

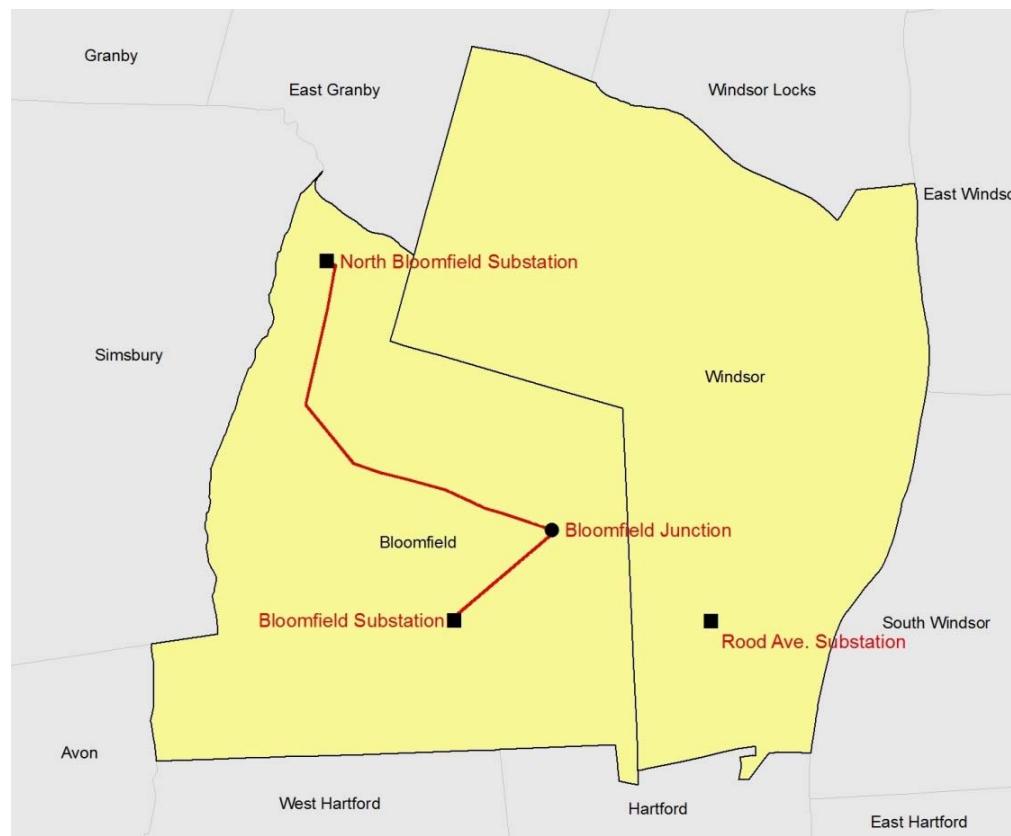


BLOOMFIELD – WINDSOR UPGRADES PROJECT

PROPOSED MODIFICATIONS TO:

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
1751/1777 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION

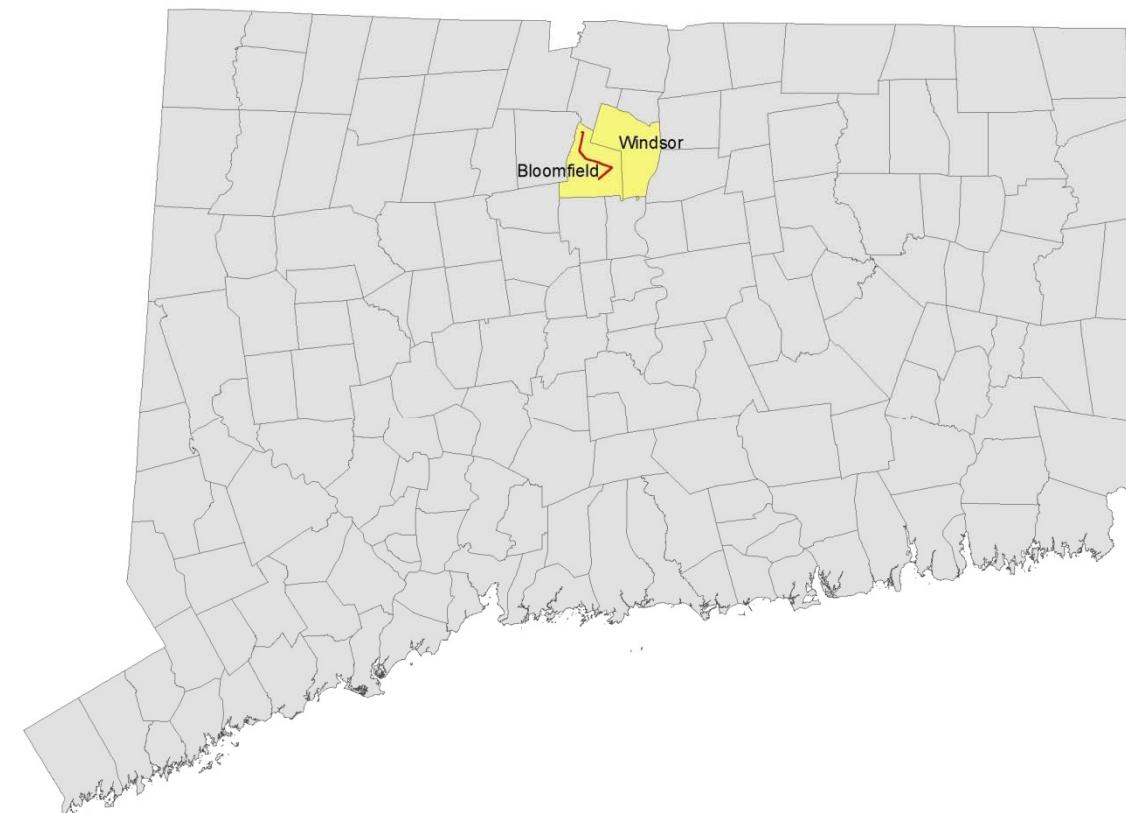
BLOOMFIELD, CONNECTICUT*



DEVELOPMENT AND
MANAGEMENT PLAN

VOLUME 3

AUGUST 2016



AECOM

* Development and Management Plans for substation modification work at the Bloomfield Substation (40 Crestview Drive, Bloomfield, CT), North Bloomfield Substation (2 Hoskins Road, Bloomfield, CT) and substation / Line Loop work at the Rood Avenue Substation parcel (275 Rood Avenue, Windsor, CT) are submitted under separate cover.

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BLOOMFIELD-WINDSOR UPGRADES PROJECT DEVELOPMENT AND MANAGEMENT PLAN VOLUME 3

CROSS SECTION SHEETS

CROSS SECTIONS

	<u>DESCRIPTION</u>
XS-1	TYPICAL CROSS SECTION – EXISTING AND PROPOSED CONDITIONS: BLOOMFIELD SUBSTATION TO BLOOMFIELD JUNCTION
XS-2	TYPICAL CROSS SECTION – EXISTING AND PROPOSED CONDITIONS: BLOOMFIELD JUNCTION TO STRUCTURE 3126; AND, STRUCTURE 3137 TO NORTH BLOOMFIELD SUBSTATION
XS-3	TYPICAL CROSS SECTION – EXISTING AND PROPOSED CONDITIONS: STRUCTURE 3127 TO STRUCTURE 3136

MAPSHEETS

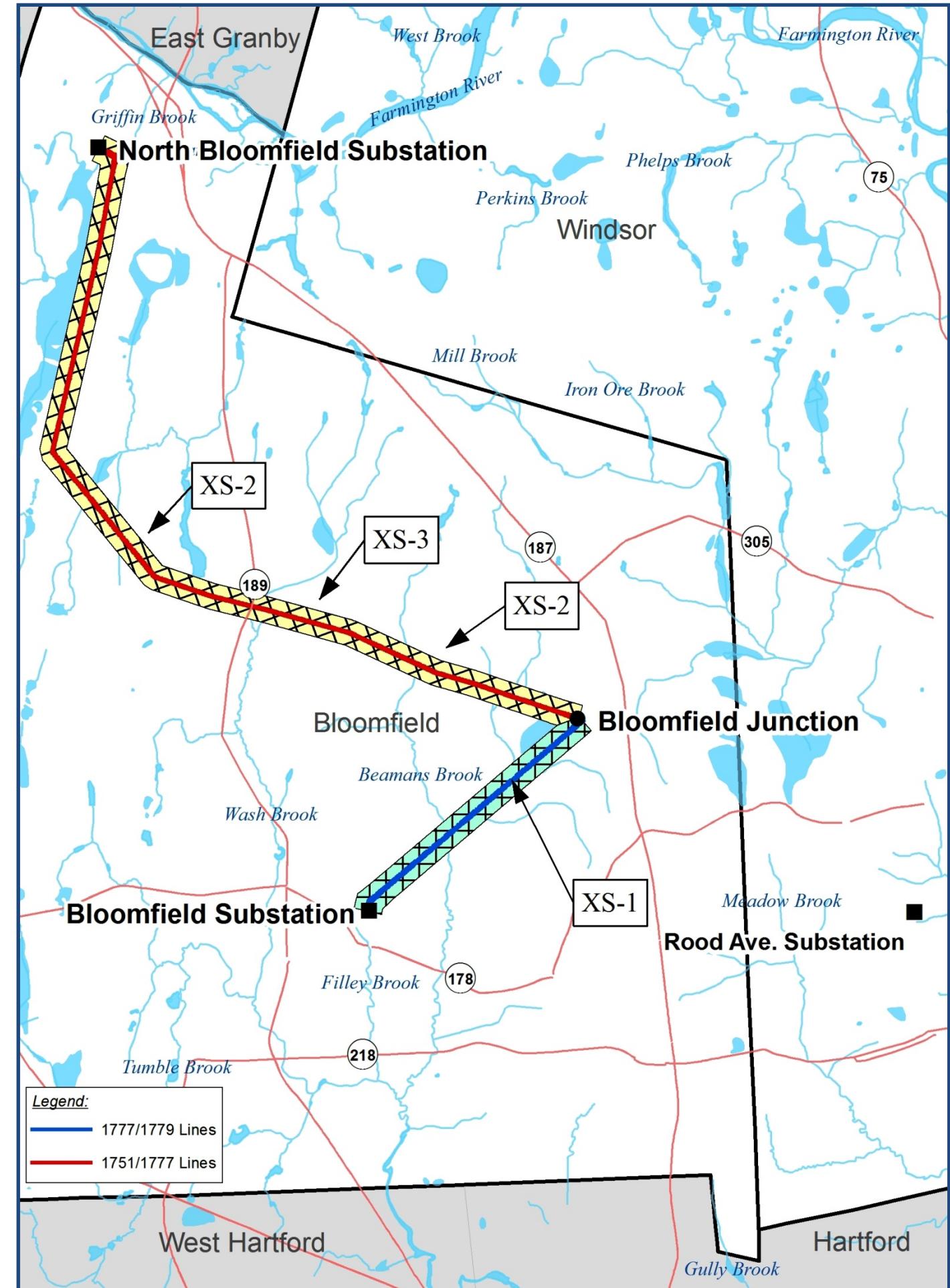
MAPSHEETS

	<u>DESCRIPTION</u>
INDEX MAP - SHEET 1	USGS 1:24,000 SCALE LOCUS
SHEETS 1 THROUGH 6	1777/1779 LINES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
SHEETS 6 THROUGH 25	1751/1777 LINES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION

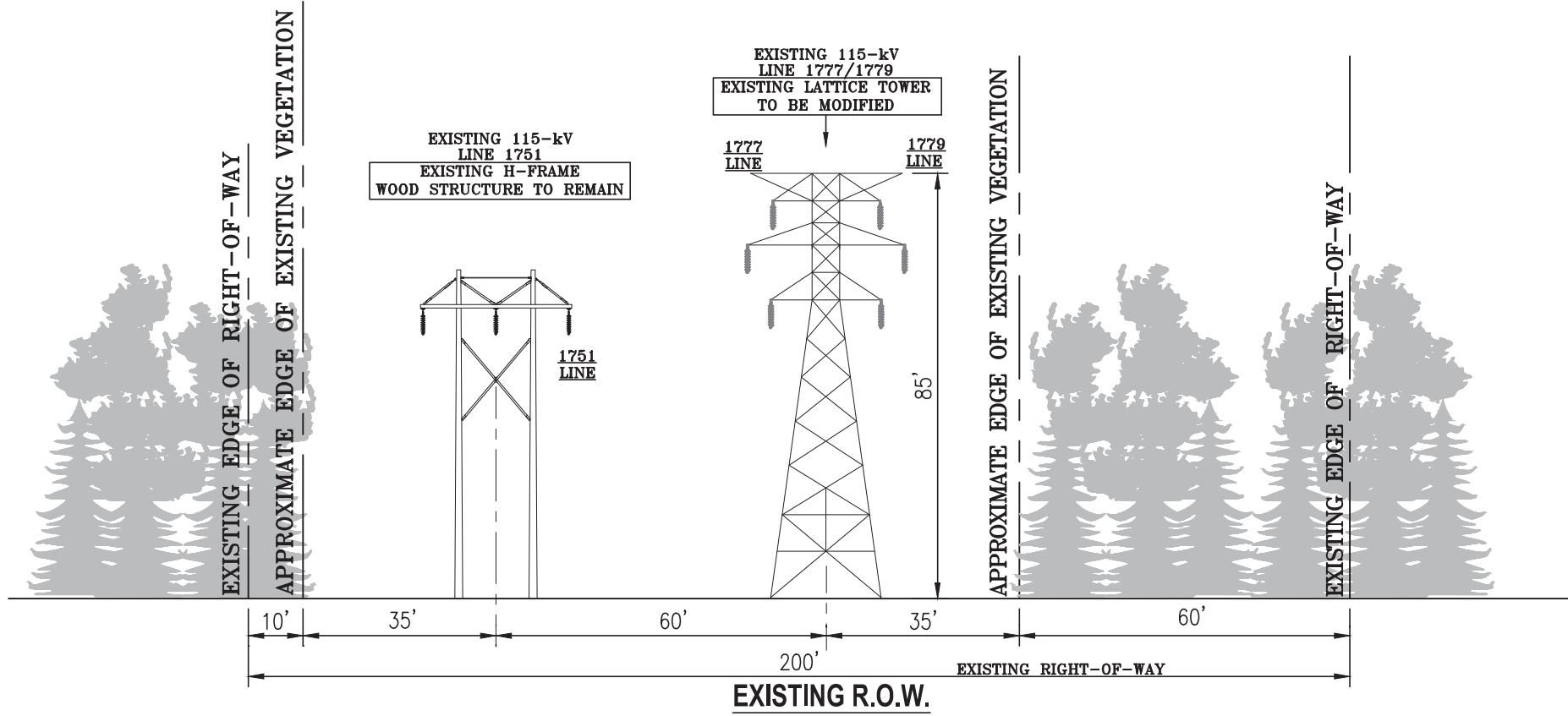
DETAIL SHEETS

DETAIL SHEETS

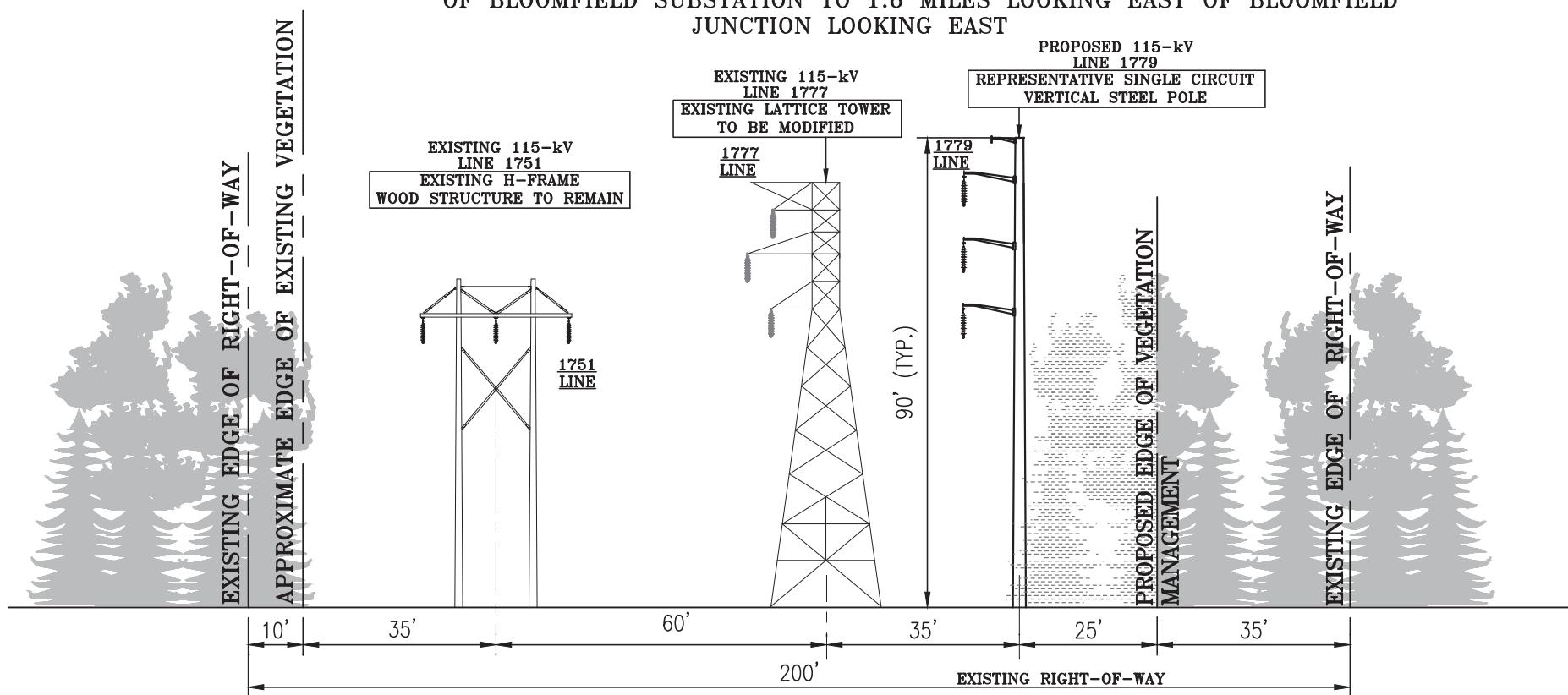
	<u>DESCRIPTION</u>
1	WETLAND IMPACT TABLE
2	WETLAND IMPACT TABLE (CONTINUED)
3	PROJECT AREA WATERCOURSES AND TREE CLEARING IMPACTS ALONG WATERCOURSES
4	SUMMARY OF VERNAL POOL IMPACTS
5	NEW STRUCTURES WITHIN ROWS IN FLOODPLAINS
6	SELECT BEST MANAGEMENT PRACTICES (BMPs): WETLANDS, WATERBODIES AND VERNAL POOL AVOIDANCE & MINIMIZATION MEASURES; WETLAND INVASIVE SPECIES BMPs
7	RARE SPECIES AVOIDANCE AND MINIMIZATION MEASURES
8	TYPICAL DETAILS SHEETS: SELECT BEST MANAGEMENT PRACTICES
9	TYPICAL STRUCTURE CONFIGURATION
10	TYPICAL FOUNDATION AND GROUNDING DETAILS



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NO ADDITIONAL RIGHT-OF-WAY REQUIRED
EXISTING CONFIGURATION VERTICAL LATTICE DESIGN
OF BLOOMFIELD SUBSTATION TO 1.6 MILES LOOKING EAST OF BLOOMFIELD
JUNCTION LOOKING EAST



PROPOSED CONFIGURATION
SINGLE CIRCUIT VERTICAL DESIGN BLOOMFIELD SUBSTATION TO 1.6 MILES
EAST OF BLOOMFIELD JUNCTION LOOKING EAST

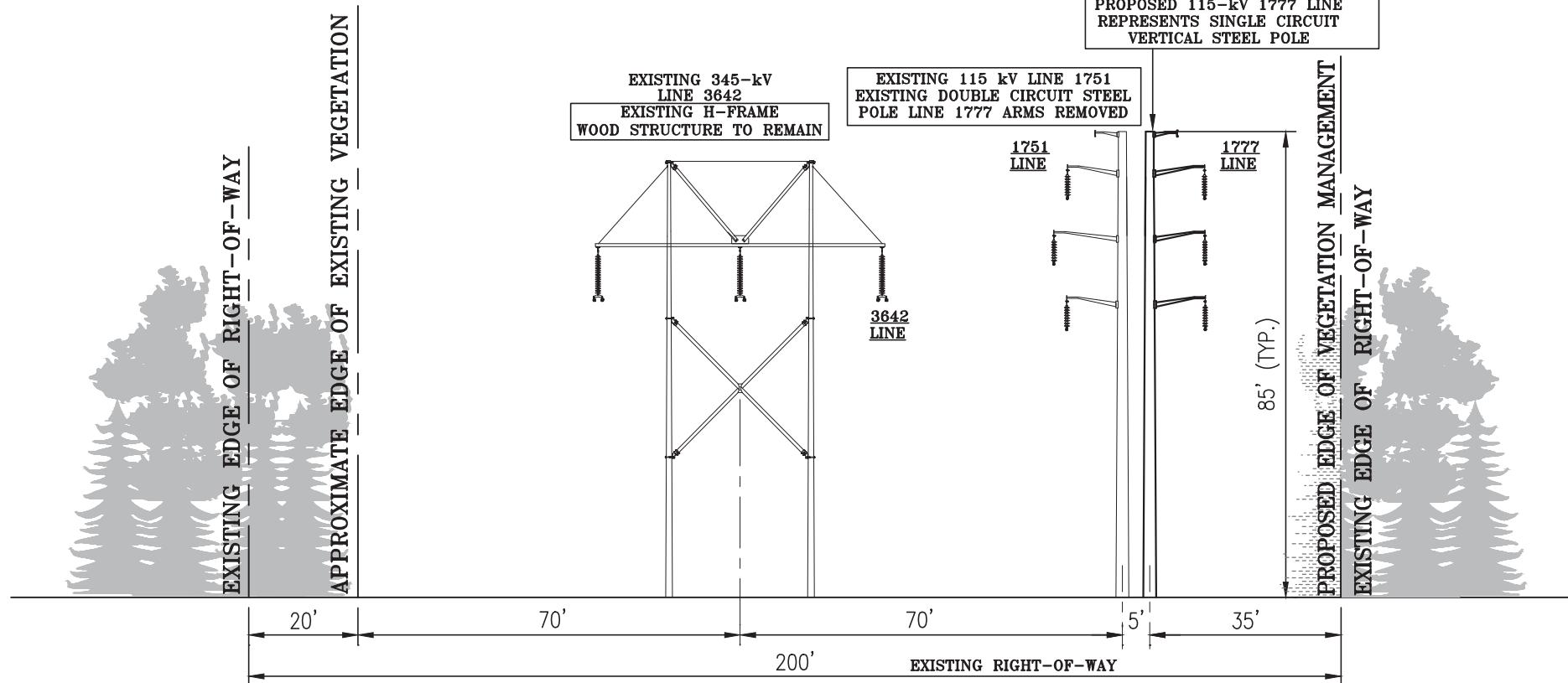
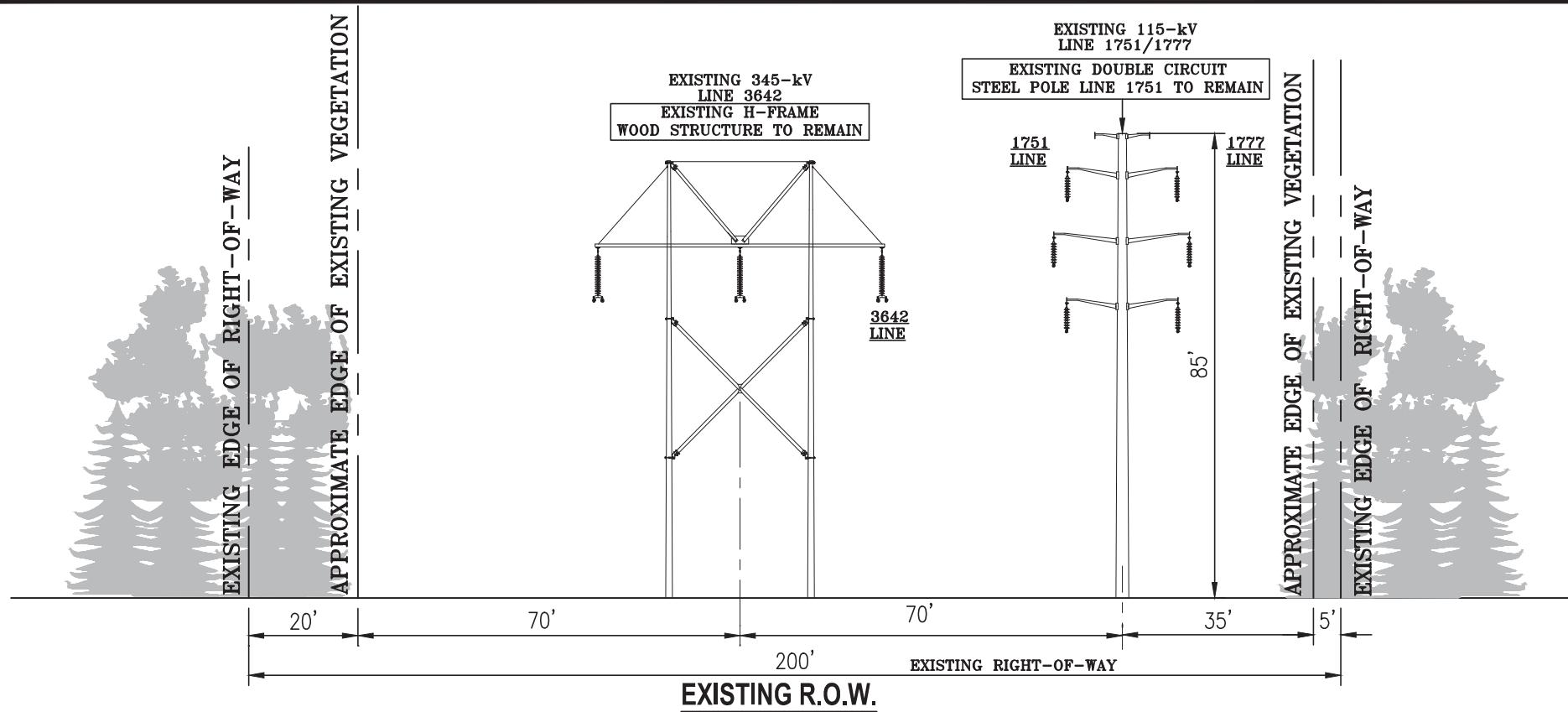
PRELIMINARY

EVERSOURCE ENERGY

**TITLE BLOOMFIELD - WINDSOR LINE UPGRADES
LINE 1777 & LINE 1779 SEPARATION
PROPOSED CROSS SECTION
BLOOMFIELD, CT**

BY	RRH	CHKD	EQ	APP	LL	APP	CPS
DATE	6/10/15	DATE	9/24/15	DATE	7/7/15	DATE	6/15/15
H-SCALE	1"=30'	SIZE	B	FIELD BOOK & PAGES			
V-SCALE	1"=30'	V.S.		R.E. DWG			
R.E. PROJ. NUMBER				DWG NO.		XS-1	

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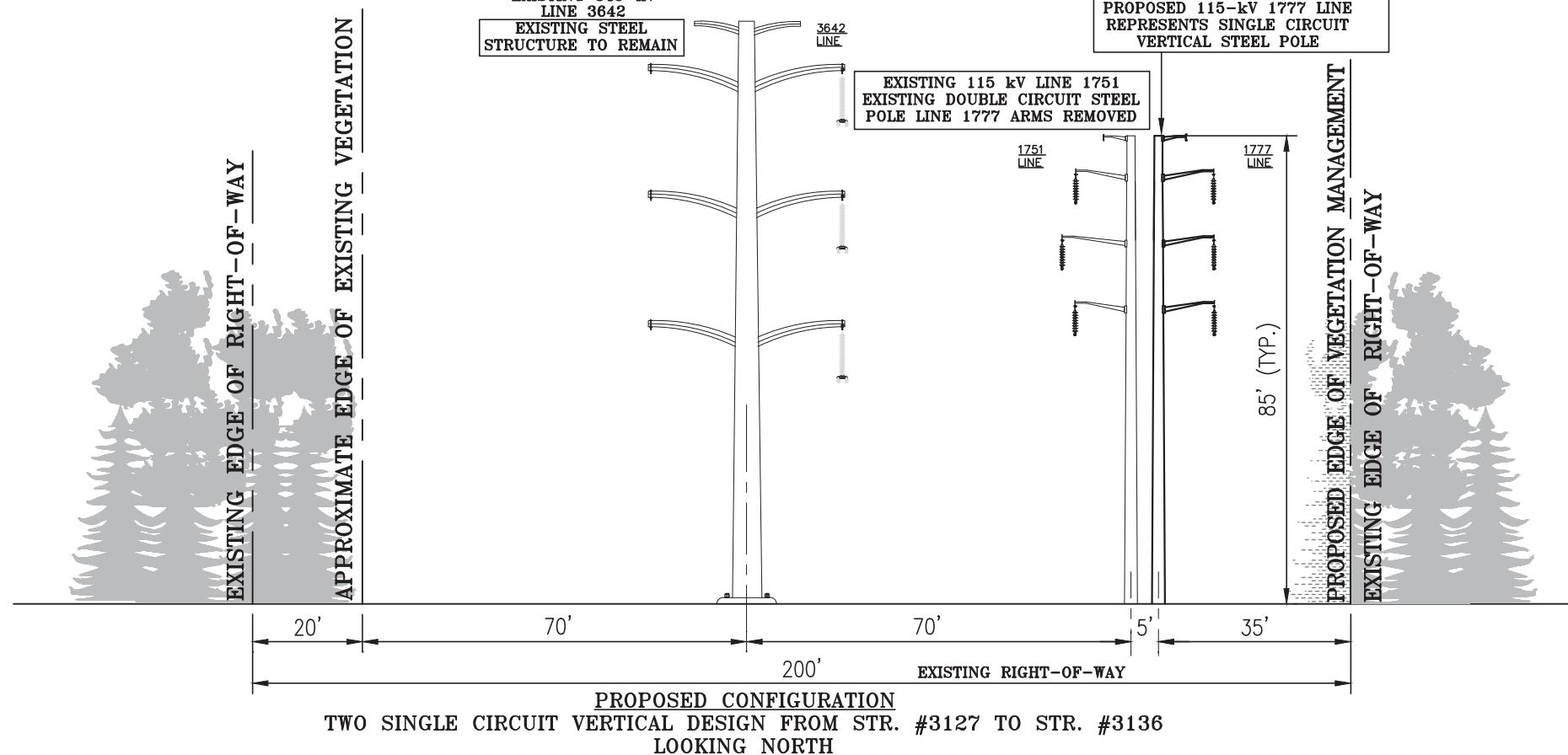
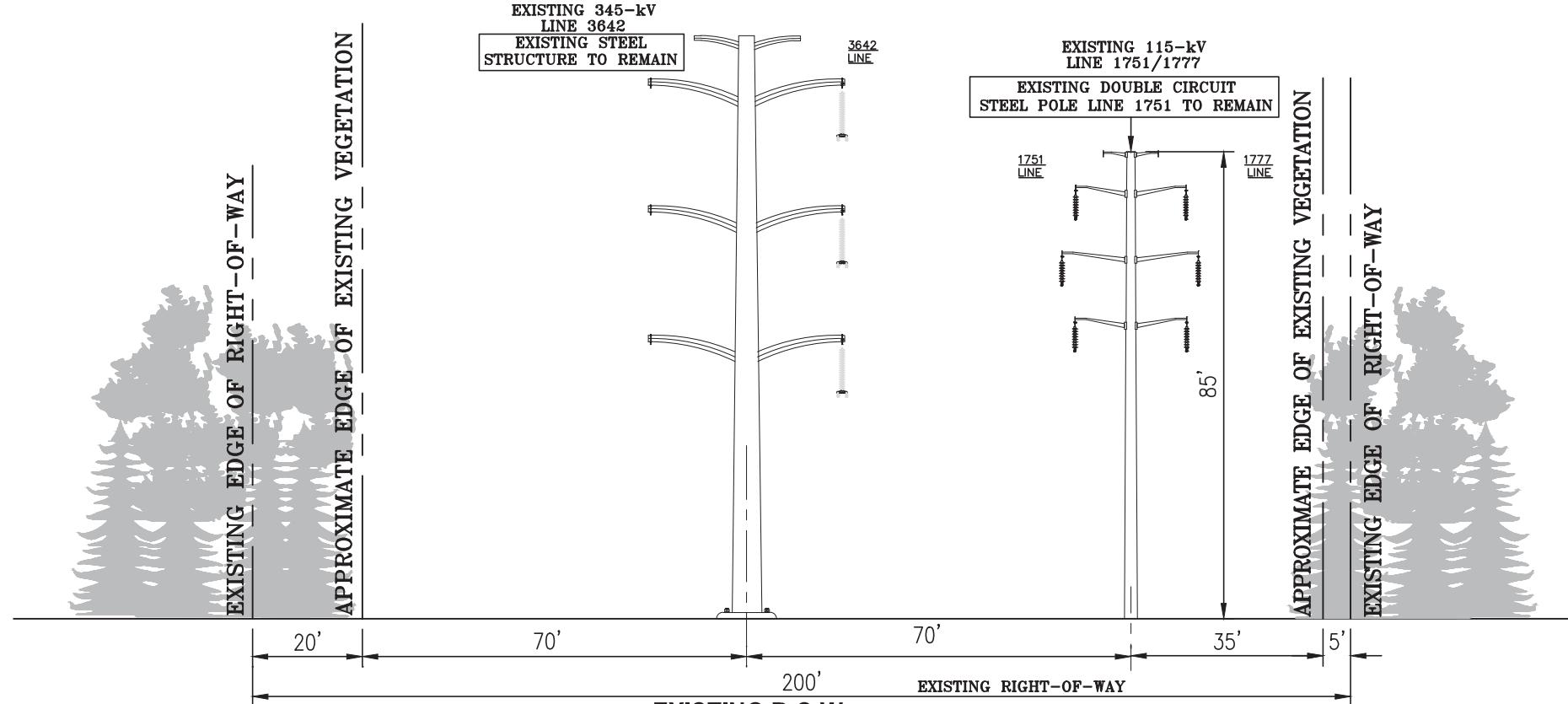
PRELIMINARY

EVERSOURCE ENERGY

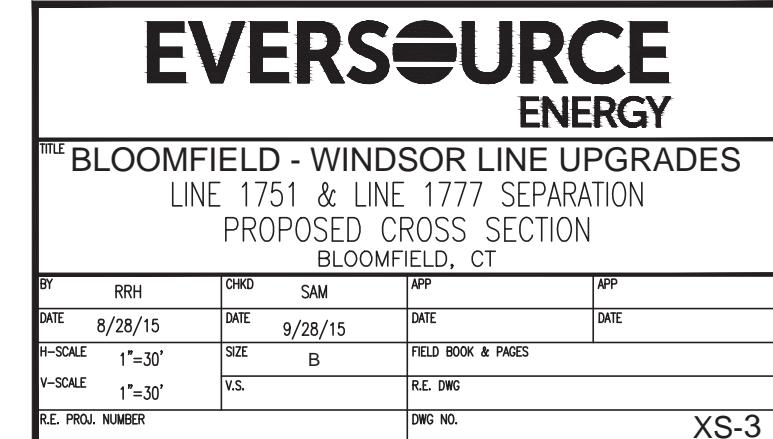
TITLE BLOOMFIELD - WINSOR LINE UPDATES
LINE 1751 & LINE 1777 SEPARATION
PROPOSED CROSS SECTION
BLOOMFIELD, CT

BY	RRH	CHKD	EQ	APP	SAM	APP	CPS
DATE	5/9/15		9/24/15		8/28/15		6/15/15
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V-SCALE	1"=30'		V.S.		R.E. DWG		
R.E. PROJ. NUMBER					DWG NO.		

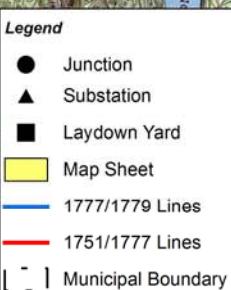
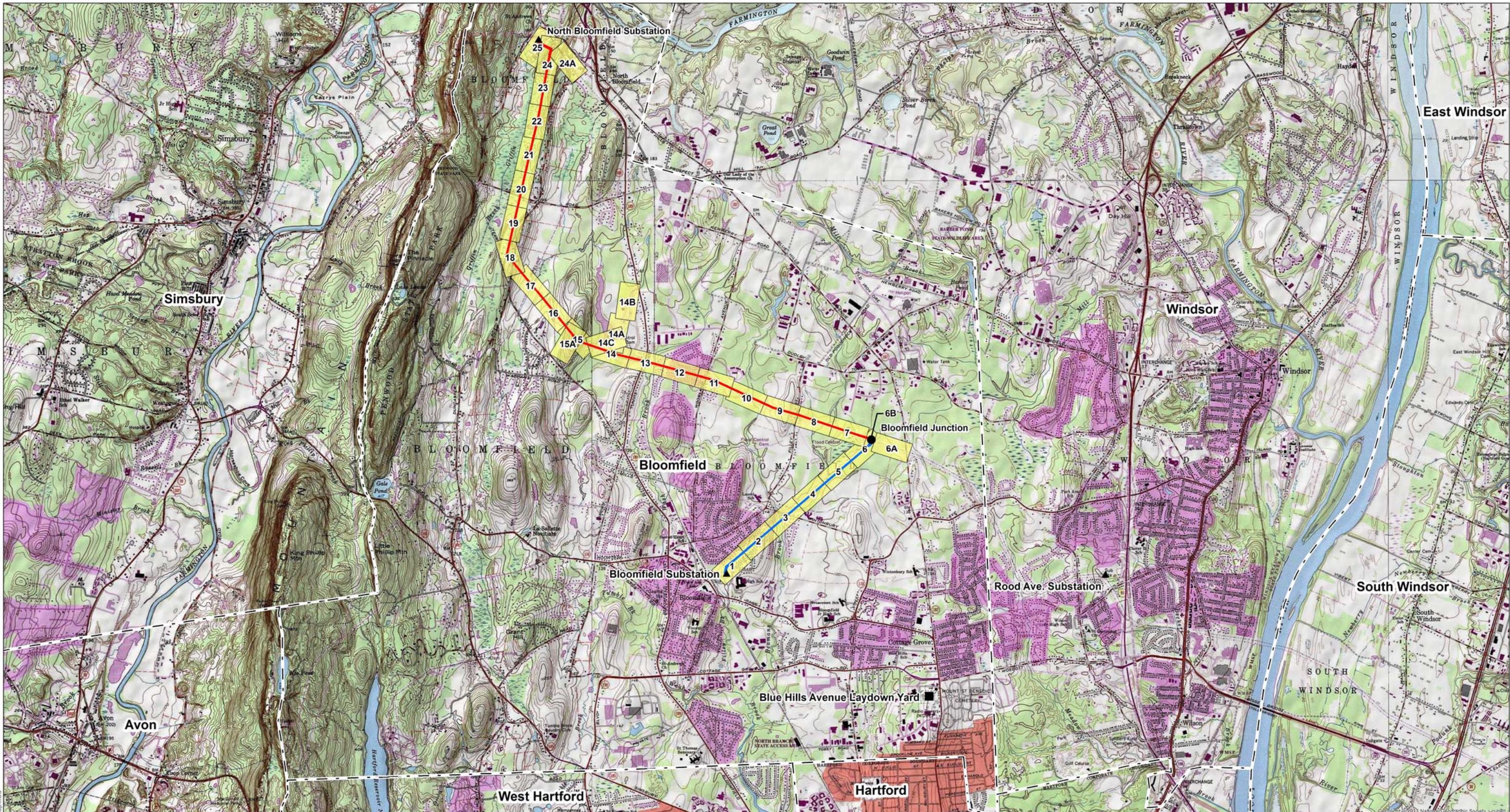
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PRELIMINARY



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* Development and Management Plans for substation modification work at the Bloomfield Substation (40 Crestview Drive, Bloomfield, CT), North Bloomfield Substation (2 Hoskins Road, Bloomfield, CT) and substation/ Line Loop work at the Rood Avenue Substation parcel (275 Rood Avenue, Windsor, CT) are submitted under separate cover

Bloomfield - Windsor Upgrades Project

Proposed Modifications to:
 1777/1779 Transmission Line Upgrades Between Bloomfield Substation and Bloomfield Junction
 1751/1777 Transmission Line Upgrades Between Bloomfield Junction and North Bloomfield Substation

Bloomfield, Connecticut*

Linear Units: Foot US
 Datum: North American 1983
 Projection: Lambert Conformal Conic
 Coordinate System: NAD 1983 StatePlane
 Connecticut FIPS 0600 Feet
 Datalayers and Imagery: USGS Earth Explorer,
 CT DEEP GIS, UCONN MAGIC, UCONN CLEAR,
 Google Earth Imagery, Eversource.

0 1,900 3,800
 Scale in Feet
 1:24,000



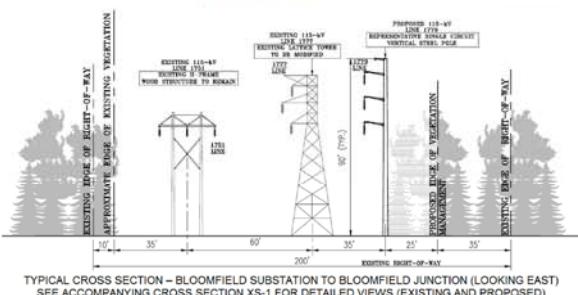
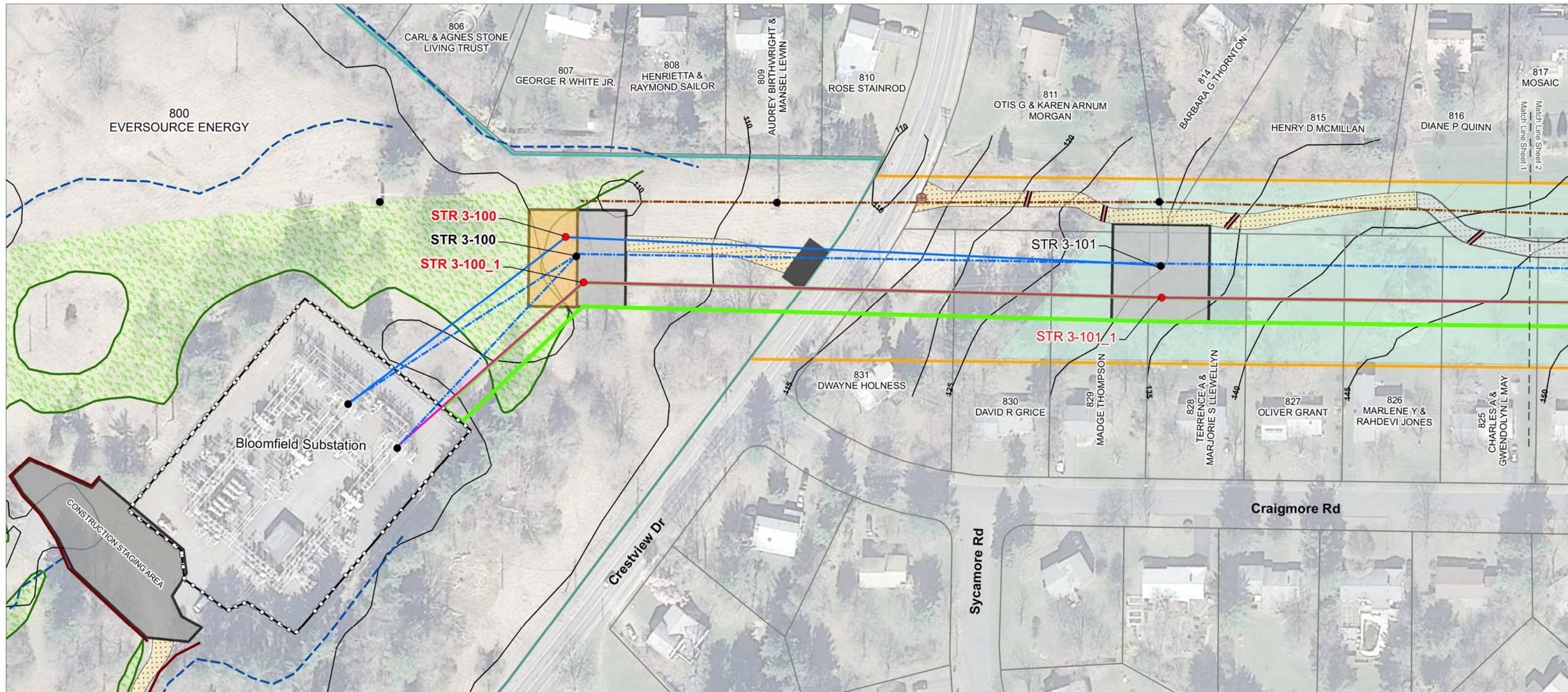
Revised: 7/29/2016

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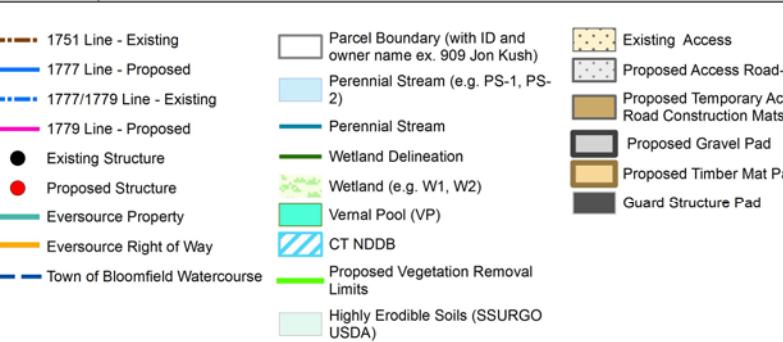
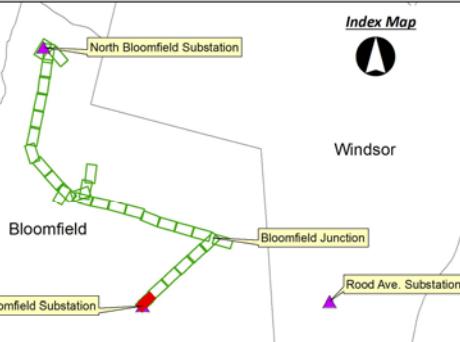
Index Map - Sheet 1

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Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the Detail Sheets. Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners. Information regarding the construction of the Project modifications at the substation is provided in the Bloomfield-Windsor Upgrades Project Substation D&M Plans, submitted under separate cover. Limits of disturbance may extend beyond the depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.

STR #	DESCRIPTION	HEIGHT (FT)	FINISH	FOUNDATION
3-100	Single Circuit Steel Monopole	95	Galvanized	Drilled Shaft
3-100_1	Single Circuit Steel Monopole	95	Galvanized	Drilled Shaft
3-101_1	Single Circuit Steel Monopole	93.5	Galvanized	Direct Embed



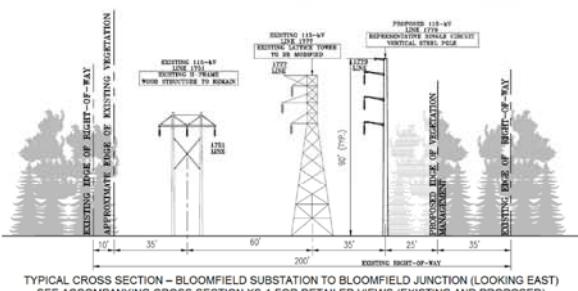
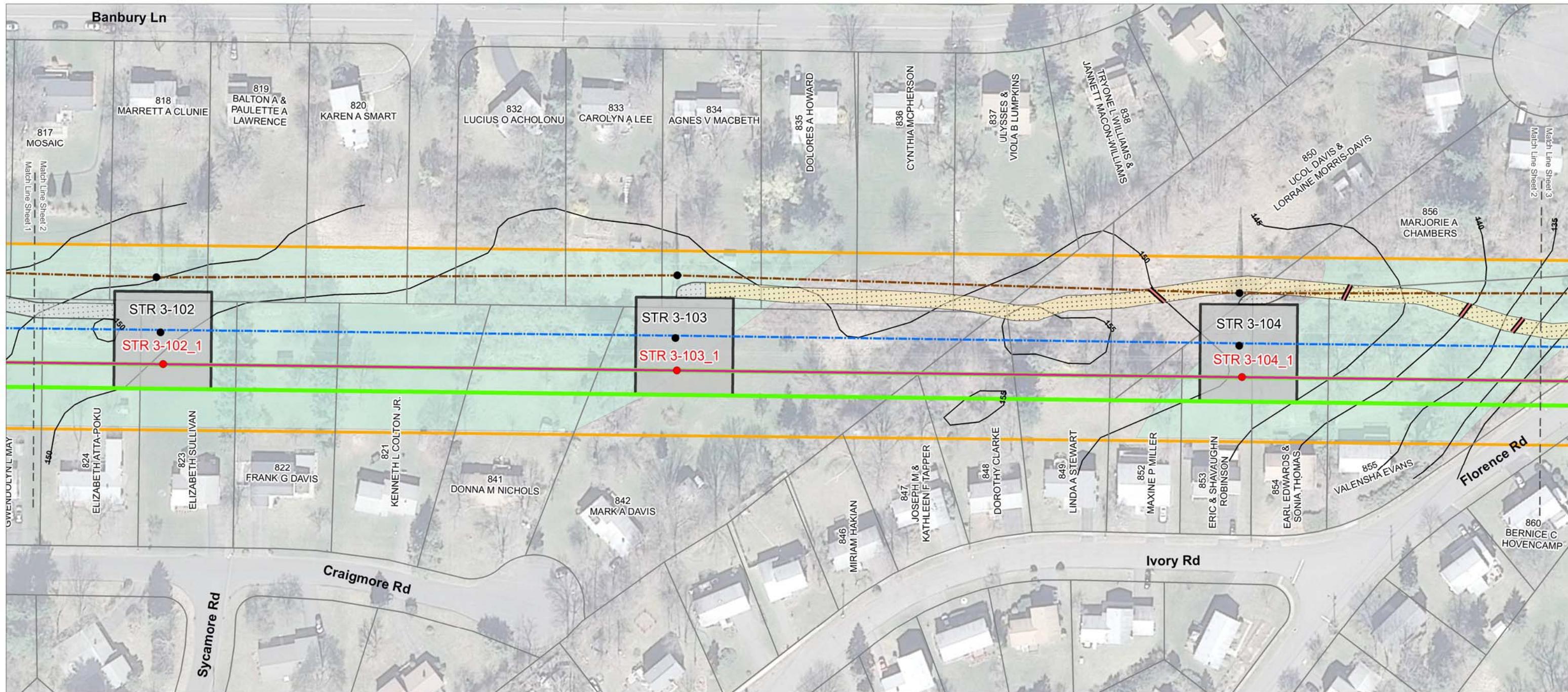
BLOOMFIELD-WINDSOR UPGRADES PROJECT
1777/1779 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer,
CT DEEP GIS, UCONN MAGIC, UCONN CLEAR,
Google Earth Imagery, Eversource, NRCS Soils

Scale in Feet
0 50 100
N

EVERSOURCE

AECOM



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- 1751 Line - Existing
- 1777/1779 Line - Existing
- 1779 Line - Proposed
- Existing Structure
- Proposed Structure
- Eversource Property



Parcel Boundary (with ID and owner name ex. 909 Jon Kus



Perennial Stream (e.g. PS-1, 2)



Perennial Stream



Wetland Delineation



Wetland (e.g. W1, W2)

-  FEMA 100-Year Flood Zone
-  FEMA Floodway
-  Silt Fence
-  Water Bars
-  Vehicle Tracking Pad Location
-  Existing Culvert
-  Stream Flow Direction

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalyasers and Imagery: USGS Earth Explorer
CT DEEP GIS, UCONN MAGIC, UCONN CL
Google Earth Imagery, Eversource, NRCS Soil

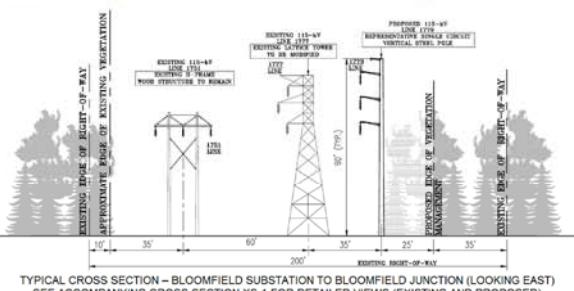
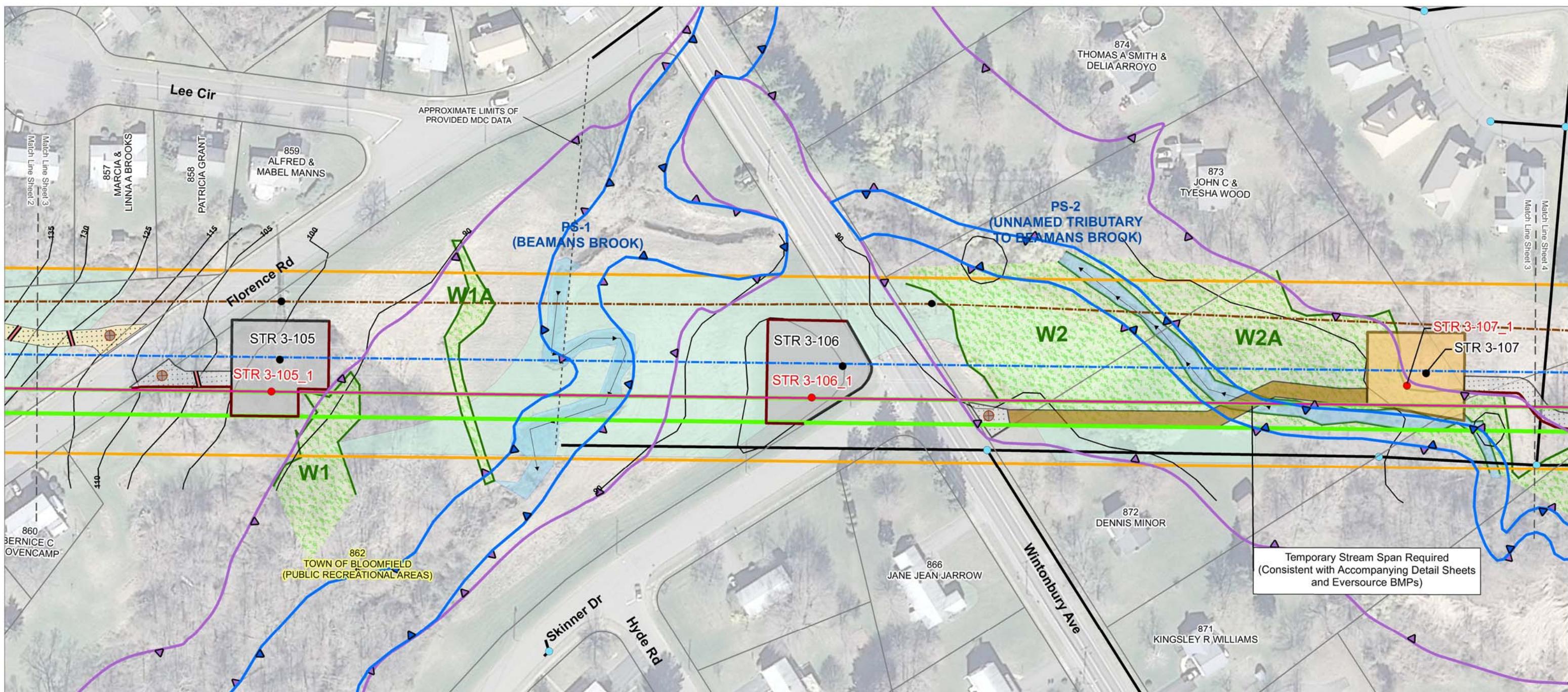


Revised: 8/16/2016

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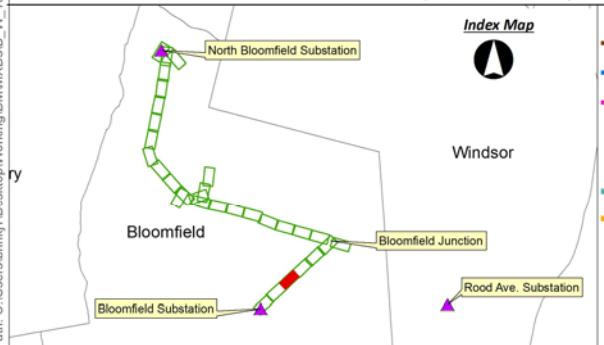
Sheet 2 of 25



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Legend for the site plan:

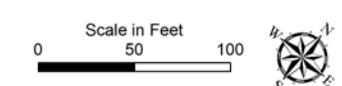
- 1751 Line - Existing
- 1777/1779 Line - Existing
- 1779 Line - Proposed
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access
- Proposed Access Roads
- Proposed Temporary Roads
- Road Construction
- Proposed Gravel Pad
- Proposed Timber Mat
- MDC Sanitary Sewer
- MDC Sewer Line

- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer
CT DEEP GIS, UCONN MAGIC, UCONN C
Google Earth Imagery, Eversource, NRCS S

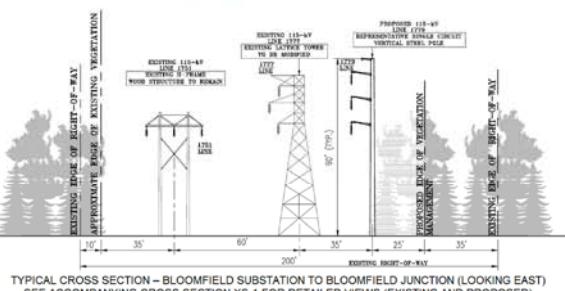
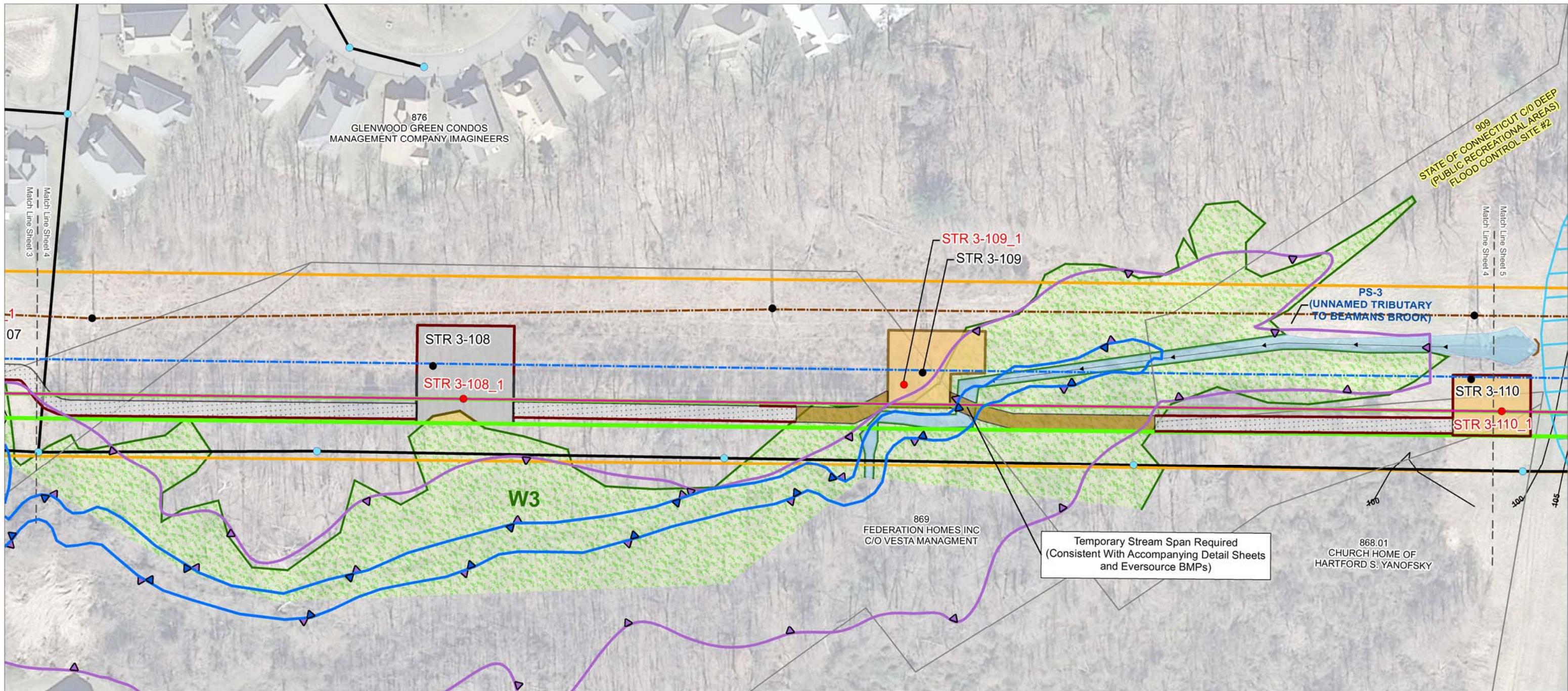


Revised: 8/16/2016

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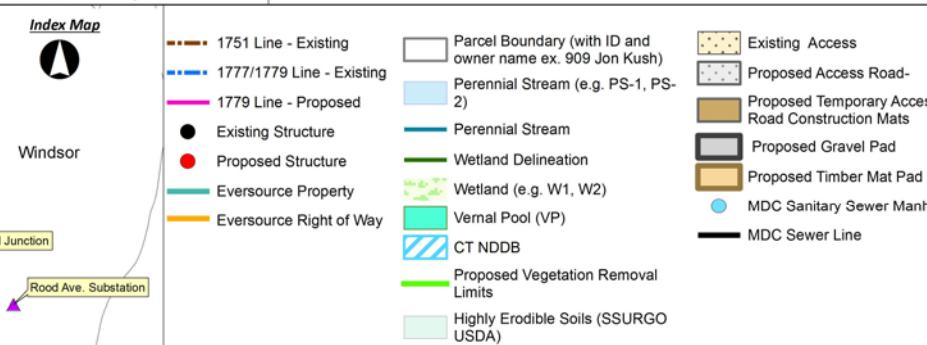
Sheet 3 of 25



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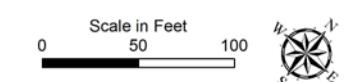
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BLOOMFIELD-WINDSOR UPGRADES PROJECT

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
BLOOMFIELD, CT

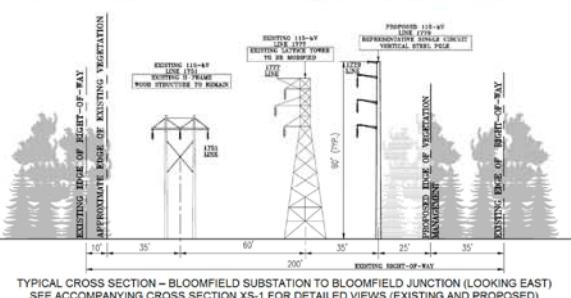
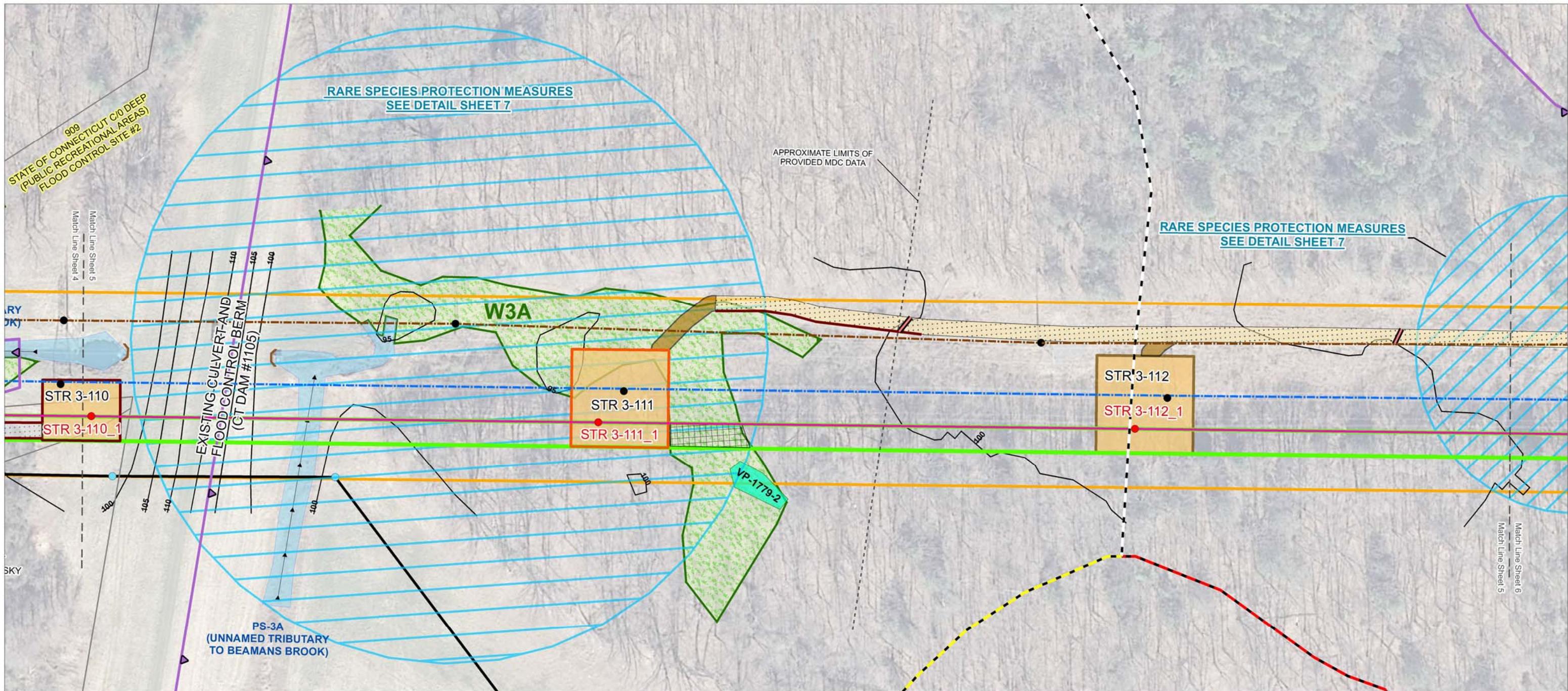
Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalyers and Imagery: USGS Earth Explorer,
CT DEEP GIS, UCONN MAGIC, UCONN CLEAR
Google Earth Imagery, Eversource, NRCS Soils



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Sheet 4 of 25

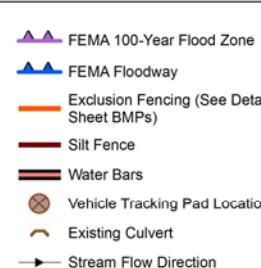
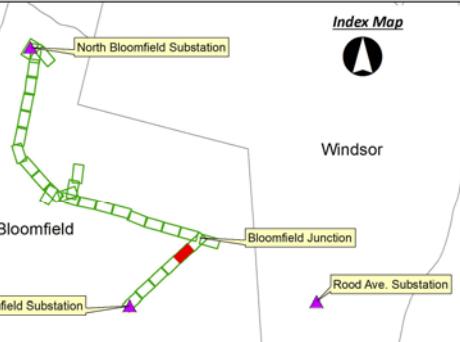


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3-111_1	Single Circuit Steel Monopole	93.5	Galvanized	Direct Embed
3-112_1	Single Circuit Steel Monopole	79	Galvanized	Direct Embed

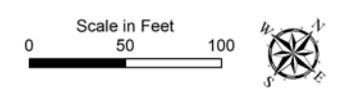


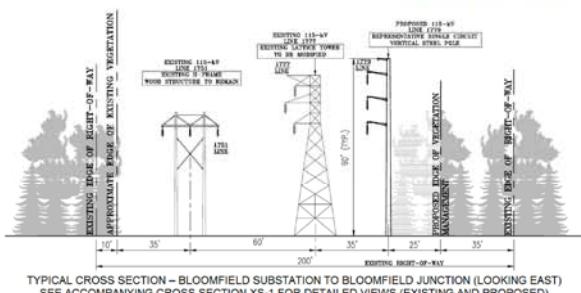
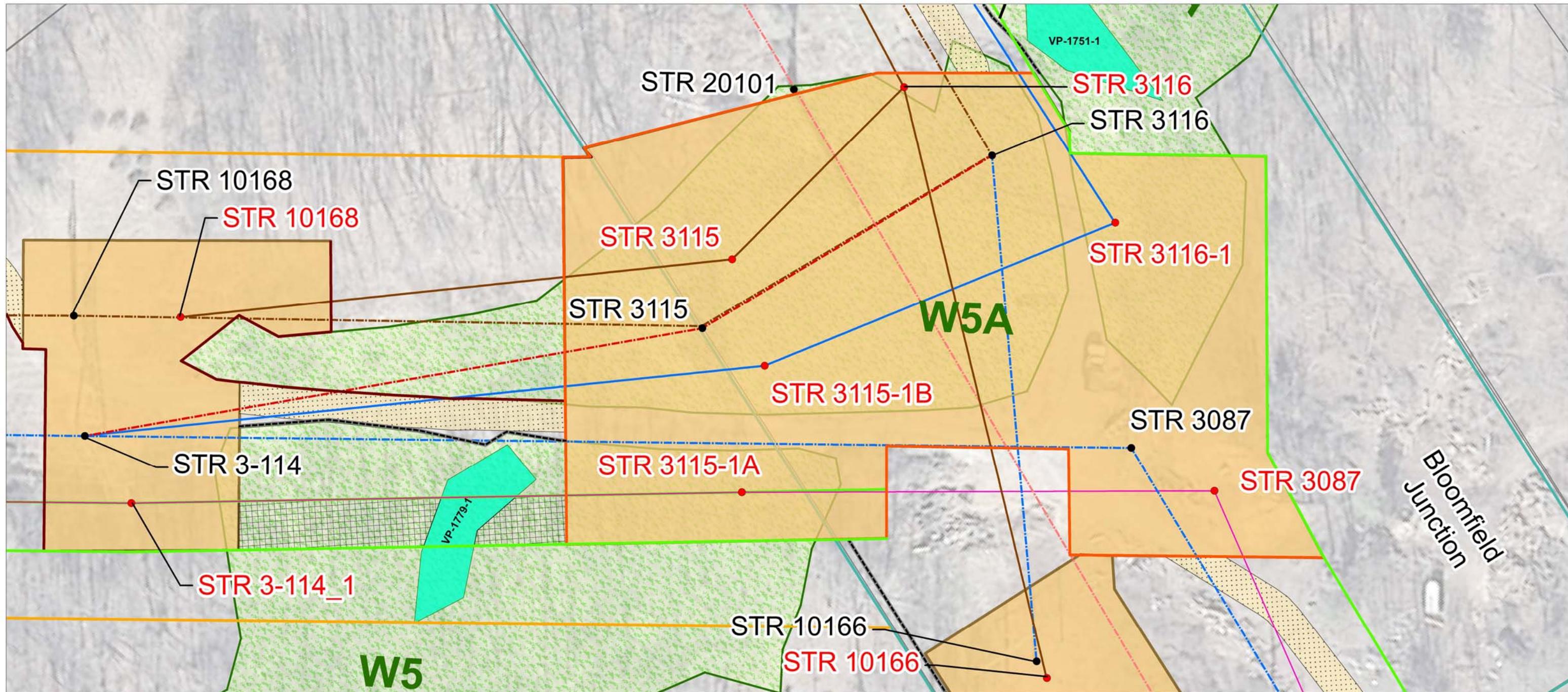
BLOOMFIELD-WINDSOR UPGRADES PROJECT

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION BLOOMFIELD, CT

EVERSOURCE

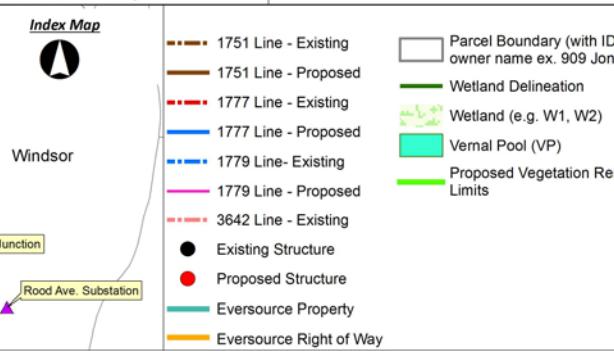
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Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets. Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners. Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.

STR #	DESCRIPTION	HEIGHT (FT)	FINISH	FOUNDATION
3087	Single Circuit Steel Monopole (3-POLE)	65	Galvanized	Drilled Shaft
10166	Single Circuit Steel Monopole (3-POLE)	52	Weathering Steel	Dir. Emb Guyed
10168	Single Circuit Steel Monopole (3-POLE)	65.5	Weathering Steel	Dir. Emb Guyed
3-114-1	Single Circuit Steel Monopole	80	Galvanized	Drilled Shaft
3115	Single Circuit Steel Monopole (3-POLE)	80	Weathering Steel	Drilled Shaft
3115-1A	Single Circuit Steel Monopole (3-POLE)	65	Galvanized	Drilled Shaft
3115-1B	Single Circuit Steel Monopole (3-POLE)	80	Weathering Steel	Drilled Shaft
3116	Single Circuit Steel Monopole (3-POLE)	60	Weathering Steel	Drilled Shaft
3116-1	Single Circuit Steel Monopole (3-POLE)	55	Weathering Steel	Drilled Shaft



BLOOMFIELD-WINDSOR UPGRADES PROJECT

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
1751/1777 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer, CT DEEP GIS, UCONN MAGIC, UCONN CLEAR, Google Earth Imagery, Eversource.

0 Scale in Feet 25 50

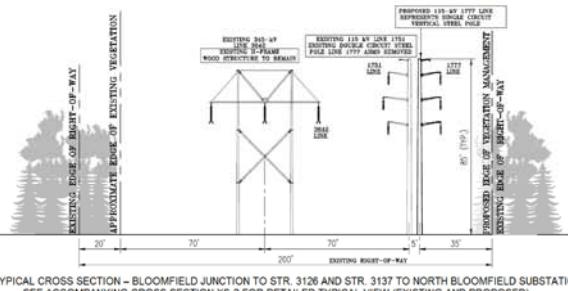
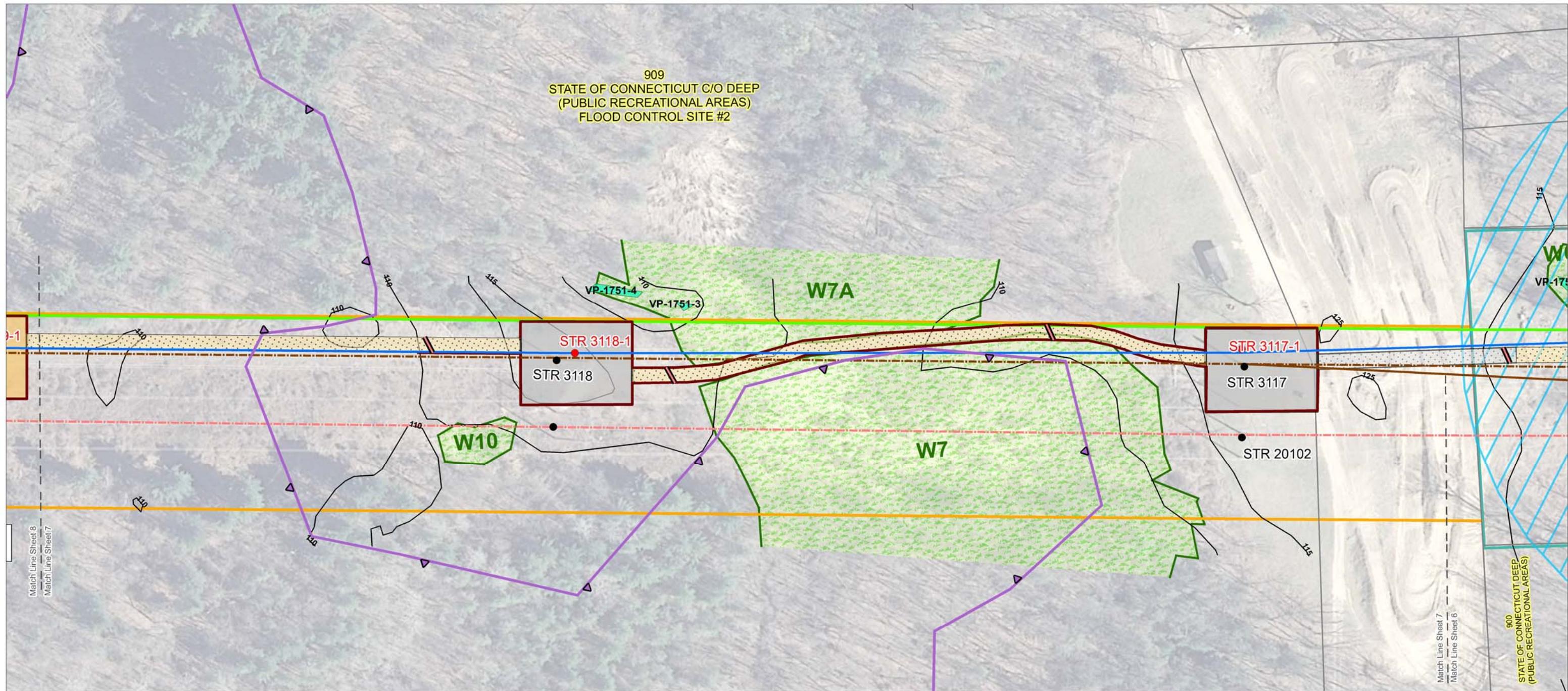


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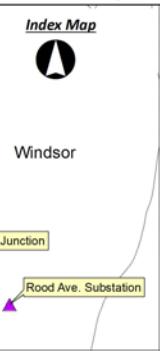
Sheet 6B



Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners.

Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.



Legend:

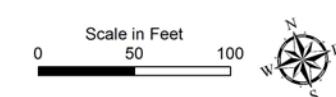
- 1751/1777 Line - Existing
- 1751 Line - Proposed
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kus)
- Perennial Stream (e.g. PS-1, 2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDA Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)

The legend is divided into two columns. The left column contains six items with corresponding colored squares: 'Existing Access Road' (light blue), 'Proposed Access Road-Gravel' (light grey), 'Proposed Temporary Access Road Construction Mats' (tan), 'Proposed Gravel Pad' (light grey), and 'Proposed Timber Mat Pad' (tan). The right column contains five items with corresponding symbols: 'FEMA 100-Year Flood Zone' (purple triangle), 'FEMA Floodway' (blue triangle), 'Silt Fence' (red line), 'Water Bars' (black line), and 'Vehicle Tracking Pad Location' (red circle with a white 'X'). Below the legend, two additional symbols are shown: 'Existing Culvert' (orange arrow) and 'Stream Flow Direction' (grey arrow).

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

Source: Foot US
North American 1983
Lambert Conformal Conic
System: NAD 1983 StatePlane
UTM FIPS 0600 Feet
and Imagery: USGS Earth Explorer,
GIS, UCONN MAGIC, UCONN CLEA
Earth Imagery, Eversource, NRCS Soils

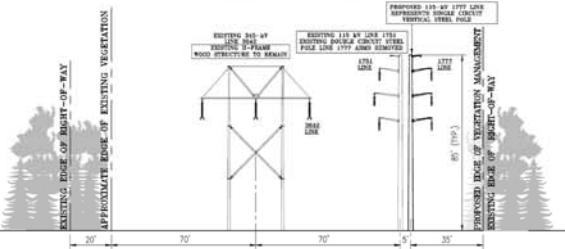
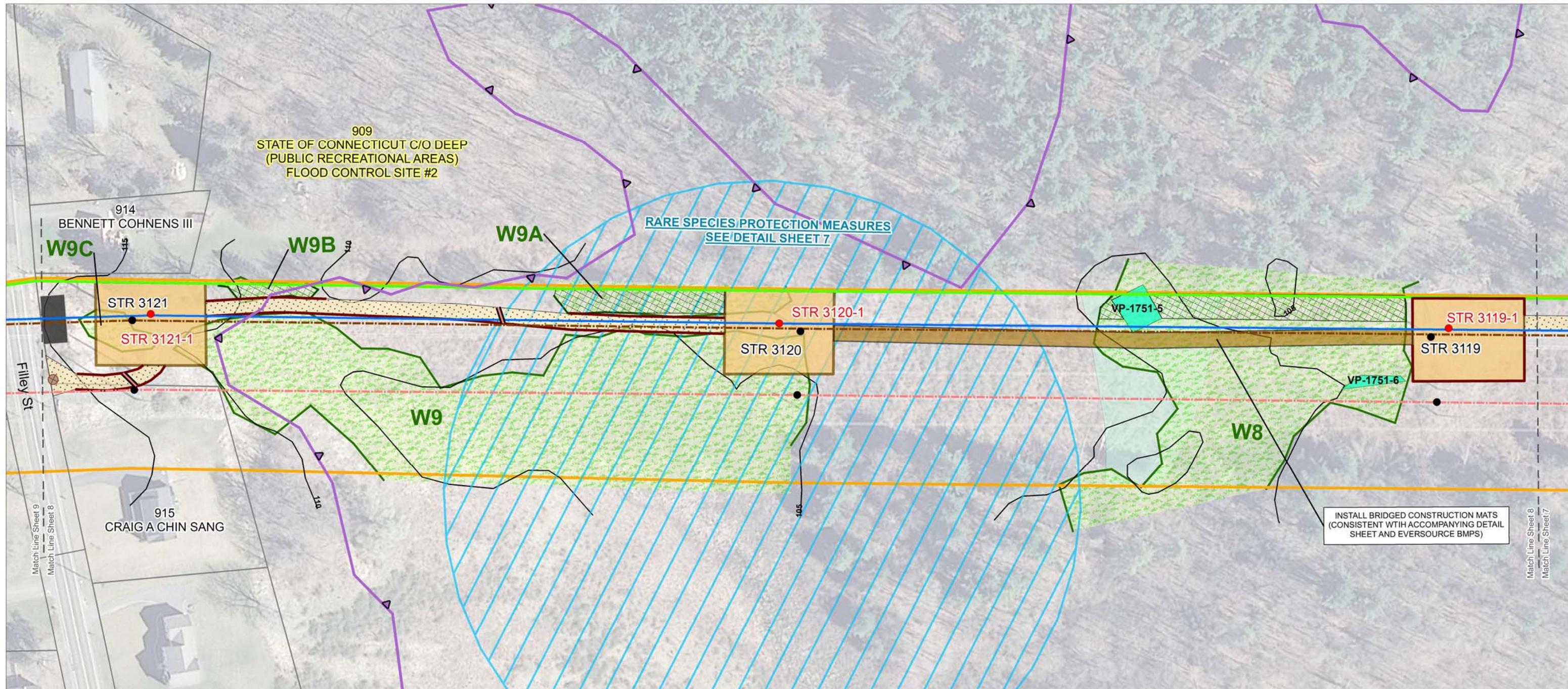


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Sheet 7 of 25

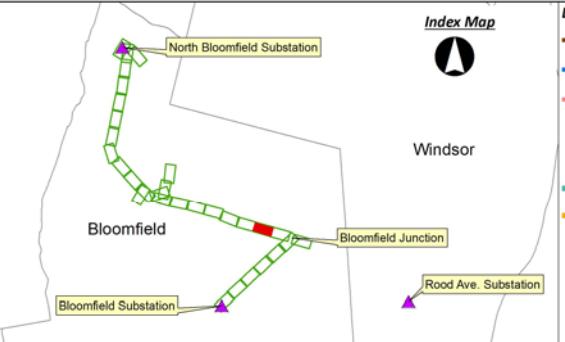


TYPICAL CROSS SECTION - BLOOMFIELD JUNCTION TO STR. 3126 AND STR. 3137 TO NORTH BLOOMFIELD SUBSTATION
SEE ACCOMPANYING CROSS SECTION XS-2 FOR DETAILED PICTURAL VIEW (EXISTING AND PROPOSED)

Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners.

Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.



Legend:

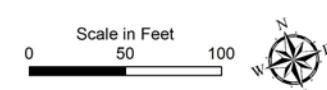
- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road-Gr
- Proposed Temporary Acces
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- As necessary for tree
- Guard Structure Pad

- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

BLOOMFIELD-WINDSOR UPGRADES PROJECT

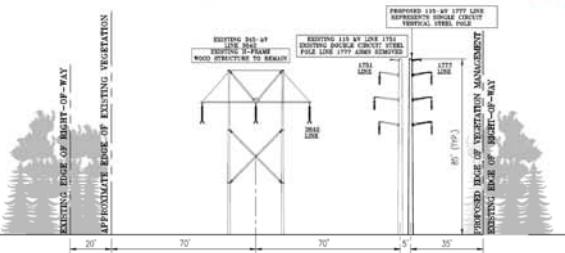
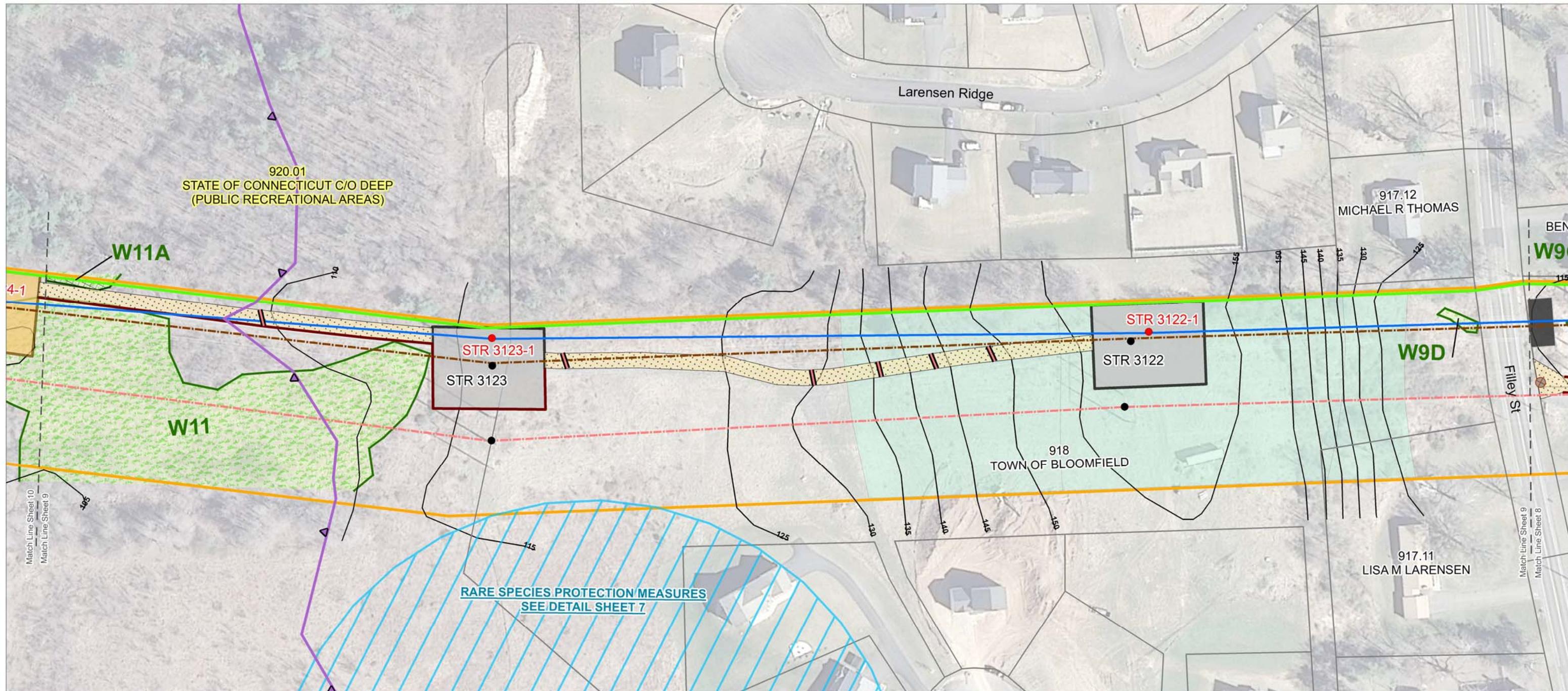
1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer,
CT DEEP GIS, UCONN MAGIC, UCONN CLEA
Google Earth Imagery, Eversource, NRCS Soils



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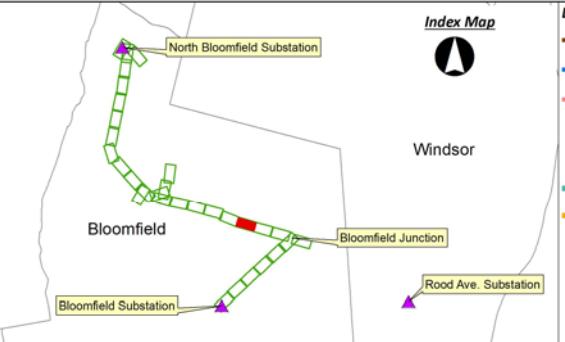


TYPICAL CROSS SECTION - BLOOMFIELD JUNCTION TO STR. 3126 AND STR. 3137 TO NORTH BLOOMFIELD SUBSTATION
SEE ACCOMPANYING CROSS SECTION XS-2 FOR DETAILED TYPICAL VIEW (EXISTING AND PROPOSED)

Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

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Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.



Legend:

- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road-Gr
- Proposed Temporary Acces
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- As necessary for tree
- Guard Structure Pad

- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

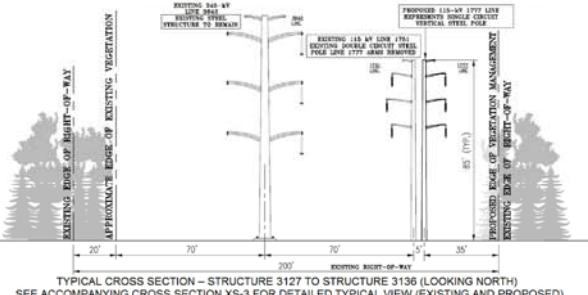
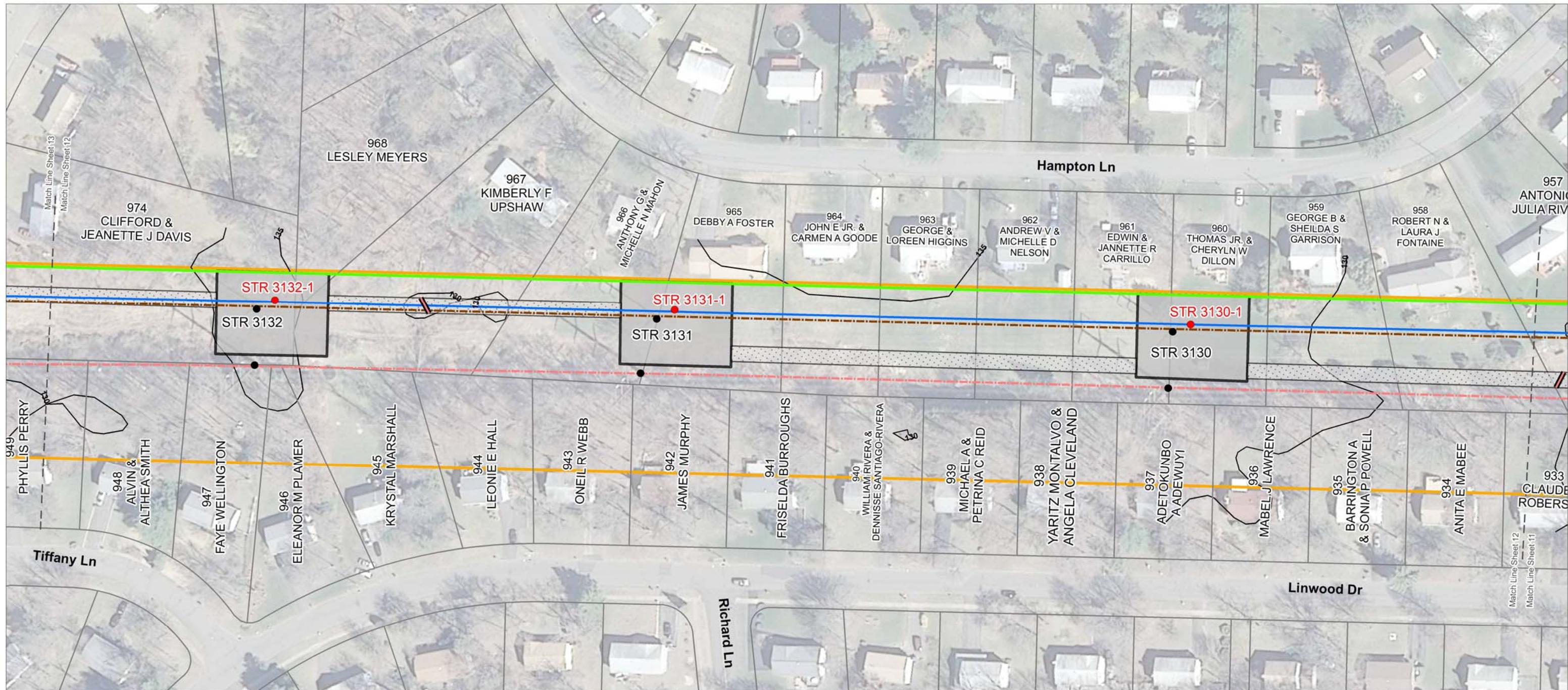
Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer
CT DEEP GIS, UCONN MAGIC, UCONN
Google Earth Imagery, Eversource, NRCS

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

EVERSOURCE

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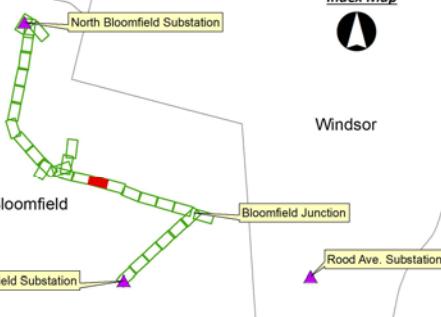
Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

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Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.

STR #	DESCRIPTION	HEIGHT (FT)	FINISH	FOUNDATION
3130-1	Single Circuit Steel Monopole	84	Weathering Steel	Direct Embed
3131-1	Single Circuit Steel Monopole	84	Weathering Steel	Direct Embed
3132-1	Single Circuit Steel Monopole	75	Weathering Steel	Direct Embed

Index Map



Legend:

- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road-Gravel
- Proposed Temporary Access Road Construction Mats
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

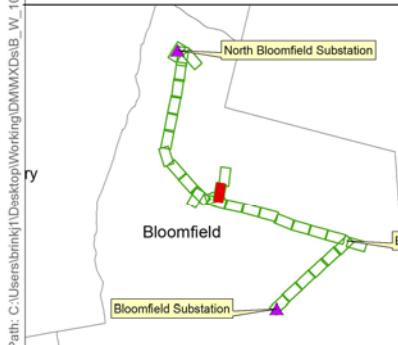
BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

EVERSOURCE



Notes: Wetlands and Watercourses identified Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the Detail Sheets. Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, onsite resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners. At CT Dam #1114, a spillway crossing is proposed above the existing bridge. An abutment to abutment span is proposed using rail car chassis or similar. Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, and BMPs, including exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.



Index Me

Legend:

- Proposed Structure
- Eversource Property
- Eversource Right of Way

- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)

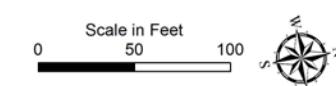


- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalyers and Imagery: USGS Earth Explorer,
CT DEEP GIS, UCONN MAGIC, UCONN CLEAR
Google Earth Imagery, Eversource, NRCS Soils

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT



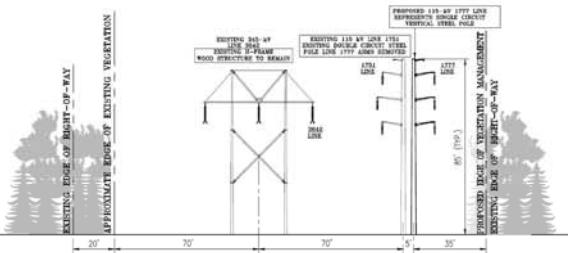
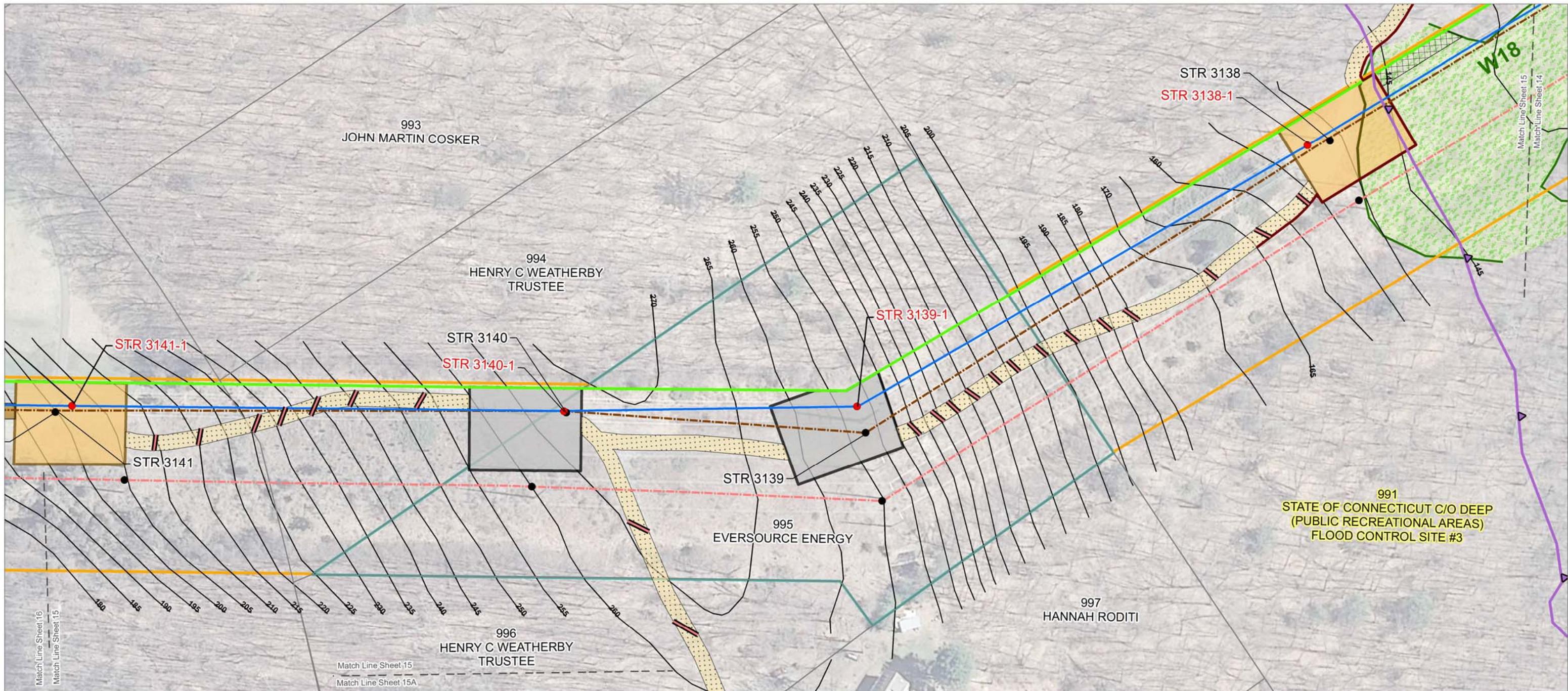
Revised: 8/16/2016

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Sheet 14A of 25





Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

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Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate, and may vary based on need and in-field conditions.



Legend:

- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road-Gravel
- Proposed Temporary Access Road Construction Mats
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- Proposed Timber Mat Pad
- As necessary for tree trimming/clearing

- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

EVERSOURCE

AECOM

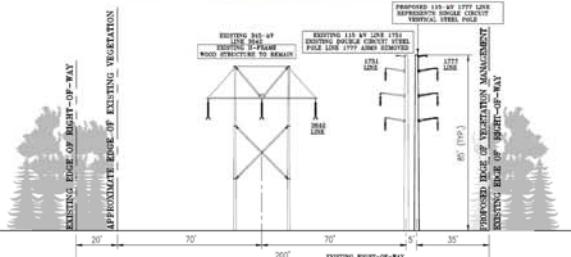
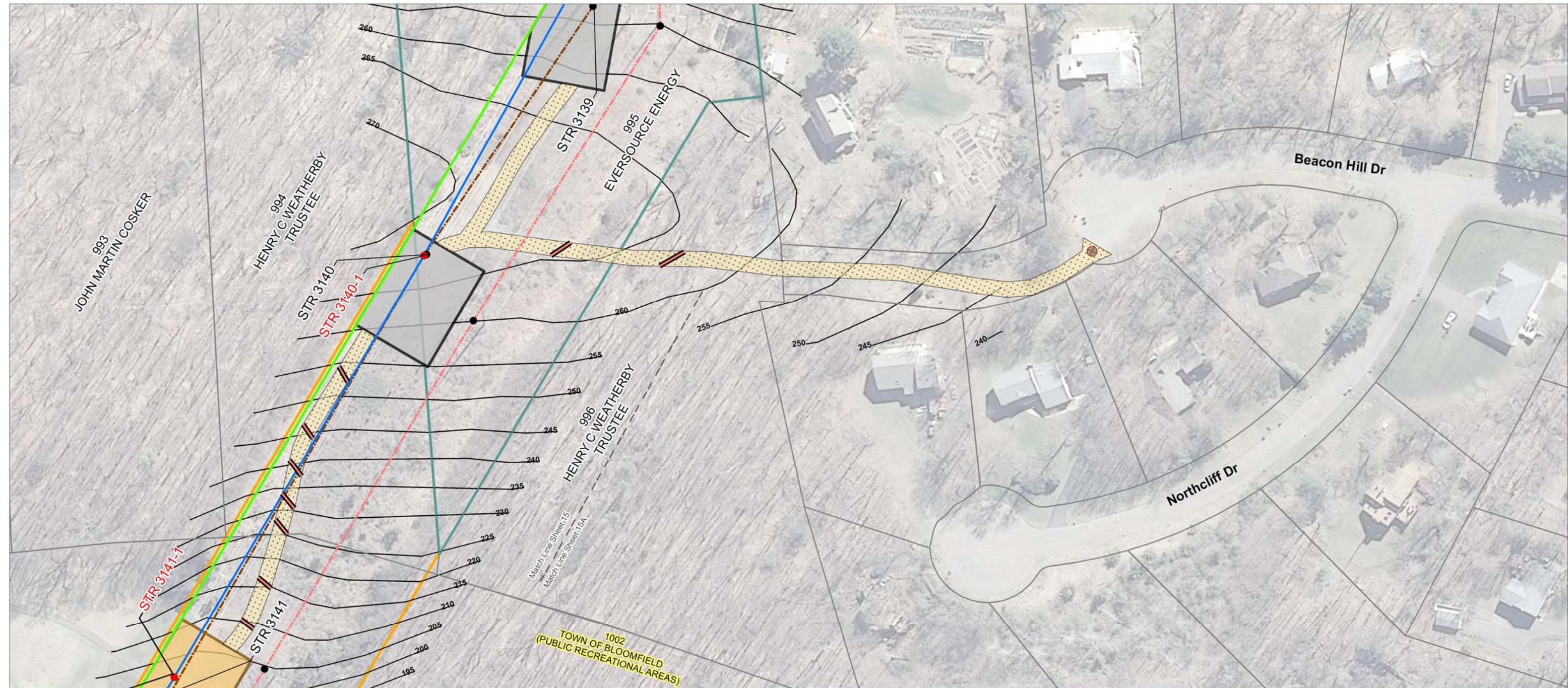
Revised: 8/16/2016

Sheet 15 of 25

Revised: 8/16/2016

Sheet 15 of 25

Revised: 8/16/2016

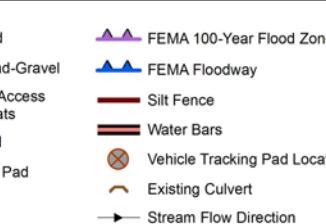
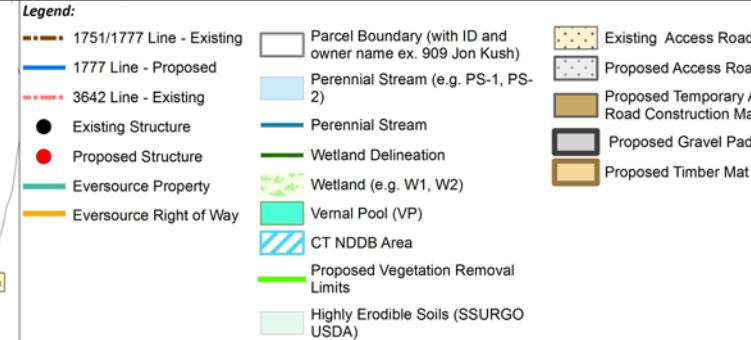
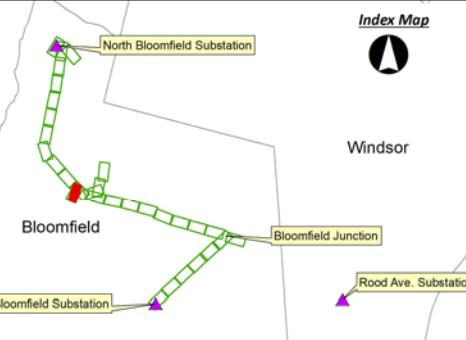


TYPICAL CROSS SECTION - BLOOMFIELD JUNCTION TO STR. 3126 AND STR. 3137 TO NORTH BLOOMFIELD SUBSTATION
SEE ACCOMPANYING CROSS SECTION XS-2 FOR DETAILED TYPICAL VIEW (EXISTING AND PROPOSED)

Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

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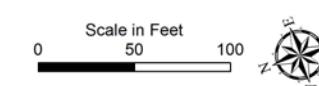
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BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer
CT DEEP GIS, UCONN MAGIC, UCONN C
Google Earth Imagery, Eversource, NRCS S

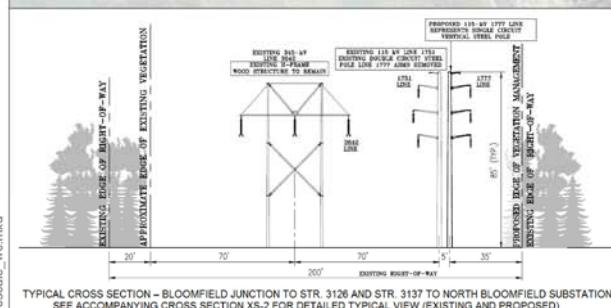
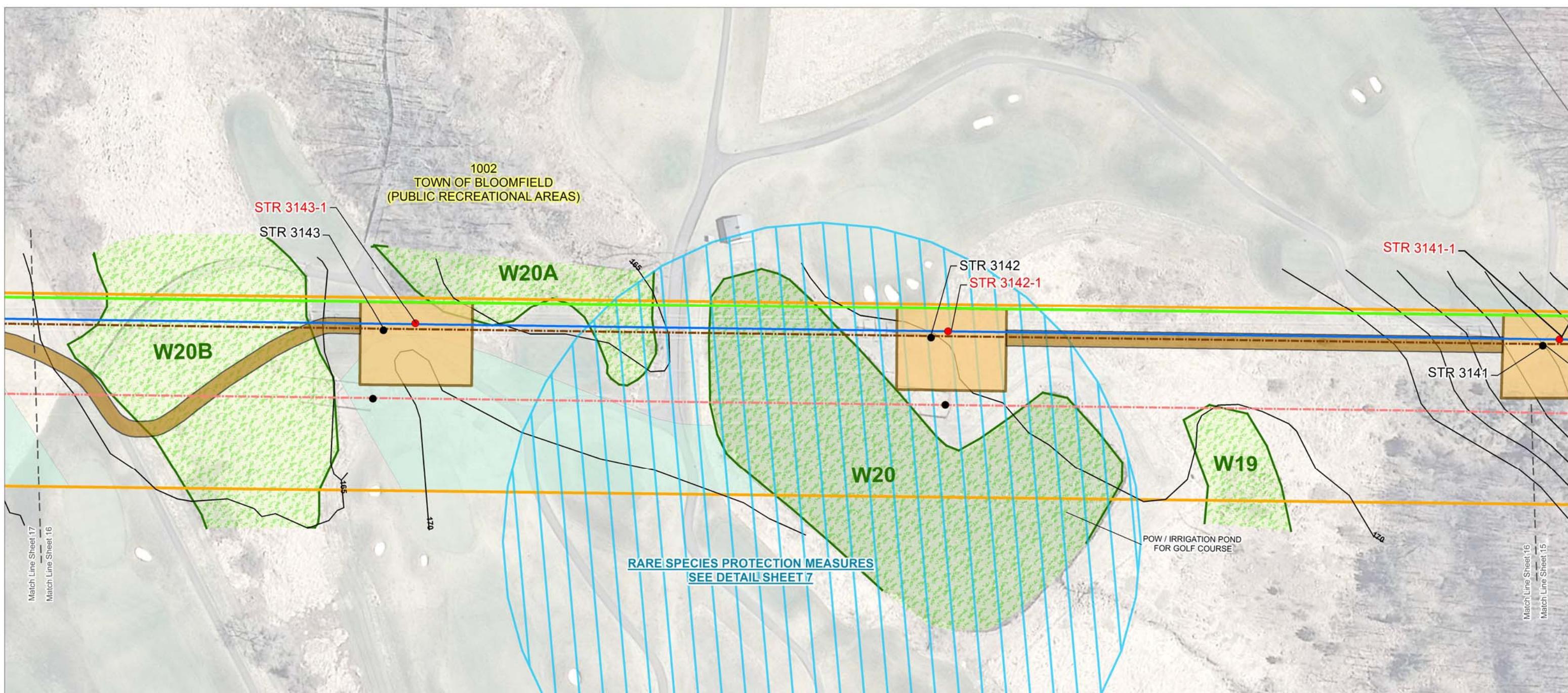


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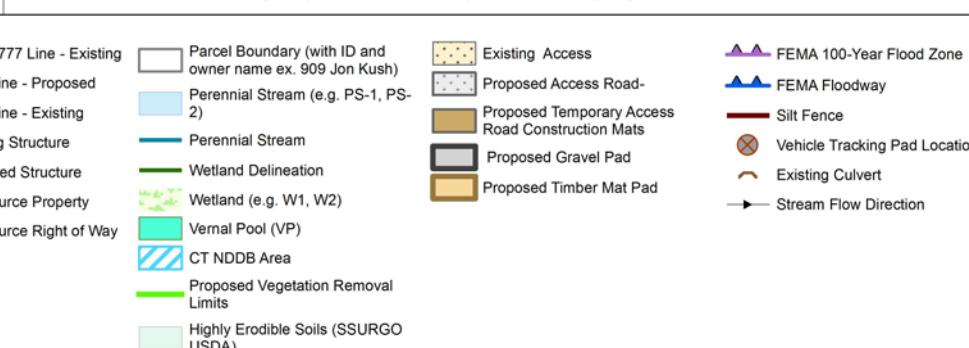
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Sheet 15A of 25



Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. See accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the Detail Sheets. Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, onsite resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners. Special restrictions are in place for Wintonbury Golf Course, including timber mat use and Time Year restrictions allowing work during the off-season (Thanksgiving Day and April 1st.).

Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs, and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate, and may vary based on need and in-field conditions.



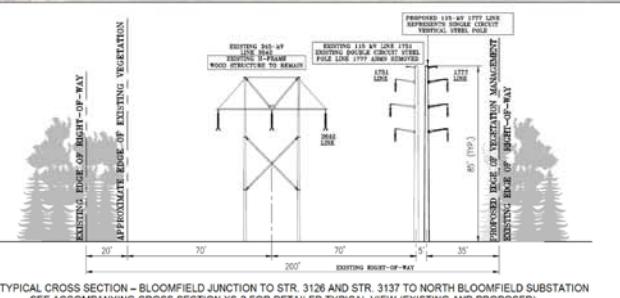
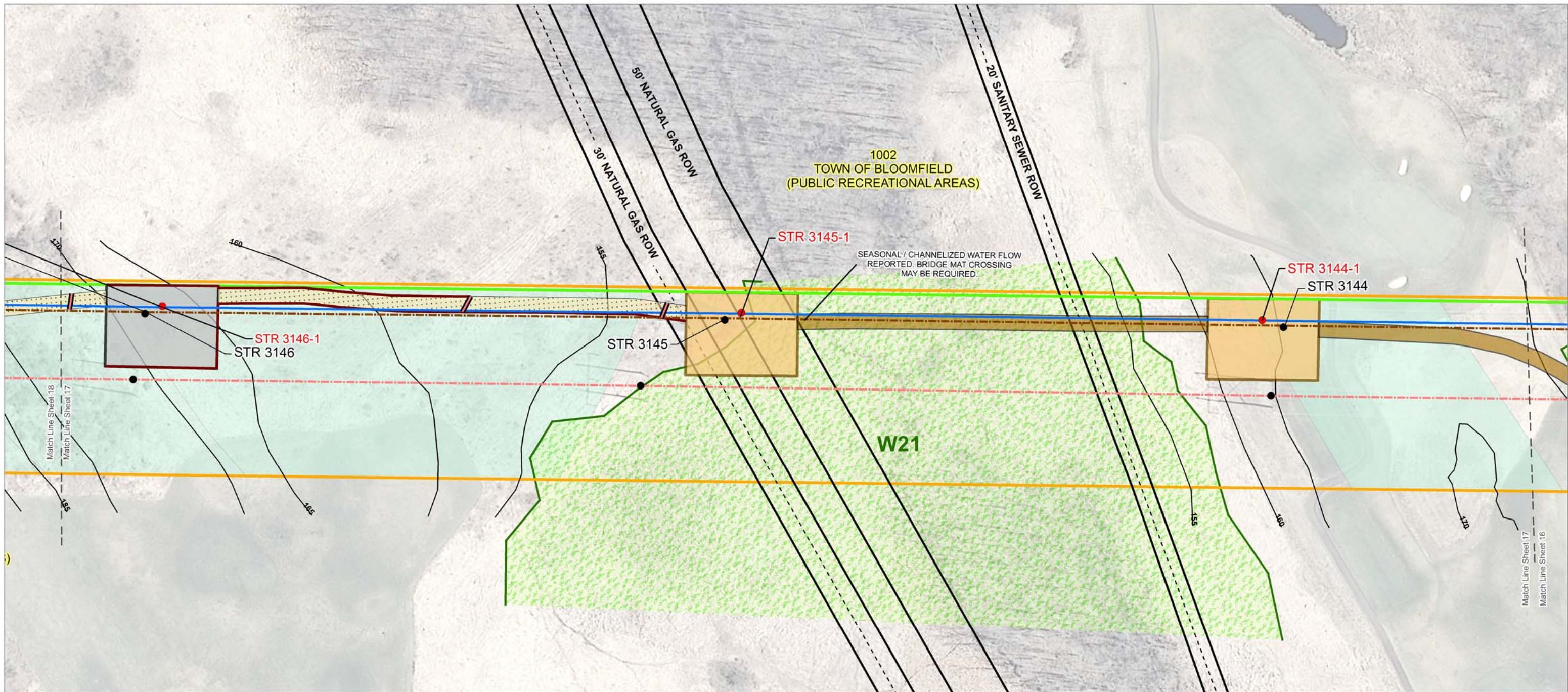
BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

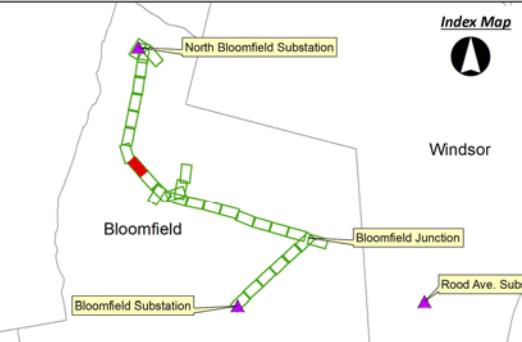
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Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer,
CT DEEP GIS, UCONN MAGIC, UCONN CLEAR
Google Earth Imagery, Elevation, NRCS Soils



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Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the Detail Sheets. Stumps of cleared trees will be ground down or removed from yards. Yard and wetland areas will be restored at project completion. Timber mats will be used in wetland areas and in CT deep flood storage areas, as depicted herein. Timber mat use may be field adjusted to overlap with wetland boundaries. Proposed roads and construction pads in FEMA flood zones (outside of wetlands) to be gravel or timber mats. If gravel is used in these areas, approximately 6 inches of topsoil will be removed and temporarily stockpiled outside of flood control areas to avoid flood storage capacity decreases. Existing gravel roadways improvements may be required. See Detail Sheets and accompanying materials for additional information regarding BMPs, onsite resource areas, constructability considerations, and enlarged cross sectional views. Proposed access to be reviewed with property owners. Special restrictions are in place for Wintonbury Golf Course, including timber mat use and Time Year restrictions allowing work during the off-season (Thanksgiving Day and April 1st.). Disturbance limits may extend beyond depicted work areas in upland locations. Sedimentation & erosion (S&E) controls, BMPs and exclusion fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and field conditions. Natural gas and sewer ROW locations are approximate.



Legend:

- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kus)
- Perennial Stream (e.g. PS-1, 2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)

The legend consists of five entries, each with a colored square icon and a label: 'Existing Access Road' (dotted pattern), 'Proposed Access Road' (dotted pattern), 'Proposed Temporary Access' (solid grey), 'Road Construction Mats' (solid gold), 'Proposed Gravel Pad' (solid grey), and 'Proposed Timber Mat Pad' (solid gold).

- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- - - Surveyed Utility
- Vehicle Tracking Pad Location
- Existing Culvert
- Stream Flow Direction

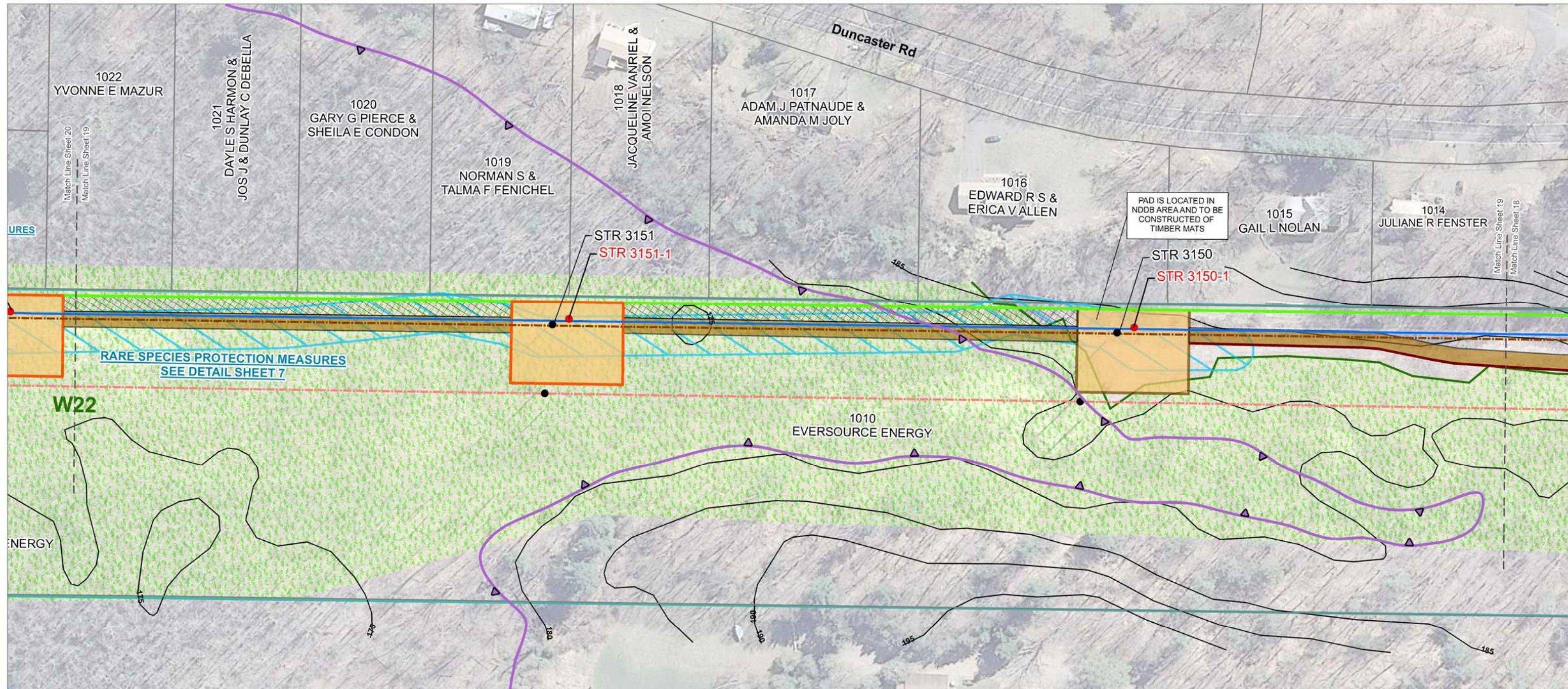
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Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer
CT DEEP GIS, UCONN MAGIC, UCONN
Google Earth Imagery, EsriSource, NRCS

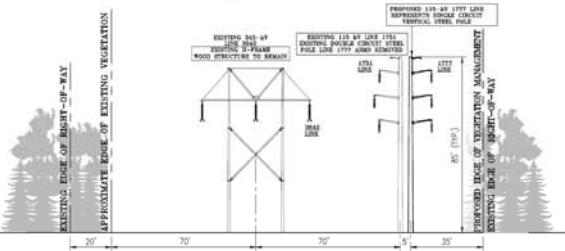
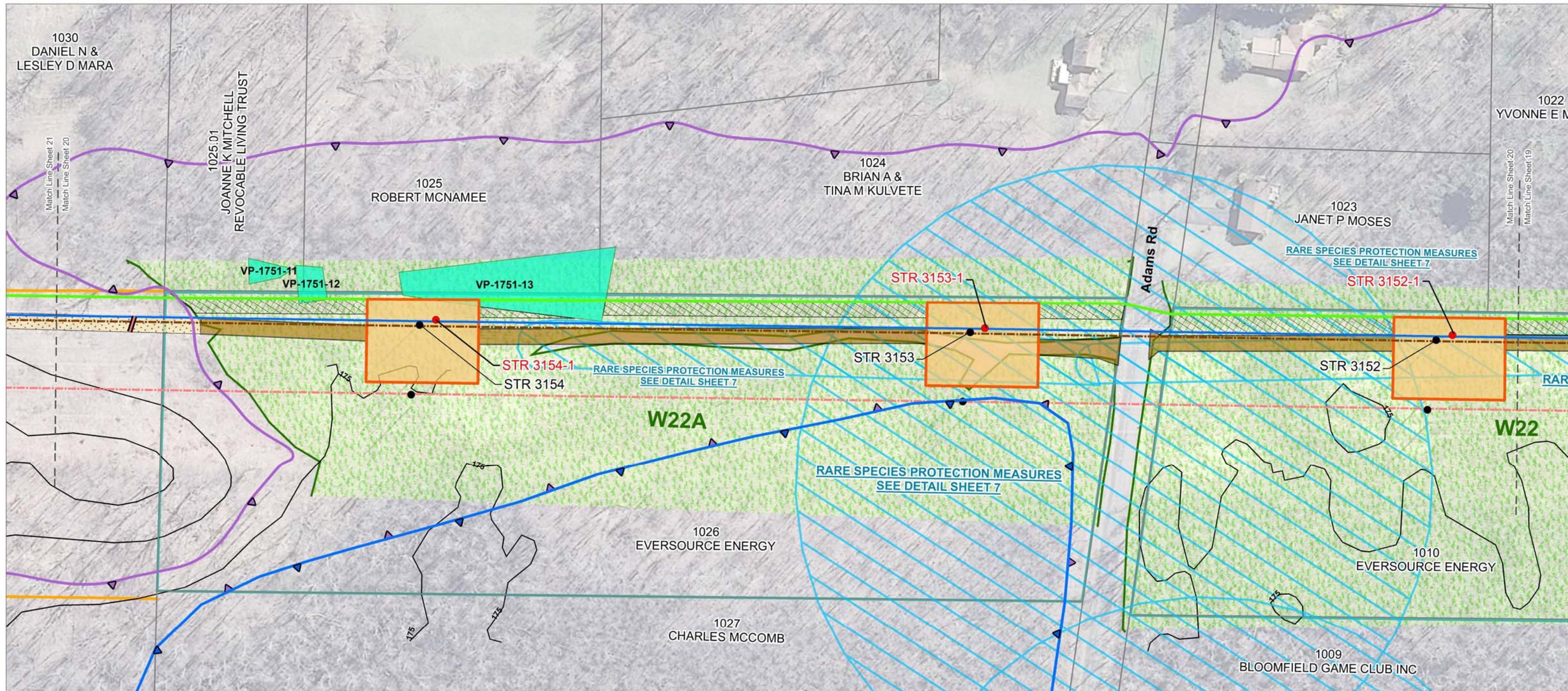
BLUFFTON-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

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Notes: Wetlands and Watercourses identified in Spring 2015. Work in and adjacent to wetlands, watercourses and vernal pools to be conducted in accordance with Eversource Best Management Practices (BMPs) and CT DEEP 2002 CT Guidelines for Soil Erosion and Sediment Control. See the accompanying Detail Sheets. CT Natural Diversity Data Base (NDDB) Area species data provided through Eversource/CT NDDB data sharing agreement. Work will be conducted in accordance with Eversource BMPs and will account for NDDB species considerations. Construction activities will be monitored in accordance with NDDB BMPs, as per the accompanying Detail Sheets.

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Limits of disturbance may extend beyond depicted work areas in upland locations. Sedimentation and erosion (S&E) controls, BMPs and exclusionary fencing to be field verified and installed as necessary. Depicted locations are approximate and may vary based on need and in-field conditions.



Index Map

Legend:

- 1751/1777 Line - Existing
- 1777 Line - Proposed
- 3642 Line - Existing
- Existing Structure
- Proposed Structure
- Eversource Property
- Eversource Right of Way
- Parcel Boundary (with ID and owner name ex. 909 Jon Kush)
- Perennial Stream (e.g. PS-1, PS-2)
- Perennial Stream
- Wetland Delineation
- Wetland (e.g. W1, W2)
- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road - Gravel
- Proposed Temporary Access Road Construction Mats
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- Proposed Timber Mat Pad - In
- As necessary for tree trimming/clearing

The legend identifies the following features:

- FEMA 100-Year Flood Zone** (purple triangle)
- FEMA Floodway** (blue triangle)
- Exclusion Fencing (See Detail Sheet BMPs)** (orange line)
- Silt Fence** (dark red line)
- Water Bars** (dark red line)
- Vehicle Tracking Pad Location** (circle with a cross)
- Existing Culvert** (brown arrow)
- Stream Flow Direction** (arrow)

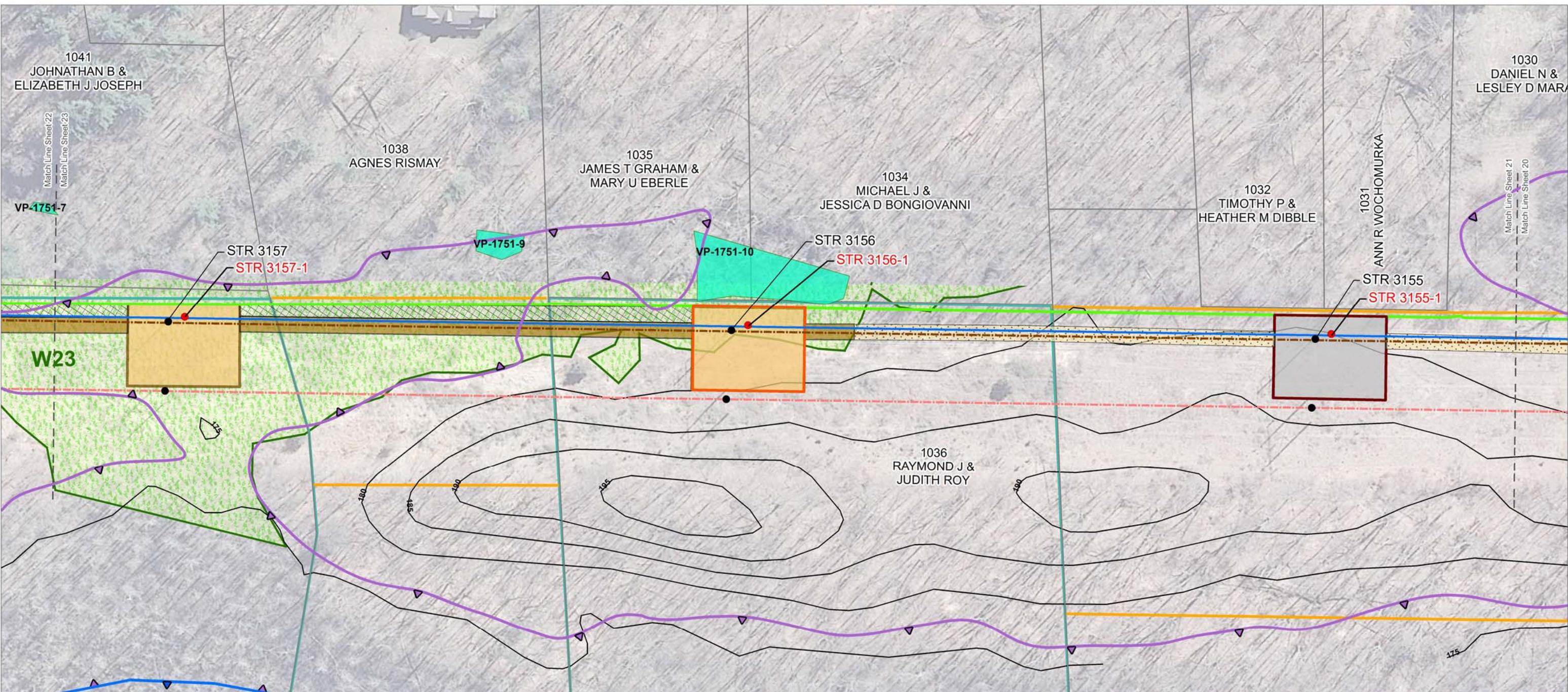
BLOOMFIELD-WINDSOR UPGRADES PROJECT

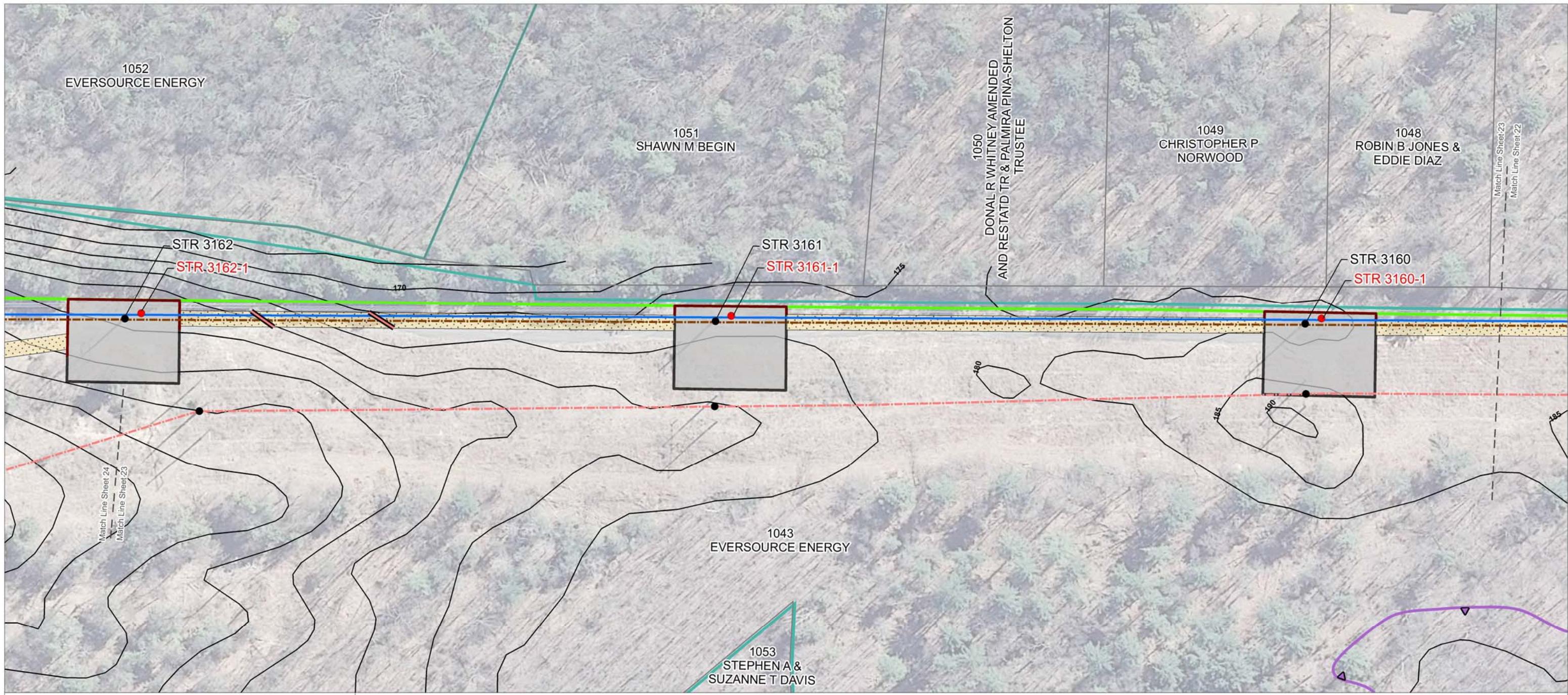
1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

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Revised: 8/16/2016

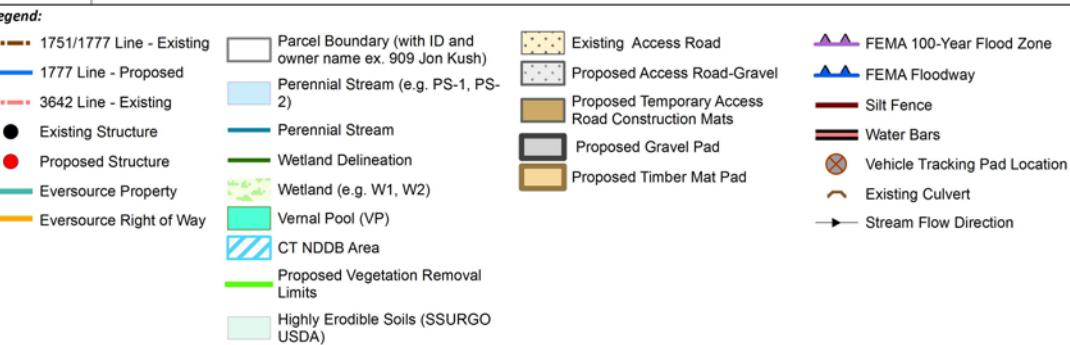
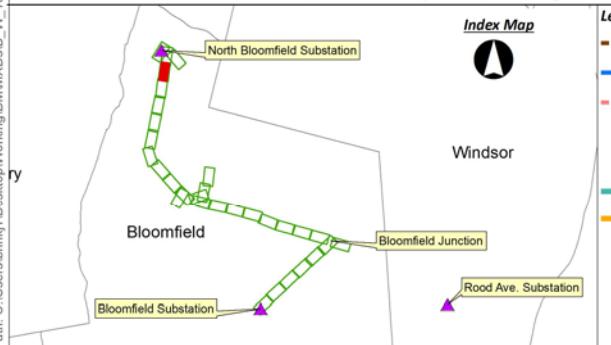




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BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

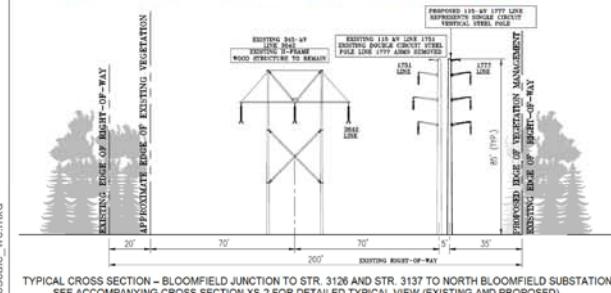
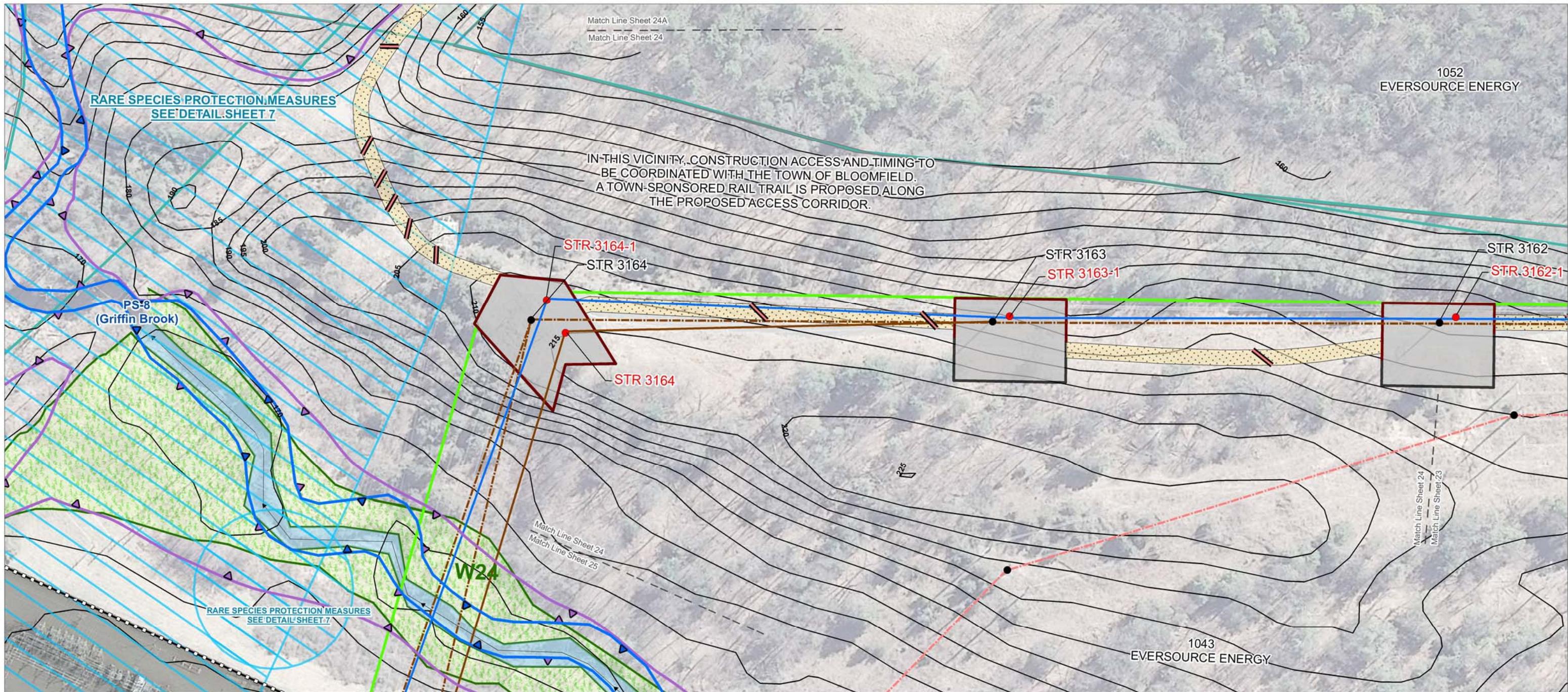
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Revised: 8/16/2016

Sheet 23 of 25

Path: C:\Users\brinkj1\Desktop\Working\DMMXDs\B_W_100scale_wc.mxd



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STR #	DESCRIPTION	HEIGHT (FT)	FINISH	FOUNDATION
3163-1	Single Circuit Steel Monopole	88.5	Weathering Steel	Direct Embed
3164	Single Circuit Steel Monopole	85	Weathering Steel	Drilled Shaft
3164-1	Single Circuit Steel Monopole	85	Weathering Steel	Drilled Shaft

Index Map



Windsor

Bloomfield

Bloomfield Junction

Road Ave. Substation

Bloomfield Substation

Legend:

- 1751/1777 Line - Existing
- 1751 Line - Proposed
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- Perennial Stream
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- Vernal Pool (VP)
- CT NDDB Area
- Proposed Vegetation Removal Limits
- Highly Erodible Soils (SSURGO USDA)
- Existing Access Road
- Proposed Access Road-Gravel
- Proposed Temporary Access Road Construction Mats
- Proposed Gravel Pad
- Proposed Timber Mat Pad
- ▲ FEMA 100-Year Flood Zone
- ▲ FEMA Floodway
- Silt Fence
- Water Bars
- Vehicle Tracking Pad Location
- Existing Culvert
- Existing Fence
- Stream Flow Direction

BLOOMFIELD-WINDSOR UPGRADES PROJECT

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN
BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
BLOOMFIELD, CT

Linear Units: Foot US
Datum: North American 1983
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane
Connecticut FIPS 0600 Feet
Datalayers and Imagery: USGS Earth Explorer, CT DEEP GIS, UCONN MAGIC, UCONN CLEAR, Google Earth Imagery, Eversource, NRCS Soils

0 50 100

Scale in Feet

Revised: 8/16/2016

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DEVELOPMENT AND MANAGEMENT PLAN

DETAIL SHEETS

DETAIL SHEET 1: WETLAND IMPACT TABLE

DETAIL SHEET 2: WETLAND IMPACT TABLE (CONT.)

DETAIL SHEET 3: PROJECT AREA WATERCOURSES AND TREE CLEARING IMPACTS ALONG WATERCOURSES

DETAIL SHEET 4: SUMMARY OF VERNAL POOL IMPACTS

DETAIL SHEET 5: NEW STRUCTURES WITHIN ROWS IN FLOODPLAINS

DETAIL SHEET 6: SELECT BEST MANAGEMENT PRACTICES (BMPs): WETLANDS, WATERBODIES, AND

VERNAL POOL AVOIDANCE & MINIMIZATION MEASURES; WETLAND INVASIVE SPECIES BMPs

DETAIL SHEET 7: RARE SPECIES AVOIDANCE AND MINIMIZATION MEASURES

DETAIL SHEET 8: TYPICAL DETAILS SHEET – SELECT BEST MANAGEMENT PRACTICES

DETAIL SHEET 9: TYPICAL STRUCTURE CONFIGURATIONS

DETAIL SHEET 10: TYPICAL FOUNDATION AND GROUNDING DETAILS

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Detail Sheet 1: Wetland Impact Table

Wetland ID No.	Mapsheets Number	Wetland Type	Nature of Impact						Estimated Impact Area to Wetlands and Watercourses (sq. ft.)		Forested Wetland Tree Clearing-Secondary Impacts (sq. ft.)	
			Proposed Structure in Wetlands and Watercourses			Access Roads in Wetlands and Watercourses						
			New Structure #	Temporary Crane Pad (Timber Mat)	Permanent Impacts (Structure Footprint)	Temporary Access Road Matting (Timber Mat)	Timber Mats: As Needed for Tree Clearing*	New Permanent Access Road	Temporary	Permanent		
Bloomfield Substation to Bloomfield Junction												
Wetland 1	3	PFO		0	0	0	0	0	0	0	1,190	
Wetland 1A	3	PEM		0	0	0	0	0	0	0	0	
Wetland 2	3	PEM/PSS/PFO		0	0	2,989	0	0	2,989	0	0	
Wetland 2A	3	PSS/PFO		4,178	0	1,784	0	0	5,962	0	358	
Wetland 3	4	PSS/PFO		2,330	0	4,328	0	0	6,658	0	8,068	
Wetland 3A	5	PEM/PSS/PFO		2,490	0	1,089	1,800	0	5,379	0	1,948	
Wetland 4	6	PSS/PFO		0	0	0	645	0	645	0	662	
Wetland 5	6	PSS/PFO	3115-1A	7,146	115	0	3,472	0	10,618	115	11,956	
Bloomfield Junction to North Bloomfield Substation												
Wetland 5A	6	PSS/PFO	3115, 3115-1B, 3116, 3116-1	43,819	403	0	0	0	43,819	403	183	
Wetland 6		PFO		0	0	0	0	0	0	0	0	
Wetland 7	7	PSS/PFO		0	0	0	0	0	0	0	0	
Wetland 7A	7	PSS/PFO		0	0	0	0	0	0	0	134	
Wetland 8	8	PSS/PFO		0	0	5,120	7,321	0	12,441	0	1,489	
Wetland 9	8	PEM		4,198	0	0	0	0	4,198	0	0	
Wetland 9A	8	PEM		1,453	0	0	4,157	0	5,610	0	1163	
Wetland 9B	8	PEM		0	0	0	1,280	0	1,280	0	242	
Wetland 9C	8	PEM		1,766	0	0	0	0	1,766	0	0	
Wetland 9D	9	PEM		0	0	0	0	0	0	0	0	
Wetland 10	7	PSS		0	0	0	0	0	0	0	0	
Wetland 11	9	PSS/PFO		2,216	0	0	0	0	2,216	0	0	
Wetland 11A	9	PSS/PFO		0	0	0	382	0	382	0	351	
Wetland 12	10	PSS/PFO		0	0	0	0	0	0	0	0	
Wetland 12A	10	PSS/PFO		0	0	0	1,450	0	1,450	0	736	
Wetland 13	10	PSS		435	0	0	0	0	435	0	0	
Wetland 14	11	PSS/PFO		0	0	0	0	0	0	0	181	
Wetland 15	13	PEM		0	0	0	0	0	0	0	0	
Wetland 16	13	PSS		0	0	0	0	0	0	0	0	

Detail Sheet 2: Wetland Impact Table (Cont.)

Wetland ID No.	Mapsheet Number	Wetland Type	Nature of Impact						Estimated Impact Area to Wetlands and Watercourses (sq. ft.)		Forested Wetland Tree Clearing-Secondary Impacts (sq. ft.)	
			Proposed Structure in Wetlands and Watercourses			Access Roads in Wetlands and Watercourses						
			New Structure #	Temporary Crane Pad (Timber Mat)	Permanent Impacts (Structure Footprint)	Temporary Access Road Matting (Timber Mat)	Timber Mats: As Needed for Tree Clearing*	New Permanent Access Road	Temporary	Permanent		
Wetland 16A	13	PSS		0	0	0	0	0	0	0	0	
Wetland 17	13	PSS/PFO		2,621	0	0	0	0	2,621	0	408	
Wetland 17A	14	PSS/PFO		0	0	0	3,484	0	3,484	0	1,469	
Wetland 17B	13	PSS/PFO		0	0	0	0	0	0	0	0	
Wetland 18	14	PSS/PFO		3,551	0	0	1,404	0	4,955	0	482	
Wetland 19	16	PEM		0	0	0	0	0	0	0	0	
Wetland 20	16	POW		0	0	0	0	0	0	0	0	
Wetland 20A	16	PFO/PEM		471	0	0	0	0	471	0	228	
Wetland 20B	16	PEM		0	0	3,216	0	0	3,216	0	0	
Wetland 21	17	PEM/PFO		5,843	0	5,680	0	0	11,523	0	0	
Wetland 22	19	PSS/PFO	3151-1, 3152-1	22,937	57	18,698	19,255	0	60,890	57	6,600	
Wetland 22A	20	PSS/PFO	3153-1, 3154-1	17,427	57	5,994	9,941	0	33,362	57	4,861	
Wetland 23	21	PEM/POW/PSS/PFO	3156-1, 3157-1, 3158-1,	31,531	85	20,249	19,288	0	71,068	85	9,914	
Wetland 24	25	PSS/PFO		0	0	0	0	0	0	0	0	
Wetland 24A	25	PSS/PFO		0	0	0	0	0	0	0	0	
Project Transmission Line Totals			Total Square Foot	154,412	717	69,147	73,879	0	297,438	717	52,623	
Total Acres			3.54	0.02	1.59	1.70	0	6.83	0.02	1.21		

* Impacts associated with the "Timber Mats as Needed for Tree Clearing" have been estimated at the maximum anticipated size. Impacts associated with matting in these areas may be less than the totals shown, as tree clearing access routes will be field-selected in select areas (i.e. at Wetland W7, W8 and W9).

Detail Sheet 3: Project Area Watercourses and Tree Clearing Impacts Along Watercourses

Watercourse Name, (Field Delineated Series Number and Associated Wetland if Applicable)	Map Sheet	Nearest Structure(s)	Watercourse Frequency Type (P or I) ¹	Water Quality ² (Where Applicable)	Fisheries Classification ²	Temporary Crossing Proposed ³	Approximate Length of Tree Clearing along Bank(s) ⁴ (Linear Feet)
Bloomfield Substation to Bloomfield Junction							
Beaman's Brook (PS-1)	3	3-105 3-106	P	A	N/A	No	0
Unnamed Tributary To Beaman's Brook (PS-2: W2, W2A)	3	3-107	P	A	N/A	Yes	300
Unnamed Tributary To Beaman's Brook (PS-3: W3)	4	3-109 3-110	P	A	N/A	Yes	150
Unnamed Tributary To Beaman's Brook (PS-3A: W3A)	5	3-110 3-111	P	A	N/A	No	0
Bloomfield Junction to North Bloomfield Substation							
Beaman's Brook (PS-4: W12A)	10	3125	P	A	N/A	Yes	10
Unnamed Tributary To Beaman's Brook (PS-5: W14)	11	3127	P	A	N/A	No	10
Unnamed Tributary To Wash Brook (PS-6: W16, W16A)	13	3133	P	A	N/A	No	0
Wash Brook ⁵ (PS-7: W17, W17A)	13/14	3135 3136	P	A	N/A	Yes	150
Griffin Brook (PS-8: W24)	24	3164	P	A	N/A	No	10

N/A = Not Applicable

PS-2 and PS-3 are the same intermittent stream, temporarily crossed at two separate locations.

1. P = Perennial; I = Intermittent

2. State Designations Use in Description

A: Known or presumed to meet water quality criteria that support potential drinking water supply, fish, and wildlife habitat, recreational use, agriculture and industrial supply, and other legitimate uses, including navigation. Surface water which are not specifically classified shall be considered Class A or Class AA (CTDEEP 2013).

None of the waterbodies crossed by the Project are listed in CTDEEP fisheries management activities.

3. Temporary stream crossings are limited to a 16-foot width.

4. Tree clearing activities are proposed as follows: 5 foot width between Bloomfield Junction and North Bloomfield Substation; 25 foot width between Bloomfield Junction and Bloomfield Substation.

5. Crossings are proposed at two locations across Wash Brook. A railcar crossing is proposed to facilitate access to Structure 3135 and a second crossing is proposed to complete tree clearing activities. The use of timber construction mats would be used to facilitate tree clearing between Structures 3136 and 3137. Poorly defined banks exist between Structures 3137 and 3136. For impact calculation purposes, access and tree trimming activities are quantified for the steeper, confining banks near Structures 3137 and 3136. Proposed tree clearing and trimming work in Wetland 17A are reported as secondary impacts Detail Sheet 1and 2.

Detail Sheet 4: Summary of Vernal Pool Impacts

Vernal Pool Identification Number ¹	Volume 3 Map Sheet Number	Existing Cover Type	Calhoun and Klemens Vernal Pool Tier Rating	Vernal Pool Size (square feet)	Location of Anticipated Impact														
					Planned Construction Work within Vernal Pool Boundaries (square feet)					"Vernal Pool Envelope"** (Extending to 100' from Vernal Pool Edge) (square feet)					"Critical Terrestrial Habitat"*** (Extending from 100' to 750' from Vernal Pool Edge.) (square feet)				
					Nature of Anticipated Impacts (Square Feet)														
					Tree Clearing (Manual)	Temporary Access Road	Temporary Construction Pads (Timber mats)	Permanent Road	Permanent Pad	Tree Clearing*	Temporary Access Road	Temporary Construction Pads (Timber mats)	Permanent Road****	Permanent Pad****	Tree Clearing*	Temporary Access Road	Temporary Construction Pads (Timber mats)	Permanent Road****	Permanent Pad****
Bloomfield Substation to Bloomfield Junction																			
VP-1779-1	6	PFO	I	2350	770	0	0	0	0	6392	0	9687	0	0					
VP-1779-2	5	PFO	I	1387	0	0	0	0	0	5741	0	1139	0	0					
Bloomfield Junction to North Bloomfield Substation																			
VP-1751-1	6	PFO	I	1938	0	0	0	0	0	2241	0	15249	343	0					
VP-1751-14	6	PFO	I	223	0	0	0	0	0										
VP-1751-3	7	PFO	III	78	0	0	0	0	0	1535	0	0	0	7453					
VP-1751-4	7	PFO	III	393	0	0	0	0	0										
VP-1751-5	8	PSS/PFO	III	1400	110	0	0	0	0	1240	6398	0	0	0					
VP-1751-6	8	PSS/PEM	III	507	0	0	0	0	0	747	2535	0	0	6749					
VP-1751-7	22	PFO	III	204	0	0	0	0	0	547	0	0	0	0					
VP-1751-9	21	PFO	III	1095	0	0	0	0	0	1053	2688	0	0	0					
VP-1751-10 (Cryptic VP)	21	PSS/PFO	III	7322	0	0	0	0	0	1769	2373	9854	0	0					
VP-1751-11	20	PFO	III	702	0	0	0	0	0										
VP-1751-12	20	PFO	III	1036	0	0	0	0	0	2842	6354	9897	0	0					
VP-1751-13 (Cryptic VP)	20	PSS/PFO	I	10944	1056	0	0	0	0										
VP-1751-15	10	PFO	I	1904	0	0	0	0	0	1303	0	0	0	0					
Total (SF)	Varies	Varies	Varies	31484	1936	0	0	0	0	25410	20248	45826	343	14202	81103	32733	174746	3577	25459
Total (Acres)	Varies	Varies	Varies	0.72	0.04	0	0	0	0	0.58	0.46	1.05	0.01	0.33	1.86	0.75	4.01	0.08	0.58

¹ These vernal pools are located entirely outside of the Project ROWs

* Tree Clearing will be completed using timber mats in wetland areas. Clearing work will be performed by hand in vernal pool areas..

** Due to size of overlapping vernal pool envelopes, select impacts have been aggregated, as noted in the table.

*** Due to size of overlapping Critical Terrestrial Habitat, impacts have been aggregated on a Project-wide basis. Critical Terrestrial Habitat areas drawn as a perimeter offset and not biased towards suitable upland habitat.

**** "Permanent gravel road and pad impacts represent maximum anticipated disturbance and impact. Permanent roads and pads will only be in uplands. Existing roads may need to be top dressed to accommodate construction equipment. Based on landowner requests, "permanent" gravel roads and pads may be removed subsequent to construction activities.

Detail Sheet 5: Transmission Line Upgrades: New Structures within ROWs in Floodplains

Structure Number	Map Sheet	Associated Watercourse Floodplain	Structure Located in 100 Year Floodplain	FEMA Designation	Associated Floodplain Elevation (Feet)	Proposed Fill in Floodplain (Sq. Ft)	FEMA 100 Yr. Floodplain Fill Volume (Cubic YDs)	CT DEEP Bloomfield Flood Control Reservoir
New 1779 Line Structures (Bloomfield Substation to Bloomfield Junction)								
3-107-1	3	UNT to Beamans Brook	Yes	100 Year (AE)	92	38	5.1	N/A
3-109-1	4	UNT to Beamans Brook	No	500 Year Floodplain	93	50	0.0	N/A
3-111-1	5	UNT to Beamans Brook	Yes	100 Year (A)	110	38	16.2	Blue Hills Reservoir (Flood Control Site #2)
3-112-1	5	UNT to Beamans Brook	Yes	100 Year (A)	110	38	13.1	Blue Hills Reservoir (Flood Control Site #2)
3-113-1	6	UNT to Beamans Brook	Yes	100 Year (A)	110	38	2.1	Blue Hills Reservoir (Flood Control Site #2)
3-114-1	6	UNT to Beamans Brook	Yes	100 Year (A)	110	50	1.6	Blue Hills Reservoir (Flood Control Site #2)
3-115-1A	6	UNT to Beamans Brook	Yes	100 Year (A)	110	150	4.9	Blue Hills Reservoir (Flood Control Site #2)
Total Proposed Fill in 100 Year Floodplain of all New 1779 Structures*:						402	43.0	
New 1777 Line Structures (Bloomfield Junction to North Bloomfield Substation)								
3115-1B	6	UNT to Beamans Brook	Yes	100 Year (A)	110	150	4.5	Blue Hills Reservoir (Flood Control Site #2)
3119-1	8	UNT to Beamans Brook	Yes	100 Year (A)	110	50	5.9	Blue Hills Reservoir (Flood Control Site #2)
3120-1	8	UNT to Beamans Brook	Yes	100 Year (A)	110	50	6.4	Blue Hills Reservoir (Flood Control Site #2)
3124-1	10	Beamans Brook	Yes	100 Year (A)	110	50	7.2	Wintonbury Reservoir (Flood Control Site #1)
3125-1	10	Beamans Brook	Yes	100 Year (A)	110	50	6.4	Wintonbury Reservoir (Flood Control Site #1)
3133-1	13	UNT to Wash Brook	Yes	100 Year (AE)	129	50	6.0	N/A
3136-1	14	Wash Brook	Yes	100 Year (A)	145	50	17.6	Tunxis Reservoir (Flood Control Site #3)
3137-1	14	Wash Brook	Yes	100 Year (A)	145	50	17.4	Tunxis Reservoir (Flood Control Site #3)
3151-1	19	Griffin Brook	Yes	100 Year (AE)	178	38	1	N/A
3152-1	20	Griffin Brook	Yes	100 Year (AE)	178	38	4.4	N/A
3153-1	20	Griffin Brook	Yes	100 Year (AE)	177	38	1.6	N/A
3154-1	20	Griffin Brook	Yes	100 Year (AE)	177	38	2.5	N/A
3157-1	21	Griffin Brook	Yes	100 Year (AE)	177	38	0.0	N/A
Total Proposed Fill in 100 Year Floodplain of all New 1777 Structures:						690	80.9	
Project Total - Total Proposed Fill in 100 Year Floodplain						1092	123.9	

Notes:

1. UNT = Un-named tributary
2. FEMA designations are as listed on FEMA maps (i.e., "AE" = the base floodplain where base flood elevations are provided; "A" = areas with a 1% annual chance of flooding (because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones)

Volumes were calculated based on foundation and structure type and floodplain elevations. Current FEMA elevation compared to the proposed Project elevation at the pole locations were used as an indication of the depth of fill required and the resulting cubic yards of fill for each structure is provided in the table.

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WETLANDS AVOIDANCE AND MINIMIZATION MEASURES

- A. COMPLY WITH RELEVANT PORTIONS OF EVERSOURCE'S BEST MANAGEMENT PRACTICES MANUAL: CONNECTICUT CONSTRUCTION AND MAINTENANCE ENVIRONMENTAL REQUIREMENTS (12/2011). MANUAL CAN BE FOUND IN ATTACHMENT Q.
- B. COMPLY WITH THE INVASIVE SPECIES CONTROL MEASURES DURING CONSTRUCTION (REFER TO INVASIVE SPECIES CONTROL PLAN IN ATTACHMENT L).
- C. INSTALL EROSION AND SEDIMENTATION CONTROLS AROUND DISTURBED EARTH NEAR WETLANDS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION. NO CONSTRUCTION ACTIVITIES WILL BE ALLOWED IN WETLANDS OUTSIDE OF THE WORK LIMITS DEFINED IN THE PLAN DRAWINGS.
- D. INSPECT AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS THROUGHOUT CONSTRUCTION. SEDIMENT THAT ACCUMULATES BEHIND THESE CONTROLS WILL PERIODICALLY BE REMOVED AND PLACED IN UPLAND AREAS, IN A MANNER THAT WILL PRECLUDE THE POTENTIAL FOR SUBSEQUENT DEPOSITION INTO WATERCOURSES OR OTHER WATERS OF THE U.S., OR WILL OTHERWISE BE DISPOSED OF OFF-SITE.
- E. INSTALL TEMPORARY CONSTRUCTION MATTING FOR ACCESS ROADS ACROSS WETLANDS OR TO ESTABLISH SAFE AND STABLE CONSTRUCTION WORK PADS WITHIN WETLANDS.
- F. TIMBER MAT COMPLEX AT THE BLOOMFIELD JUNCTION SHALL BE UNDERLAIN WITH FILTER FABRIC.
- G. AVOID OR MINIMIZE ACCESS THROUGH WETLANDS, WHERE POSSIBLE. WHERE EXISTING ACCESS ROADS MUST BE IMPROVED OR NEW ROADS DEVELOPED, THE ROADS WILL BE DESIGNED, WHERE PRACTICAL, SO AS NOT TO INTERFERE WITH SURFACE WATER FLOW OR THE WETLAND FUNCTIONS.
- H. IMPLEMENT PROCEDURES TO AVOID OR MINIMIZE THE POTENTIAL FOR SPILLS INTO WETLANDS (REFER TO BMPS INCLUDED IN ATTACHMENT Q AND TO THE MATERIALS SUBMITTED TO CT DEEP UNDER SEPARATE COVER: DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES). NO FUEL WILL BE STORED OR EQUIPMENT REFUELED WITHIN 25 FEET OF ANY WETLAND, EXCEPT UNDER THE FOLLOWING CIRCUMSTANCE: EQUIPMENT THAT IS NOT READILY MOBILE OR MUST REMAIN ON-SITE FOR PROLONGED PERIODS TO SAFELY COMPLETE A CONSTRUCTION TASK MAY BE REFUELED IN WETLANDS, PROVIDING PROPER TEMPORARY SPILL PREVENTION, CONTROL, AND CONTAINMENT PROCEDURES ARE FOLLOWED.
- I. PROHIBIT VEHICLES OR EQUIPMENT FROM BEING PARKED OVERNIGHT ON ACCESS ROADS OR WORK PADS IN WETLANDS, EXCEPT FOR EQUIPMENT THAT CANNOT BE PRACTICALLY MOVED.
- J. REMOVE, FOLLOWING THE COMPLETION OF TRANSMISSION LINE WORK, TIMBER MATS USED FOR WORK PADS AND TEMPORARY ACCESS ROADS IN WETLANDS.
- K. RESTORE WETLANDS, AFTER TRANSMISSION LINE WORK IS COMPLETE, TO PRE-CONSTRUCTION CONFIGURATIONS AND CONTOURS TO THE EXTENT PRACTICABLE. REVEGETATE WITH APPROPRIATE WETLAND SEED MIX (WHEN NOT IN CONFLICT WITH RARE SPECIES PROTECTION REQUIREMENTS).
- L. INSPECT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS UNTIL RESTORATION HAS BEEN DETERMINED TO BE EFFECTIVE.

WETLAND INVASIVE SPECIES BEST MANAGEMENT PRACTICES

TO CONTROL THE SPREAD OF WETLAND INVASIVE PLANT SPECIES, EVERSOURCE WILL REQUIRE CONSTRUCTION CONTRACTORS TO IMPLEMENT THE PROCEDURES DESCRIBED BELOW, AS APPROPRIATE TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED.

- A. ALL CONSTRUCTION EQUIPMENT, VEHICLES, AND MATERIALS (E.G., EQUIPMENT MATS) MUST BE CLEANED AND FREE OF EXCESS SOIL, DEBRIS, AND VEGETATION BEFORE BEING MOBILIZED TO THE PROJECT ROW.
- B. TO MINIMIZE THE POTENTIAL FOR SPREADING INVASIVE PLANT SPECIES FROM WETLAND TO WETLAND ALONG THE ROW, ANY EQUIPMENT WORKING IN OR TRaversing A WETLAND CONTAINING INVASIVE PLANT SPECIES WILL BE CLEANED PRIOR TO RELOCATING TO ANOTHER WORK SITE. CLEANING OF VEHICLES AND OTHER EQUIPMENT (INCLUDING TRACKS AND TIRES) WILL INVOLVE REMOVAL OF VISIBLE DIRT, DEBRIS, AND VEGETATION USING BROOMS, SHOVELS, AND COMPRESSED AIR.
- C. SWAMP MATS OR EQUIVALENT WILL BE USED AT WETLAND CROSSINGS SO CONSTRUCTION VEHICLES THAT FREQUENTLY TRAVEL ALONG ON-ROW ACCESS ROADS, SUCH AS PICKUPS CARRYING PERSONNEL OR MATERIAL DELIVERY TRUCKS, CAN AVOID DIRECT WETLAND INTERACTION.
- D. MATS USED IN WETLANDS CONTAINING INVASIVE SPECIES WILL BE CLEANED PRIOR TO RELOCATING TO OTHER WORK AREAS OR WETLANDS. CLEANING OF MATS WILL INVOLVE DROPPING MATS ONE ON TOP OF THE ANOTHER TO SHAKE LOOSE ANY SEDIMENT AND DEBRIS. THE MATTING WILL THEN BE SWEEPED TO REMOVE LOOSE SOIL AND PLANT MATERIAL.
- E. CONSTRUCTION EQUIPMENT WILL REMAIN WITHIN THE APPROVED WORK AREA LIMITS AS DEFINED ON THE PROJECT PLANS.
- F. FINAL RESTORATION OF THE ROW WILL BE PERFORMED IN ACCORDANCE WITH THE BMP MANUAL.

WATERBODIES AVOIDANCE AND MINIMIZATION MEASURES

- A. COMPLY WITH RELEVANT PORTIONS OF EVERSOURCE'S BEST MANAGEMENT PRACTICES MANUAL: CONNECTICUT CONSTRUCTION AND MAINTENANCE ENVIRONMENTAL REQUIREMENTS (REFER TO ATTACHMENT Q).
- B. INSTALL AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS ALONG THE ROW WHERE CONSTRUCTION ACTIVITIES DISTURB SOILS NEAR WATERCOURSES. THESE CONTROLS WILL BE INSTALLED AND MAINTAINED TO PREVENT SEDIMENTATION INTO WATER RESOURCES. SEDIMENT THAT ACCUMULATES BEHIND THESE CONTROLS WILL PERIODICALLY BE REMOVED AND PLACED IN UPLAND AREAS, IN A MANNER THAT WILL PRECLUDE THE POTENTIAL FOR SUBSEQUENT DEPOSITION INTO WATERCOURSES OR OTHER WATERS OF THE U.S., OR WILL OTHERWISE BE DISPOSED OF OFF-SITE.
- C. NO UNCONFINED IN-STREAM ACTIVITIES ARE PROPOSED OR AUTHORIZED. EXISTING ACCESS ROAD CROSSINGS OF WATERCOURSES, WHICH MAY BE RE-ESTABLISHED DURING THE PROJECT, WILL NOT BE CONSTRUCTED DURING CONDITIONS OF PEAK FLOWS OR BANK-FULL CONDITIONS. ONLY CLEAN MATERIALS WILL BE USED (E.G., CLEAN RIPRAP, GRAVEL, STONE OR EQUIVALENT).
- D. MAJOR CONSTRUCTION EQUIPMENT WILL BE PROHIBITED FROM FORDING STREAMS.
- E. ACCESS ROADS ACROSS WATERCOURSES WILL BE INSTALLED, WHERE PRACTICABLE, SO AS TO AVOID OR MINIMIZE DIRECT ADVERSE IMPACTS TO STREAM BANKS AND STREAM BOTTOM SEDIMENTS, AND TO PROVIDE UNOBSTRUCTED AMBIENT FLOW IN PERENNIAL STREAMS (E.G., SPAN CROSSINGS WILL PROVIDE ADEQUATE CLEARANCE ABOVE WATERCOURSES TO CONVEY FLOWS).
- F. WHERE TEMPORARY CONSTRUCTION WORK PADS MUST BE CONSTRUCTED OVER WATERCOURSES, WORK PAD DESIGN WILL INCORPORATE MEASURES DESIGNED TO MAINTAIN FLOWS AND MINIMIZE AQUATIC HABITAT DISTURBANCE DURING THE CONSTRUCTION PERIOD.
- G. MAT SPANS OR EQUIVALENT ACCESS ACROSS WATERCOURSES WILL BE PERIODICALLY SWEPT, AS APPROPRIATE, TO MINIMIZE THE POTENTIAL FOR SOIL DEPOSITION INTO WATERCOURSES AS A RESULT OF VEHICLE/EQUIPMENT MOVEMENTS.
- H. TIMBER MAT COMPLEX AT BLOOMFIELD JUNCTION TO BE UNDERLAIN WITH FILTER FABRIC.
- I. EXISTING RIPARIAN VEGETATION ALONG THE ROW WITHIN 25 FEET OF WATERCOURSE BANKS WILL BE MAINTAINED, TO THE EXTENT PRACTICABLE AND CONSISTENT WITH ROW VEGETATION MANAGEMENT REQUIREMENTS.
- J. EXCEPT FOR EQUIPMENT THAT IS NOT READILY MOBILE OR MUST REMAIN ON-SITE FOR PROLONGED PERIODS TO SAFELY COMPLETE A CONSTRUCTION TASK, CONSTRUCTION VEHICLES AND EQUIPMENT WILL NOT BE REFUELED WITHIN 25 FEET OF A WATERCOURSE. FOR REFUELING THAT MUST BE PERFORMED LESS THAN 25FEET FROM A WATERCOURSE, APPROPRIATE SPILL PREVENTION MEASURES. (REFER TO BMPS INCLUDED IN ATTACHMENT Q AND TO THE MATERIALS SUBMITTED TO CT DEEP UNDER SEPARATE COVER: DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION ACTIVITIES).
- K. NO BULK PETROLEUM PRODUCTS WILL BE STORED WITHIN 25 FEET OF WATERCOURSE.
- L. TEMPORARY MAT SPANS WILL BE REMOVED AND WATERCOURSES WILL BE RESTORED AS DETAILED IN ATTACHMENT L. BANKS WILL BE RESEEDED WITH APPROPRIATE UPLAND (ANNUAL RYE) OR WETLAND SEEDMIX. NO GRUBBING WILL BE PERFORMED ON STREAMBANKS SO THAT WOODY ROOT SYSTEMS MAY REMAIN IN PLACE AND NATURALLY REVEGETATE UPON MATTING REMOVAL. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REMOVED UPON THE STABILIZATION OF EXPOSED SOILS NEAR WATERCOURSES.

ROADWAY AND WORK PAD CONSTRUCTION PRACTICES

EXISTING ROADWAYS TO BE DRESSED WITH GRAVEL OR CRUSHED STONE AS REQUIRED. PROPOSED ROADS AND CONSTRUCTION PADS TO BE CONSTRUCTED AS DEPICTED HEREIN, AND AS FOLLOWS:

- A. TIMBER MATS WILL BE USED IN WETLAND AREAS AND IN CT DEEP FLOOD STORAGE AREAS. TIMBER MAT USAGE MAY BE FIELD ADJUSTED TO OVERLAP WITH WETLAND BOUNDARIES.
- B. PROPOSED ROADS AND CONSTRUCTION PADS IN FEMA FLOOD ZONES (OUTSIDE OF WETLANDS) TO BE CONSTRUCTED OF GRAVEL OR TIMBER MATS. IF GRAVEL IS USED IN THESE AREAS, APPROXIMATELY 6 INCHES OF TOPSOIL WILL BE REMOVED AND TEMPORARILY STOCKPILED OUTSIDE OF FLOOD CONTROL AREAS TO RESULT IN NO NET DECREASE OF FLOOD STORAGE AREAS.
- C. PROPOSED ROADS AND CONSTRUCTION PADS IN UPLAND AREAS WILL BE CONSTRUCTED OF GRAVEL AND WILL BE LEFT IN PLACE TO FACILITATE FUTURE MAINTENANCE ACTIVITIES UNLESS REMOVAL IS REQUESTED BY THE LANDOWNER.

VERNAL POOL AVOIDANCE AND MINIMIZATION MEASURES

- A. THE USE OF CONSTRUCTION MATTING OVER IDENTIFIED VERNAL POOL DEPRESSIONS IS NOT AUTHORIZED.
- B. GRAVEL WORK PADS ARE NOT PERMITTED WITHIN 100 FEET OF IDENTIFIED VERNAL POOLS.
- C. EXCEPT IN AREAS WHERE ACCESS ROADS AND WORK PADS MUST BE INSTALLED, EXISTING SCRUB-SHRUB VEGETATION WITHIN 25 FEET OF VERNAL POOLS WILL BE MAINTAINED, CONSISTENT WITH ROW VEGETATION MANAGEMENT REQUIREMENTS.
- D. REMOVAL OF LOW GROWING (SCRUB-SHRUB) VEGETATION SURROUNDING VERNAL POOLS SHALL BE MINIMIZED BY UTILIZING CONSTRUCTION MATTING WHERE ACCESS IS NEEDED. IN LOCATIONS WHERE VEGETATION MUST BE CUT ADJACENT TO VERNAL POOLS, SOME OF THE CUT VEGETATION (SLASH) WILL BE LEFT IN PLACE ALONG THE EDGES OF THE POOLS TO SERVE AS RECRUITMENT FOR LEAF LITTER AND COARSE WOODY DEBRIS.
- E. EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE INSTALLED AND MAINTAINED ALONG CONSTRUCTION ACCESS ROADS AND AROUND WORK PADS AS NECESSARY TO PROTECT WATER QUALITY AND TO LIMIT THE POTENTIAL FOR SEDIMENT TRANSPORT TO VERNAL POOLS.
- F. WHERE EXISTING ON-ROW ACCESS ROADS ADJACENT TO VERNAL POOLS MUST BE IMPROVED, SWAMP MATS OR CORDUROY ROAD WILL BE USED IF PRACTICABLE; OTHERWISE, CLEAN MATERIALS WILL BE USED (E.G., CLEAN RIPRAP, GRAVEL, STONE OR EQUIVALENT AND ROCK FORDS).
- G. TO THE EXTENT THAT CIRCUIT OUTAGE AND OTHER CONSTRUCTION TIMING CONSTRAINTS ALLOW, EVERSOURCE WILL ATTEMPT TO SCHEDULE THE INSTALLATION OF ACCESS ROADS AND WORK PADS NEAR VERNAL POOL HABITATS SO AS NOT TO INTERFERE WITH AMPHIBIAN BREEDING AND MIGRATION SEASONS.
- H. FOR PROJECT ACTIVITIES THAT MUST OCCUR ADJACENT TO VERNAL POOLS DURING AMPHIBIAN MIGRATION PERIODS, MEASURES WILL BE IMPLEMENTED ON A SITE-SPECIFIC BASIS AS NECESSARY TO FACILITATE UNENCUMBERED AMPHIBIAN ACCESS TO AND FROM VERNAL POOLS. MITIGATION MEASURES WILL BE IDENTIFIED AFTER TAKING INTO CONSIDERATION SITE-SPECIFIC CONDITIONS, INCLUDING THE TYPE OF CONSTRUCTION ACTIVITY IN PROXIMITY TO A VERNAL POOL, THE AMPHIBIAN SPECIES KNOWN TO OCCUR IN THE VERNAL POOL, AND SEASONAL CONDITIONS. OPTIONS TO BE EVALUATED TO ALLOW AMPHIBIAN ACCESS TO VERNAL POOLS MAY INCLUDE, BUT NOT BE LIMITED TO: SYNCOPATED SILT FENCING IN THE IMMEDIATE VICINITY OF VERNAL POOLS; ELEVATED CONSTRUCTION MATTING; AND ALIGNING EROSION AND SEDIMENTATION CONTROLS TO AVOID BIFURCATING VERNAL POOL HABITAT.
- I. EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE PROMPTLY REMOVED UPON FINAL REVEGETATION AND STABILIZATION OF THE ROW.
- J. IN THE THREE VERNAL POOLS WHERE TREE CLEARING IS REQUIRED, TREE TRIMMING AND CLEARING ACTIVITIES WILL BE COMPLETED BY HAND (NO CONSTRUCTION MATS WILL BE USED IN VERNAL POOLS). TREES WILL BE FELLED AWAY FROM, AND OUTSIDE OF, VERNAL POOLS TO THE EXTENT PRACTICABLE.

Bloomfield-Windsor Upgrades Project
1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION

Select Best Management Practices (BMPs)
No Scale

EVERSOURCE

AECOM

Detail Sheet 6

STATE LISTED TURTLES

WOOD TURTLE - *GLYTEMYS INSULPTA*

CT SPECIES DESIGNATION: SPECIAL CONCERN

EASTERN BOX TURTLE – *TERRAPENE C. CAROLINA*

CT SPECIES DESIGNATION: SPECIAL CONCERN

SPOTTED TURTLE - *CLEMMYS GUTTATA*

CT SPECIES DESIGNATION: SPECIAL CONCERN

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING. THE TURTLE PROTECTION PLAN SHALL BE IMPLEMENTED THROUGHOUT THE ENTIRE CORRIDOR OF WORK.

GENERAL:

- A. WORK SHOULD OCCUR WHEN THESE TURTLES ARE ACTIVE (APRIL 1ST TO SEPTEMBER 30TH). CONDUCTING LAND CLEARING WHILE THE TURTLE IS ACTIVE WILL ALLOW THE ANIMAL TO MOVE OUT OF HARM'S WAY AND MINIMIZE MORTALITY TO HIBERNATING INDIVIDUALS.
- B. EXCLUSIONARY PRACTICES ARE REQUIRED TO PREVENT TURTLE ACCESS INTO CONSTRUCTION AREAS. MEASURES WILL BE INSTALLED AT LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS.
- C. EXCLUSIONARY FENCING MUST BE A MINIMUM OF 20 INCHES TALL AND BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND. EXCLUSIONARY FENCING WILL BE REGULARLY INSPECTED AND MAINTAINED (AT LEAST BI-WEEKLY AND AFTER MAJOR WEATHER EVENTS) TO SECURE ANY GAPS OR OPENINGS AT GROUND LEVEL. PLASTIC NETTING WILL NOT BE USED.
- D. ALL STAGING AND STORAGE AREAS OUTSIDE OF PREVIOUSLY PAVED LOCATIONS MUST BE REVIEWED TO REMOVE INDIVIDUALS AND EXCLUDE THEM FROM RE-ENTRY.
- E. A CONTRACTOR AWARENESS PROGRAM WILL BE DEVELOPED AND IMPLEMENTED TO ENSURE THAT ALL CONSTRUCTION PERSONNEL WORKING IN TURTLE HABITAT ARE APPRISED OF: SPECIES DESCRIPTIONS; THE POSSIBLE PRESENCE OF LISTED SPECIES; AND, TO ENSURE THAT CONTRACTORS ARE INSTRUCTED ON THE PROPER RESPONSE IF A PROTECTED TURTLE IS OBSERVED IN THE WORK AREA (RELOCATE TURTLES IF THEY ARE FOUND INSIDE WORK AREAS OR NOTIFY THE APPROPRIATE AUTHORITIES TO RELOCATE INDIVIDUALS).
- F. ANY TURTLES ENCOUNTERED WITHIN THE IMMEDIATE WORK AREA SHALL BE CAREFULLY MOVED TO AN ADJACENT AREA OUTSIDE OF THE EXCLUDED AREA AND FENCING SHOULD BE INSPECTED TO IDENTIFY AND REMOVE ACCESS POINT.
- G. IN AREAS WHERE SILT FENCE IS USED FOR EXCLUSION, IT SHALL BE REMOVED AS SOON AS THE AREA IS STABLE TO ALLOW FOR REPTILE AND AMPHIBIAN PASSAGE TO RESUME.
- H. NO HEAVY MACHINERY OR VEHICLES MAY BE PARKED IN ANY TURTLE HABITAT.
- I. SPECIAL PRECAUTIONS MUST BE TAKEN TO AVOID DEGRADATION OF WETLAND HABITATS INCLUDING ANY WET MEADOWS AND SEASONAL POOLS.
- J. THE CONTRACTOR MUST SEARCH THE WORK AREA EACH MORNING PRIOR TO ANY WORK BEING DONE.

WHEN CONSTRUCTION ACTIVITIES OCCUR IN THE TURTLES' INACTIVE SEASON (BETWEEN OCTOBER 1 AND MARCH 30), THE FOLLOWING WILL BE IMPLEMENTED:

- A. REMOVAL OF LOW-GROWTH VEGETATION AND TREE STUMPS ADJACENT TO BANKS OF IDENTIFIED SUITABLE RIPARIAN HABITAT WILL BE AVOIDED AND MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
- B. MOWING IN PREPARATION OF PROJECT CONSTRUCTION ACTIVITIES WILL OCCUR IN DESIGNATED WORK AREAS AND WILL BE LIMITED TO THE EXTENT PRACTICABLE.

WHEN CONSTRUCTION ACTIVITIES OCCUR IN THE TURTLES' ACTIVE SEASON (BETWEEN APRIL 1 AND September 30), THE FOLLOWING WILL BE IMPLEMENTED:

- A. A SWEEP OF THE WORK AREA SHALL BE CONDUCTED PRIOR TO HEAVY MACHINERY ACCESS, CONSTRUCTION, AND/OR MOWING TO LOOK FOR TURTLES.
- B. IF MOWING DURING THE ACTIVE SEASON IS REQUIRED, VEGETATION WILL BE MOWED TO NO LOWER THAN 7". BRONTOSAURUS OR FECON MOWER HEADS ARE REQUIRED. FLAIL TYPE MOWERS SHALL NOT BE USED.
- C. ANY TURTLE ENCOUNTERED DURING CONSTRUCTION WILL BE SAFELY MOVED, UNHARMED, TO AN AREA IMMEDIATELY OUTSIDE OF THE WORK AREA, AND POSITIONED IN THE SAME DIRECTION THAT IT WAS HEADING WHEN DISCOVERED. WORKERS WILL BE INFORMED THAT TURTLES SHOULD NEVER BE MOVED OFF SITE.
- E. ANY CONFIRMED LISTED TURTLE SIGHTINGS WILL BE REPORTED TO THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION (DEEP) NATURAL DIVERSITY DATA BASE (NDDB).
- F. SOIL EROSION AND SEDIMENTATION (E&S) CONTROLS TO BE INSTALLED SO THAT MOVEMENT IS NOT INHIBITED THROUGH THE CONSTRUCTION AREA, IF PASSAGE IS REQUIRED.

STATE LISTED AMPHIBIANS

BLUE-SPOTTED SALAMANDER "COMPLEX" (*AMBYSTOMA LATERALE*)

CT SPECIES DESIGNATION: ENDANGERED

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

NO SPECIMENS OF THIS SPECIES WERE FOUND WITHIN THE DESIGNATED POLYGON WHERE IT OVERLAPS THE PROJECT AREA. IF THE PRESENCE OF THIS SPECIES IS CONFIRMED IT WILL BE PROTECTED BY:

- A. S&E CONTROL IMPLEMENTATION PER EVERSOURCE BMPS TO MINIMIZE SEDIMENT DEPOSITION INTO SEASONAL POOLS IN VEGETATED WETLANDS, AND PROMPT CONTRACTOR RESPONSE TO REPAIR/MAINTAIN S&E CONTROLS.
- B. ENVIRONMENTAL MONITOR RECONNAISSANCE AND MONITORING IN THE DESIGNATED NDDB AREA DURING ACTIVE CONSTRUCTION PERIODS.
- C. PROVIDING CONTRACTOR AWARENESS, TO MINIMIZE THE POTENTIAL OF IMPACTS TO MIGRATING INDIVIDUALS.

STATE LISTED PLANTS

SWAMP LOUSEWORT - *PEDICULARIS LANCEOLATA*

CT SPECIES DESIGNATION: THREATENED

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

CONFIRMED POPULATIONS WILL BE PROTECTED BY:

- A. THE USE OF TEMPORARY SWAMP MATS FOR CONSTRUCTION PADS AND ROADS PROXIMATE TO CONFIRMED POPULATIONS.
- B. DISTURBED AREAS WILL BE ALLOWED TO REVEGETATE NATURALLY. NO SEED, TOPSOIL, FERTILIZER, OR OTHER AMENDMENTS WILL BE ADDED WITHIN ANY AREAS CONFIRMED TO SUPPORT THIS SPECIES.
- C. WHERE FEASIBLE THE ACCESS ROAD SECTIONS MAY BE REALIGNED TO MINIMIZE IMPACTS TO EARLY-SUCCESSIONAL HABITAT IN CLOSE PROXIMITY TO AREAS CONFIRMED TO SUPPORT THIS SPECIES.
- D. SELECT INDIVIDUALS AND CLUSTERS HAVE BEEN TRANSPLANTED AND WILL BE MONITORED, AS AGREED TO WITH CT NDDB.
- E. IN LATE SPRING 2016 (MID-MAY TO MID-JUNE), THE EXISTING Elevated ACCESS PATH IN THE RIGHT-OF-WAY WILL BE MOW/BRUSH-HOG WITH LIGHT EQUIPMENT WITHIN THE AREA OF NDDB POLYGON IDENTIFIED FOR *P. LANCEOLATA*.
- F. IN LATE SUMMER 2016 (MID-AUGUST – EARLY SEPTEMBER), THE ENVIRONMENTAL MONITOR WILL SURVEY FOR POPULATIONS OF *P. LANCEOLATA* ALONG ROADWAY, WITHIN THE PROPOSED FOOTPRINT OF THE SWAMP MAT PLATFORMS AND TRANSPLANT RECIPIENT SITES.

- G. IN LATE SUMMER 2016 (MID-AUGUST – EARLY SEPTEMBER), PROTECTIVE CONSTRUCTION FENCING (ORANGE HIGHWAY FENCING OR EQUIVALENT) WILL BE CHECKED AND REPAIRED IF NECESSARY PRIOR TO INSTALLATION OF TEMPORARY ACCESS ROADS. PROTECTIVE CONSTRUCTION FENCING HAS BEEN ERECTED AROUND SELECT EXISTING AND TRANSPLANTED SUB-POPULATIONS IN ACCORDANCE WITH THE NDDB-APPROVED TRANSPLANTATION PROTOCOL. SELECT INDIVIDUALS HAVE BEEN LEFT IN THE FOOTPRINT OF TEMPORARY TIMBER MAT ROADS AND CONSTRUCTION PLATFORMS, IN ACCORDANCE WITH THE NDDB-APPROVED TRANSPLANTATION PROTOCOL; THESE INDIVIDUALS WILL NOT BE SURROUNDED BY PROTECTIVE FENCING.

- H. IN LATE SUMMER 2017 (MID-AUGUST – EARLY SEPTEMBER), THE ENVIRONMENTAL MONITOR WILL CONDUCT POST-CONSTRUCTION MONITORING FOR *P. LANCEOLATA*. THE SURVEY WILL BE COMPLETED ALONG THE EXISTING TEMPORARY ACCESS ROADWAY, WITHIN THE FOOTPRINT OF THE TIMBER MAT PLATFORMS, AND AT THE PREVIOUSLY IDENTIFIED AND PROTECTED TRANSPLANT RECIPIENT SITES.

- I. THE ENVIRONMENTAL MONITOR WILL SUBMIT A FIRST YEAREND MONITORING REPORT TO THE CT DEEP NDDB BY DECEMBER 31, 2016 FOR THE FIRST GROWING SEASON.
- J. THE ENVIRONMENTAL MONITOR WILL SUBMIT A SECOND YEAREND MONITORING REPORT TO THE CT DEEP NDDB BY DECEMBER 31, 2017 FOR THE SECOND GROWING SEASON.

STATE LISTED MAMMALS

RED BAT - *LASIURUS BOREALIS*

CT SPECIES DESIGNATION: SPECIAL CONCERN

HOARY BAT - *LASIURUS CINEREUS*

CT SPECIES DESIGNATION: SPECIAL CONCERN

SILVER-HAIRED BAT- *LASIONYCTERIS NOCTIVAGANS*

CT SPECIES DESIGNATION: SPECIAL CONCERN

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

CONFIRMED POPULATIONS WILL BE PROTECTED BY:

- A. WHEREVER POSSIBLE, RETAIN THOSE TREES THAT ARE MORE DESIRABLE TO BATS, INCLUDING: LARGER DIAMETER TREES (12-INCH DBH AND LARGER); TREES WITH LOOSE, ROUGH BARK SUCH AS MAPLES, HICKORIES, AND OAKS; AND, LARGE TREES WITH CAVITIES.
- B. CONDUCT ANY TREE CLEARING (OF TREES WITH 12 INCH DBH AND LARGER) WITHIN THIS CORRIDOR BE RESTRICTED DURING THE MONTHS OF JUNE AND JULY TO HELP REDUCE THE MORTALITY OF THE FEMALES WHILE THEY ARE RAISING YOUNG.
- C. IF POSSIBLE, INSTALL BAT HOUSES TO MITIGATE FOR PLACEMENT OF BAT HOUSES, IF POSSIBLE, TO MITIGATE FOR SUITABLE HABITAT BEING REMOVED AS PART OF THIS PROJECT

STATE LISTED BIRDS

AMERICAN KESTREL- *FALCO SPARVERIUS*

CT SPECIES DESIGNATION: SPECIAL CONCERN

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

CONFIRMED POPULATIONS WILL BE PROTECTED BY:

- A. IMPLEMENT TIME-OF-YEAR RESTRICTIONS TO AVOID OR MINIMIZE DISTURBANCE DURING THE NESTING SEASON (APPROXIMATELY MARCH 15 – JUNE 1)
- B. CONDUCT CONSTRUCTION-PHASE MONITORING TO DETERMINE IF NESTING ACTIVITY IS PRESENT IF TOY RESTRICTIONS ARE NOT FEASIBLE.

BOBOLINK - *DOLICHONYX ORYZIVORUS*

CT SPECIES DESIGNATION: SPECIAL CONCERN

PROJECT ROW HABITAT:

CONTACT EVERSOURCE ENVIRONMENTAL LICENSING AND PERMITTING

General

- A. PERFORM BIRD SURVEYS IN MAY THROUGH JULY TO DETERMINE IF NESTING ACTIVITY IS PRESENT IN THE PROJECT AREA (SELECT NDDB AREAS).

CONFIRMED POPULATIONS WILL BE PROTECTED BY:

- A. IMPLEMENT TIME-OF-YEAR RESTRICTIONS TO AVOID OR MINIMIZE DISTURBANCE DURING THE NESTING SEASON.
- B. CONDUCT CONSTRUCTION-PHASE MONITORING TO DETERMINE IF NESTING ACTIVITY IS PRESENT IF TOY RESTRICTIONS ARE NOT FEASIBLE.

Bloomfield-Windsor Upgrades Project

1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION

1751/1777 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION

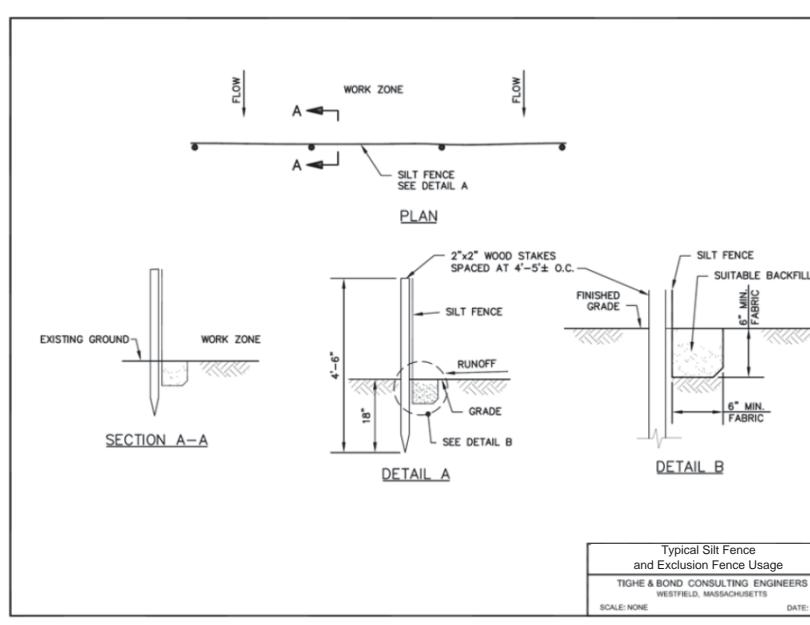
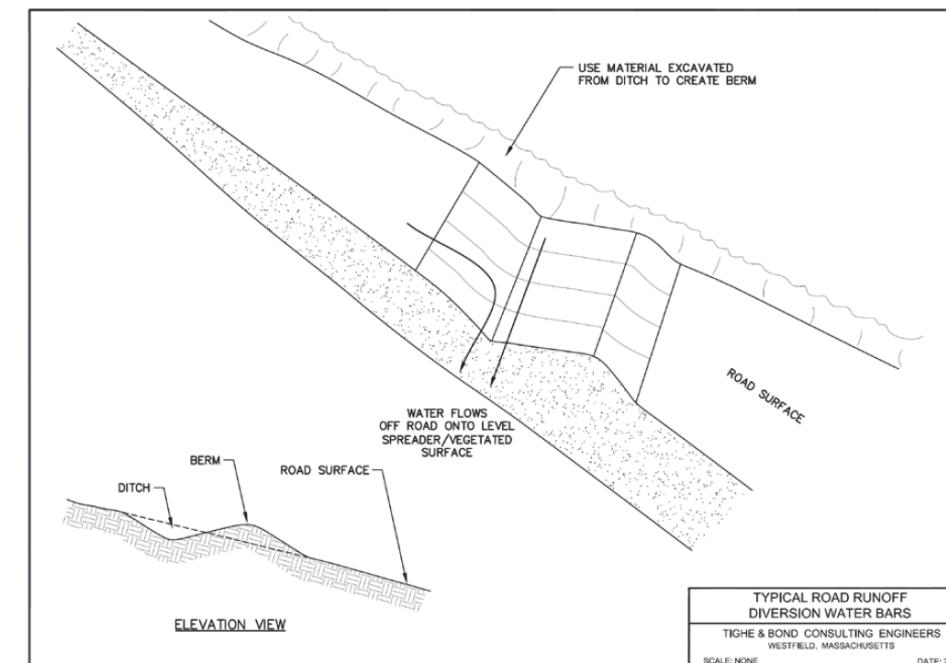
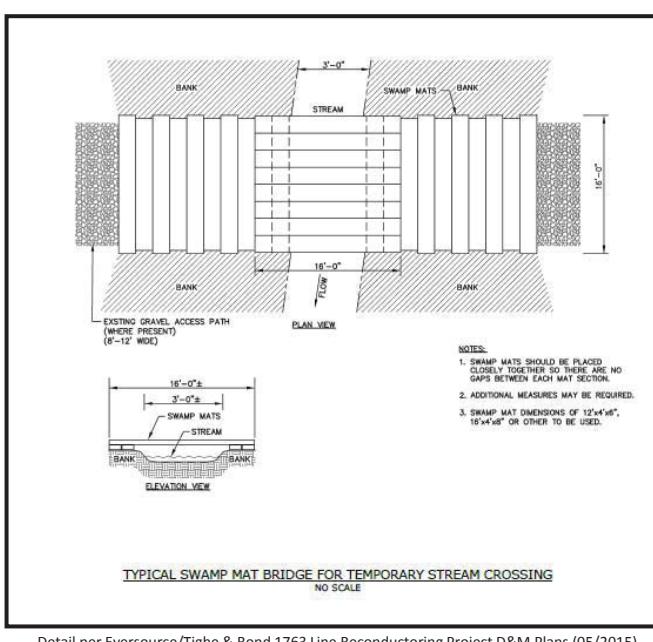
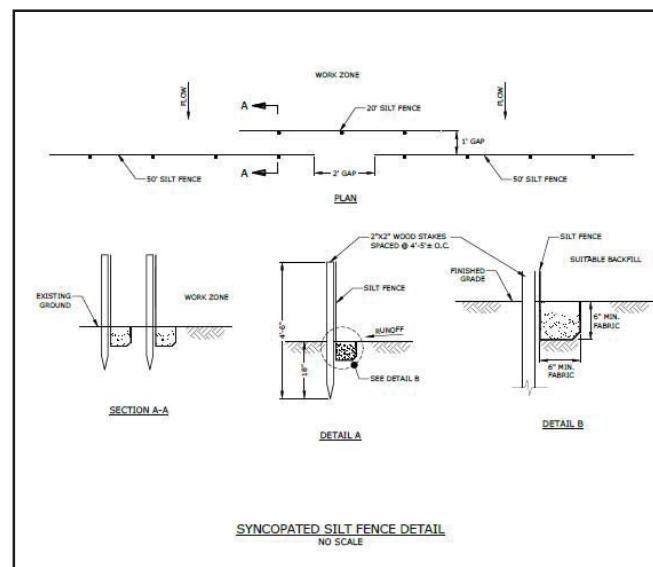
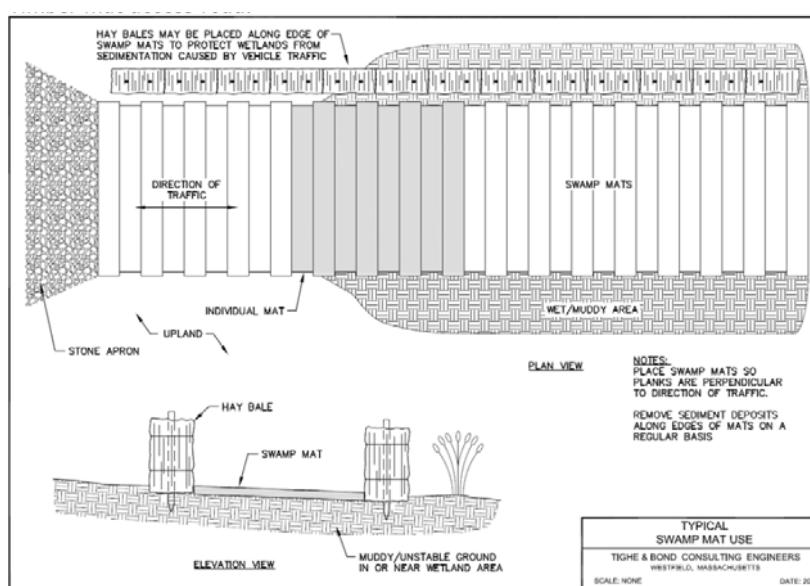
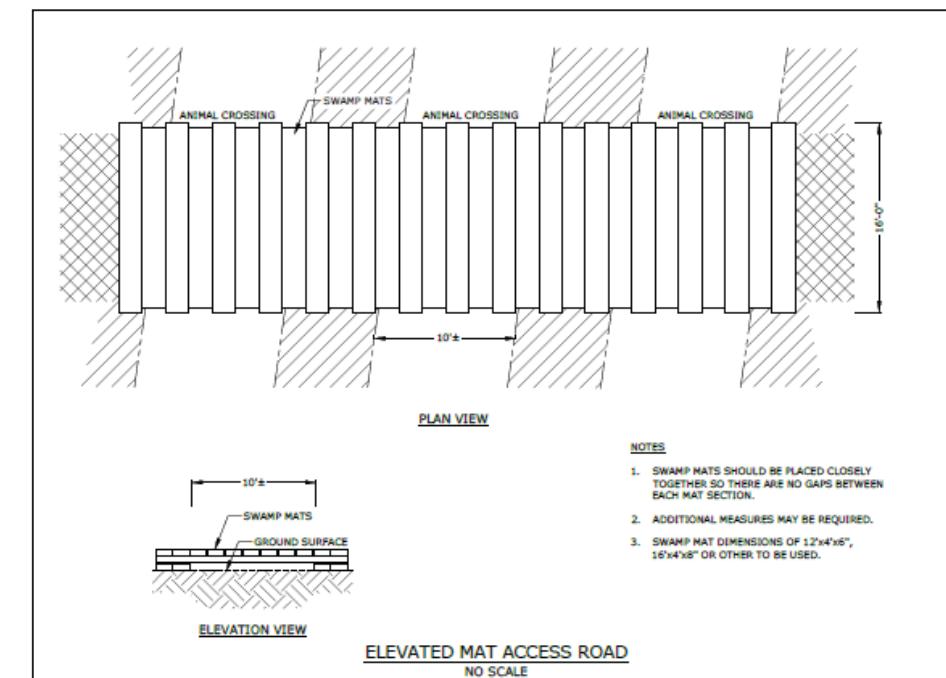
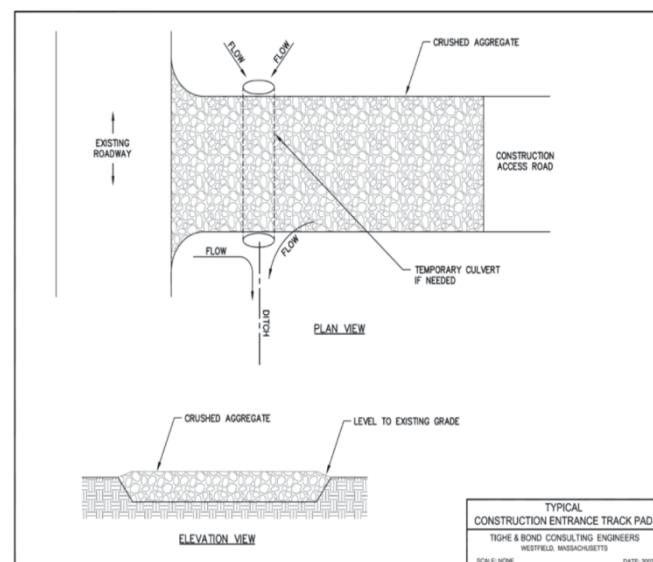
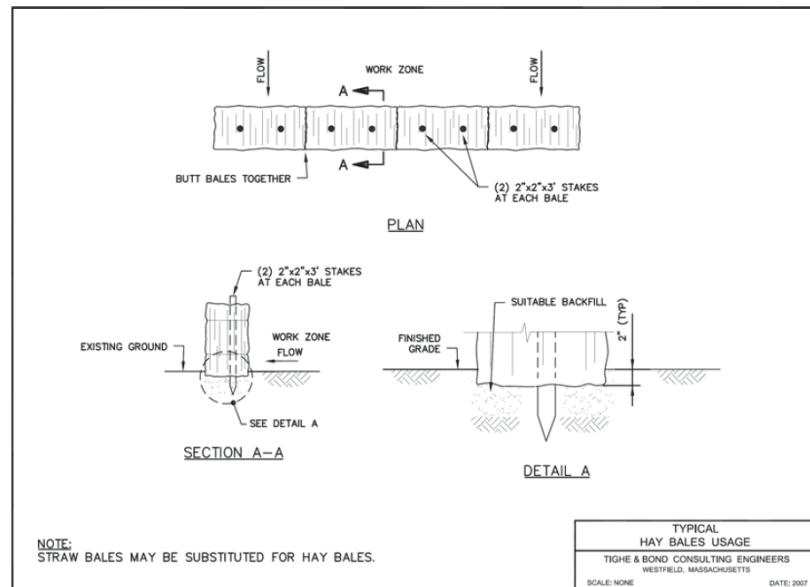
RARE SPECIES AVOIDANCE AND MINIMIZATION MEASURES

No Scale

EVERSOURCE

AECOM

Detail Sheet 7

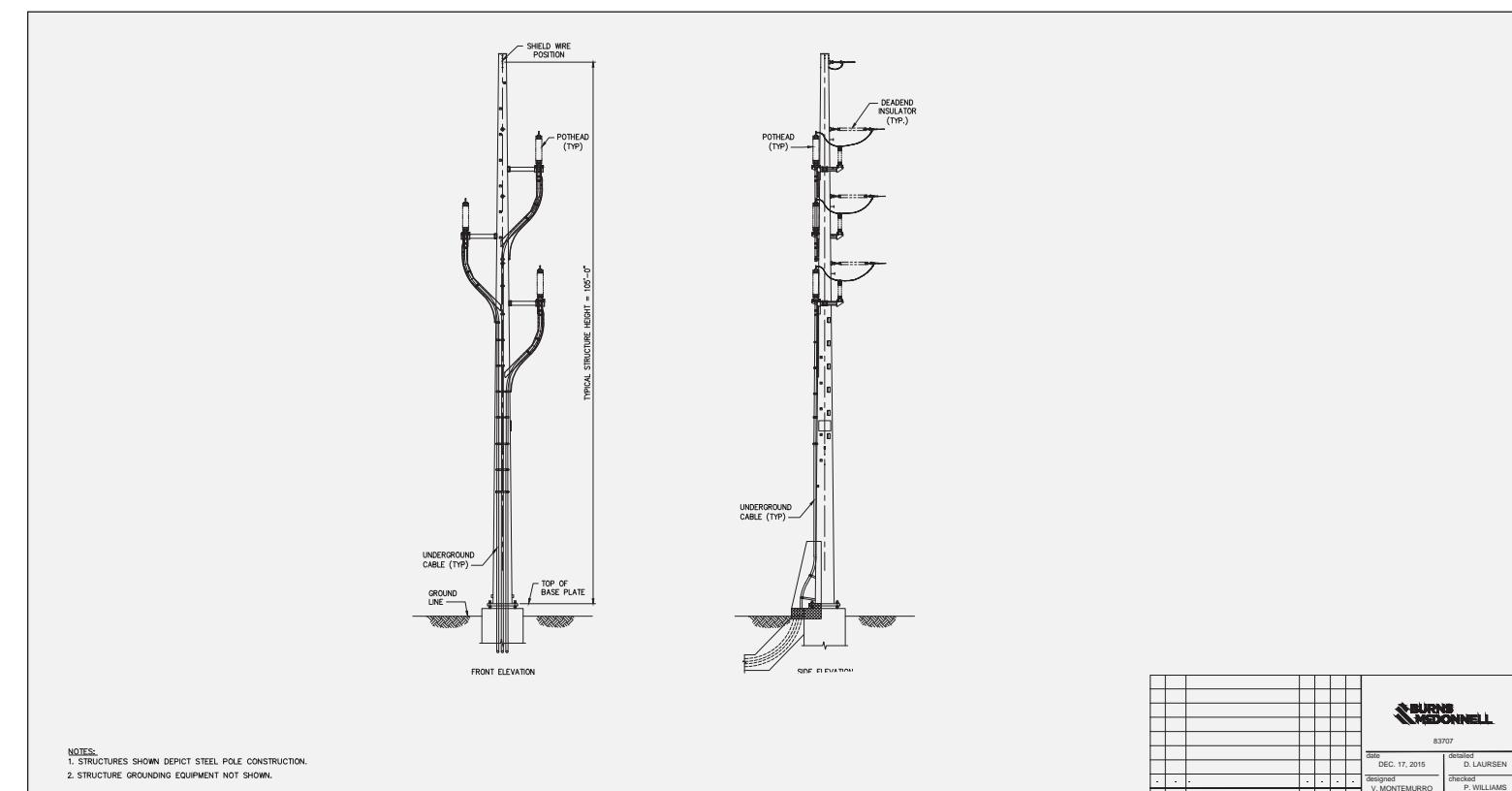
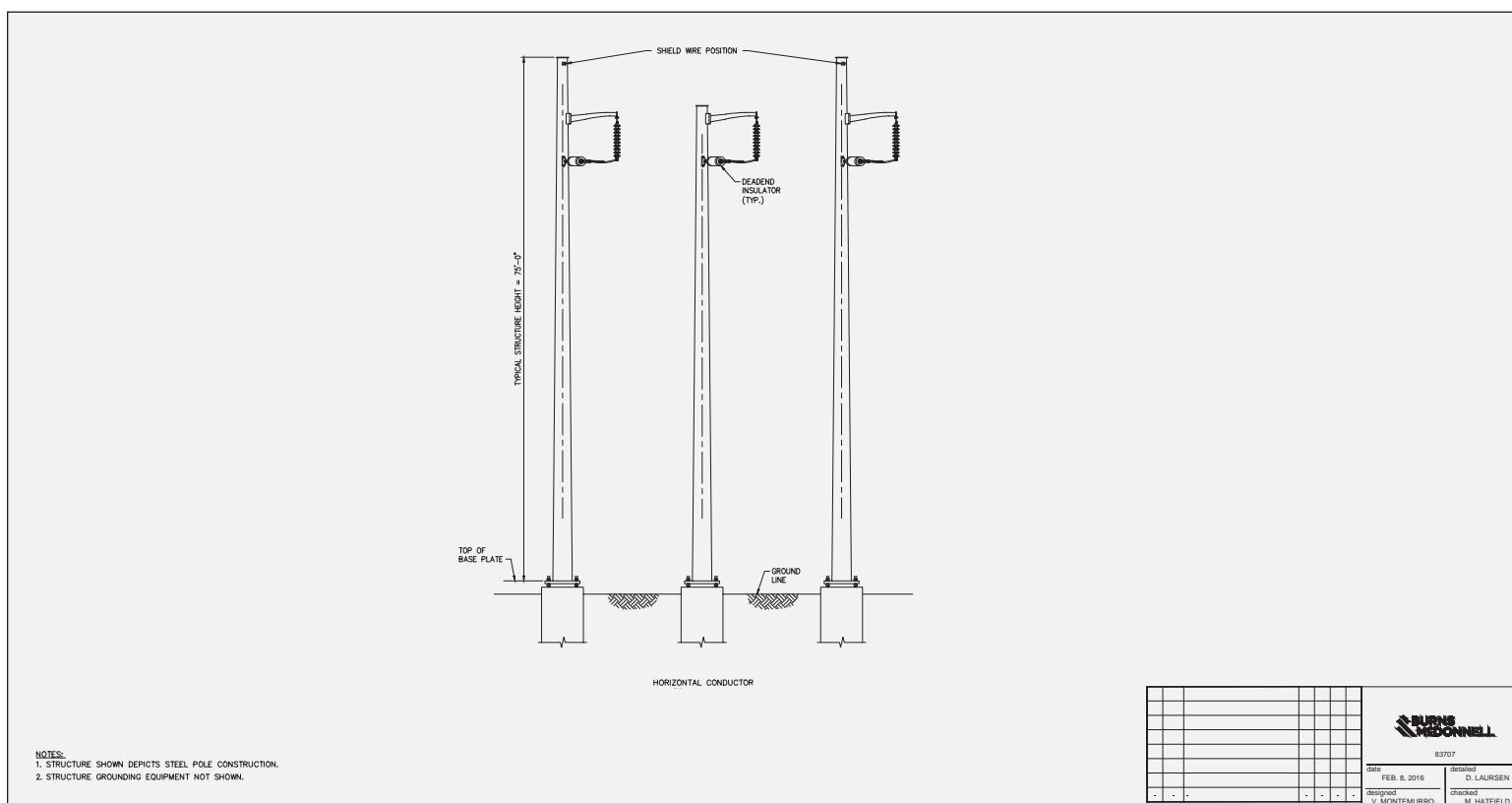
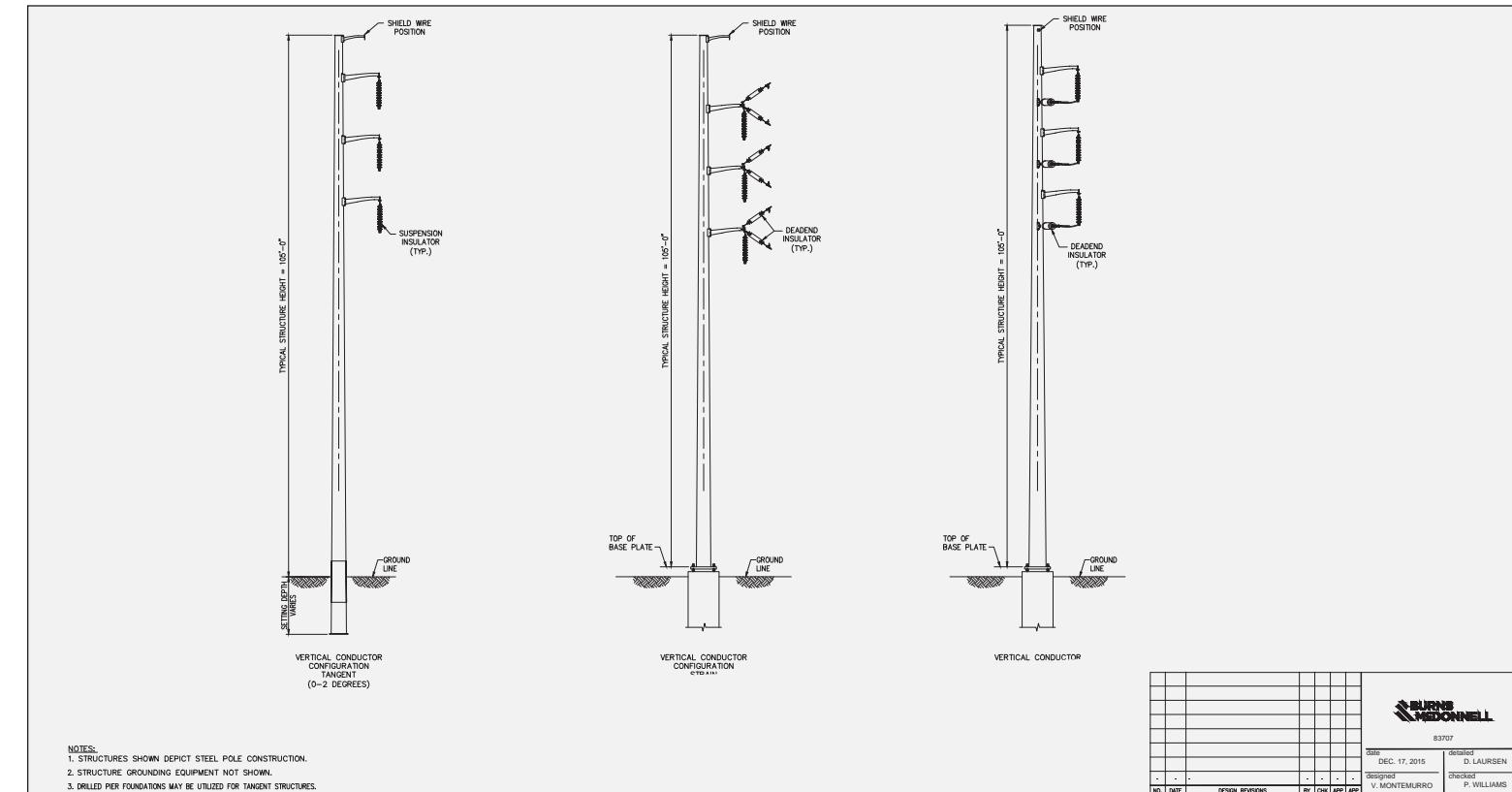
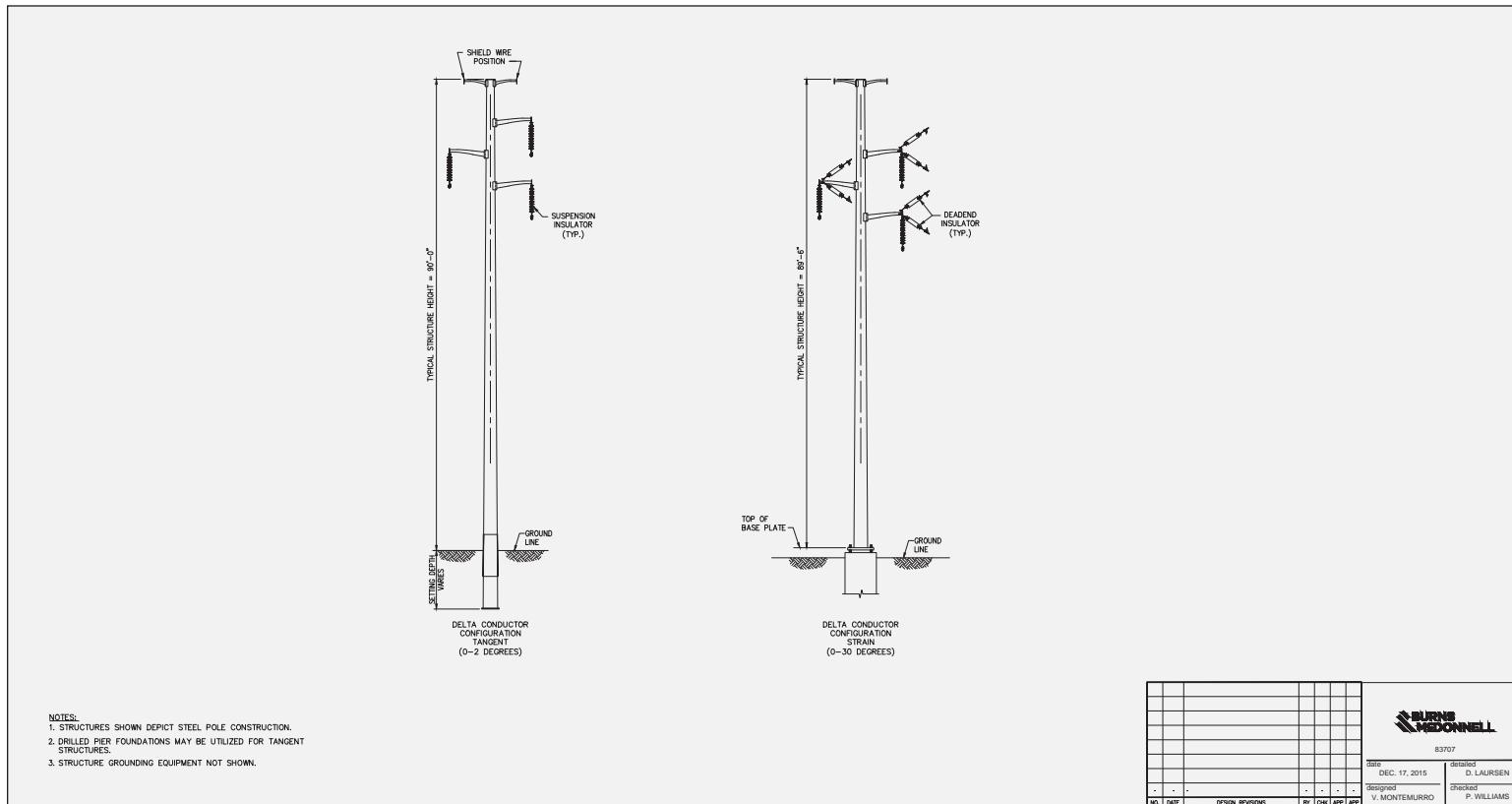


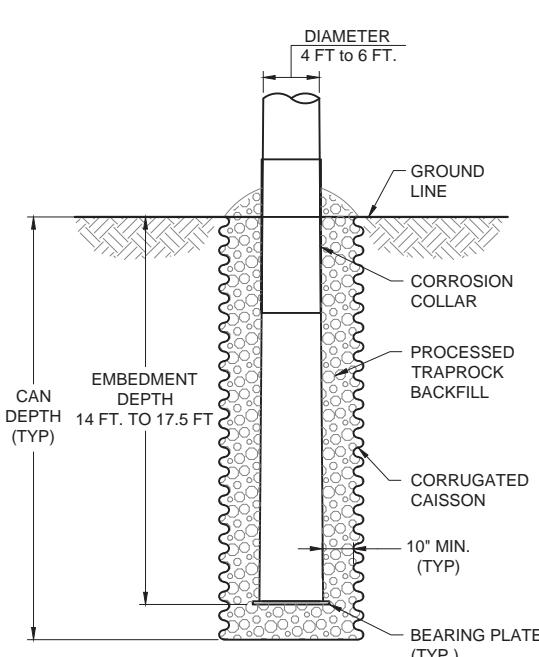
Bloomfield-Windsor Upgrades Project
1777/1779 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD SUBSTATION AND BLOOMFIELD JUNCTION
1751/1777 TRANSMISSION LINE UPGRADES BETWEEN BLOOMFIELD JUNCTION AND NORTH BLOOMFIELD SUBSTATION
Select Best Management Practices (BMPs)
No Scale

EVERSOURCE

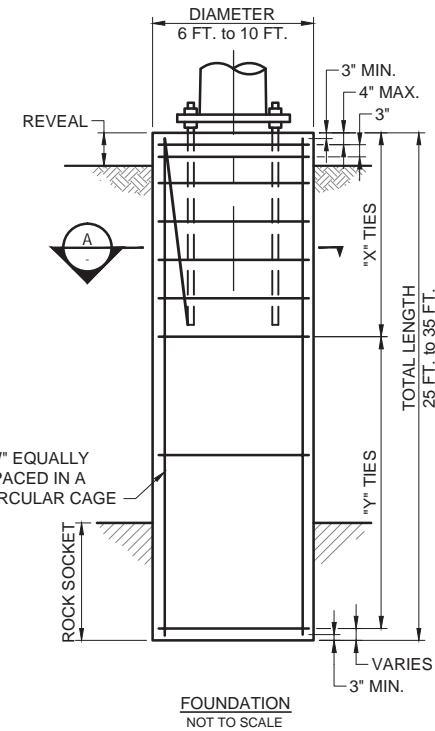
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Detail Sheet 8

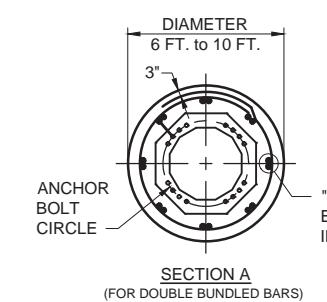




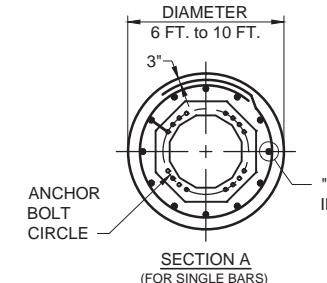
DETAIL 1
DIRECT EMBEDDED FOUNDATION



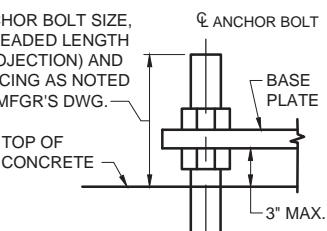
DETAIL 2
DRILLED SHAFT FOUNDATION



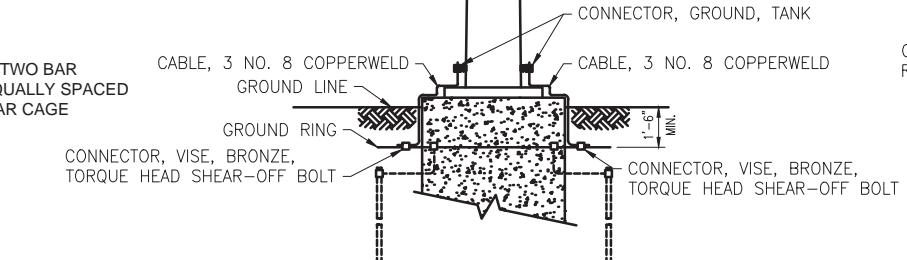
SECTION A
(FOR DOUBLE BUNDLED BARS)



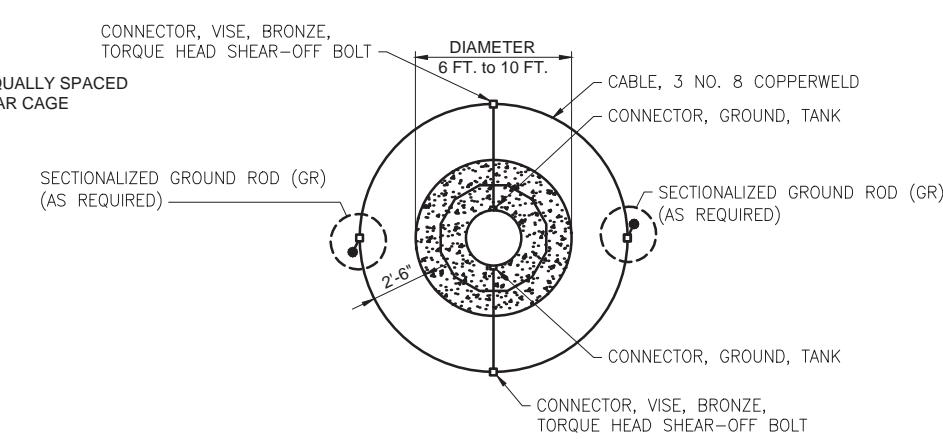
SECTION A
(FOR SINGLE BARS)



TYPICAL ANCHOR BOLT DETAIL
NOT TO SCALE

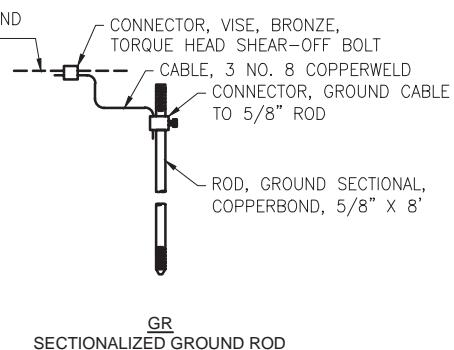


CONNECTOR, GROUND, TANK
CABLE, 3 NO. 8 COPPERWELD
GROUND LINE
"W" BARS IN TWO BAR BUNDLES EQUALLY SPACED IN A CIRCULAR CAGE
ANCHOR BOLT CIRCLE
SECTION A
(FOR DOUBLE BUNDLED BARS)

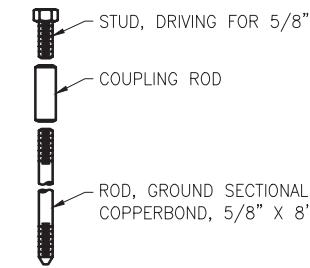


CONNECTOR, VISE, BRONZE,
TORQUE HEAD SHEAR-OFF BOLT
ANCHOR BOLT CIRCLE
"W" BARS EQUALLY SPACED
IN A CIRCULAR CAGE
SECTION A
(FOR SINGLE BARS)

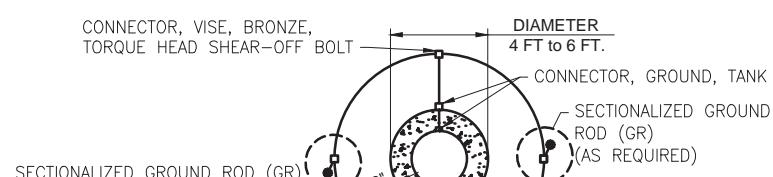
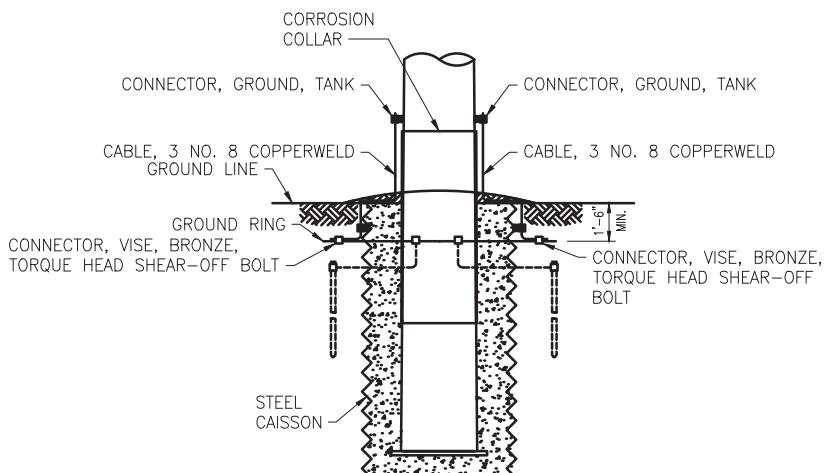
CONNECTOR, VISE, BRONZE,
TORQUE HEAD SHEAR-OFF BOLT
ANCHOR BOLT SIZE,
THREADED LENGTH
(PROJECTION) AND
SPACING AS NOTED
ON MFGR'S DWG.
TOP OF
CONCRETE
3' MAX.
ANCHOR BOLT
BASE
PLATE



GR
SECTIONALIZED GROUND ROD



GR-1
SECTIONALIZED GROUND ROD EXTENSION



GROUND RING
DIRECT EMBED
STEEL POLES

INSTALLATION NOTES:

1. CONSTRUCTION CONTRACTOR TO INSTALL BASE GROUND RING ASSEMBLY (SEE GROUND RING DETAILS) AT EVERY STRUCTURE LOCATION.
2. CONSTRUCTION CONTRACTOR TO TAKE RESISTIVITY MEASUREMENTS - IF THE READINGS ARE ACCEPTABLE, THEN DONE.
3. IF THE RESISTIVITY READINGS ARE UNACCEPTABLE (TOO HIGH) AND THE SOIL PROFILE ALLOWS; INSTALL GROUND RODS (ASSEMBLY GR) PER DETAIL AND NOTES. TAKE RESISTIVITY MEASUREMENTS - IF ACCEPTABLE, THEN DONE.
4. IN LOCATIONS WHERE THE STRUCTURE IS LOCATED IN A WETLAND AREA, THE PREFERRED METHOD OF GROUNDING IS THE GROUND RING AND GROUND RODS.

BURNS & MCDONNELL		EVERSOURCE ENERGY			
		Bloomfield-Windsor Upgrades Project Development & Management Plan			
TYPICAL FOUNDATION AND GROUNDING DETAILS					
Detail Sheet 10					
date	APR. 25, 2016	detailed	M. PEPICH	checked	M. HATFIELD
designed	V. MONTEMURRO	checked	V. MONTEMURRO	NO.	DATE
				REVISIONS	BY
				CHK	APP
				APP	
Tighe & Bond		ALL-POINTS			