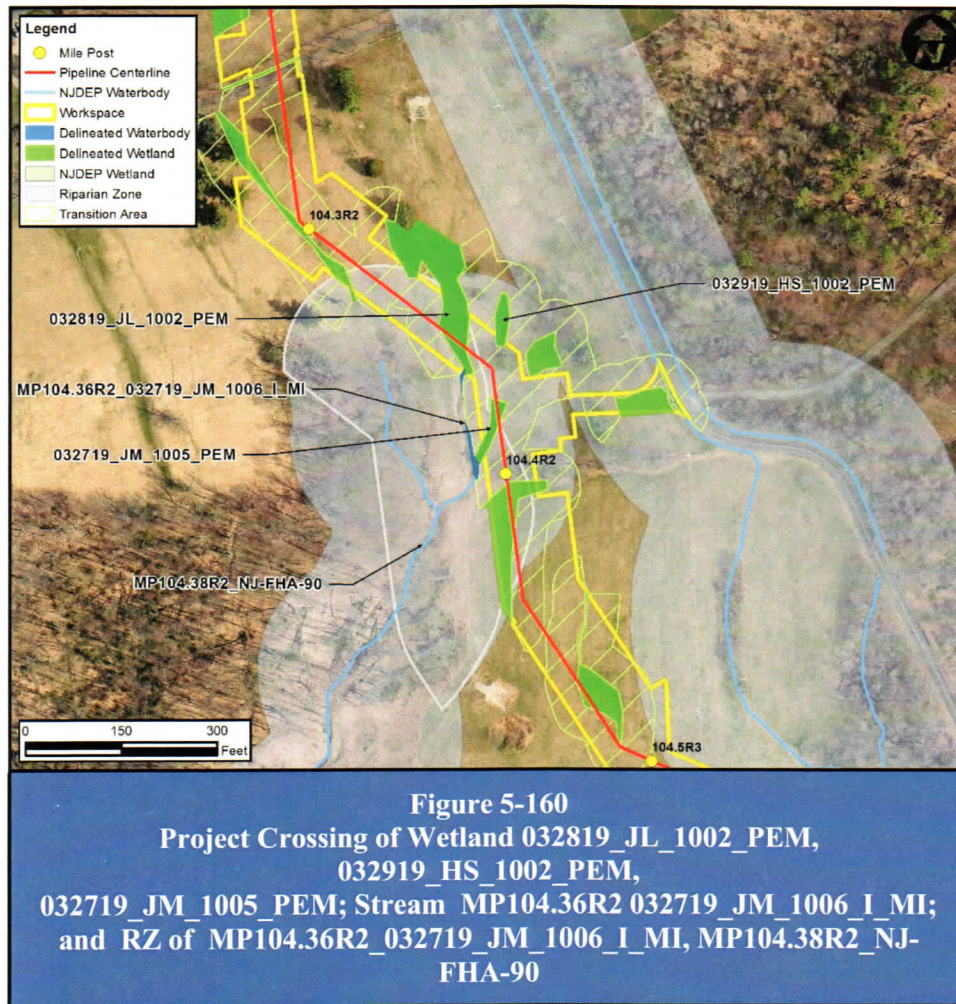
- Delineation of all wetlands in the Project area;
- Avoidance, and minimization of impacts to wetlands to the greatest extent practicable as described in the Alternatives Analysis provided in Attachment K of the Multi-Permit Application;
- Mitigation of unavoidable impacts as described in the Mitigation Proposal provided Attachment N of the Multi-Permit Application;
- Minimization of the operational easement width in wetlands;
- Implementation of trenchless technology construction techniques;
- Follow the site-specific *Inadvertent Returns and Contingency Plan* to avoid and minimize potential impacts from inadvertent return;
- Collocation with existing ROW areas where possible and permitted to minimize forest losses;
- Minimization of forest and vegetation clearing to the greatest extent practicable;
- Allowed post-construction succession of temporarily cleared forest areas and restoration of forested wetlands to a function or value greater than or equal to existing conditions where practicable;
- Restoration of grassland areas to a function or value greater than or equal to existing conditions;
- Mitigation/compensation provided offsite to potentially result in net-neutral or improved regional habitat conditions for potentially affected species populations;
- Adherence to applicable timing restrictions;
- Potential incorporation of NJDEP-reviewed and approved wildlife enhancement design features on mitigation sites and restoration areas;
- Regular (daily) clearing of work areas by agency-approved and qualified environmental monitors. Safe and appropriate wildlife relocation as needed;
- Regular inspection of protective measures such as fences by environmental monitors;
- Post-construction maintenance standards following NJDEP Integrated Vegetation Management guidance set forth in the *Strategies to Minimize Adverse Impacts to Wildlife from Management Activities on Powerline Rights-of-Way in NJ* (NJDEP ENSP 2011) (*Strategies*);
- Incorporate FERC Invasive Species Management Plan;
- Development and utilization of equipment cleaning/sterilization, and other protocols to avoid the spread of invasive species in sensitive terrestrial, wetland and aquatic habitats;
- Project-specific (SESC) standards including temporary erosion control measures such as silt fence, turbidity barriers, sediment filter bags, and erosion mats;
- Commitment not to use herbicides during post-construction maintenance activities;
- Specific seasonal restrictions and buffers will be followed for species and species groups in accordance with *Strategies*;

- Project-specific protocols on appropriate fueling station locations and prohibited areas such as streams and wetlands and transition areas; project-specific cleanup protocols and notification for any unintended spills during construction;
- Vegetation within temporary workspace areas including wetlands and transition areas will be cut flush to the ground and matted where practicable: no grubbing is proposed in these areas;
- Regular inspection of construction equipment to ensure proper functioning with appropriate filters and air quality controls;
- Adherence to agency-approved blasting plan;
- Avoidance of work personnel outside of the workspace in adjacent naturalized areas (sensitive habitat areas will be posted); and
- Post-construction restoration of stream banks and beds and downstream water quality monitoring as required (sensitive habitat areas) before, during and after construction.

FINDINGS

The implementation of appropriate avoidance, minimization, and mitigating measures identified for wetlands, transition areas, species, or species group will avoid and minimize impacts to these environmental resources, State-listed wildlife and plant species. By following the key measures as listed above and in the HPP, it is anticipated that existing populations of State-listed species will not be jeopardized.

5.196 Regulated Crossing 160



INVENTORY

Wetlands

Wetland 032819_JL_1002_PEM is a field-delineated palustrine emergent wetland occurring within a fallow field and an existing, maintained, utility right-of-way. It appears to drain to the field-delineated stream 032719_JM_1006_I_MI and is therefore hydrologically connected to the above-described wetland 032719_JM_1005_PEM. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Wetland 032919_HS_1002_PEM is a field-delineated palustrine emergent wetland occurring in a fallow field adjacent to an existing, maintained utility right-of-way. Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Wetland 032719_JM_1005_PEM is a field-delineated palustrine emergent wetland that occurs in a fallow field adjacent to an existing, maintained utility right-of-way. The feature appears to drain to an intermittent stream (field-delineated as 032719_JM_1006_I_MI). Additional information on this wetland can be found in the WDR provided in Attachment F of the Multi-Permit Application.

Transition Areas

The Transition Area is assumed to be 50 feet due to the lack of exceptional characteristics associated with the wetland feature.

Special Aquatic Sites

Based upon fieldwork and review of publicly available data, special aquatic sites as defined at N.J.A.C. 7:7A-1.4 are not located at this regulated crossing.

Public Lands

None of the regulated resources in this crossing are on public lands.

Critical Habitat and Threatened or Endangered Species and their Habitat

Wetland 032819_JL_1002_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Wetland 032919_HS_1002_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Wetland 032719_JM_1005_PEM has not been identified as potentially suitable habitat for any threatened or endangered species.

Stream MP104.36R2_032719_JM_1006_I_MI (continued as 032819_JL_1001_I_MI) has not been identified as potentially suitable habitat for any threatened or endangered species.

Species accounts describing the natural history and habitat requirements; habitat assessment and/or targeted species survey results; study corridor documentation; potential habitat impacts; and recommended measures to avoid, minimize, and mitigate potential impacts to New Jersey State-listed species potentially occurring within regulated areas of the study corridor are provided in the HPP.

State Open Waters and Channels

Stream MP104.36R2_032719_JM_1006_I_MI (continued as 032819_JL_1001_I_MI) is a field-delineated intermittent, minor stream that flows south through an early successional meadow.

Riparian Zones

RZ of MP104.36R2_032719_JM_1006_I_MI is the 150-foot riparian area associated with this stream. This riparian area is actively disturbed.

RZ of MP104.38R2_NJ-FHA-90 is the 150-foot riparian area associated with an off-site unnamed tributary to the Delaware and Raritan Canal.

Fishery Resources

According to the Surface Water Quality Standards N.J.A.C.7:9, this tributary of Delaware and Raritan Canal is classified as a non-trout freshwater waterbody (FW2-NT).