

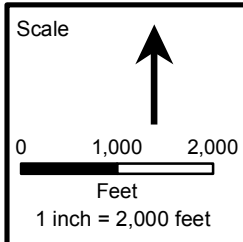
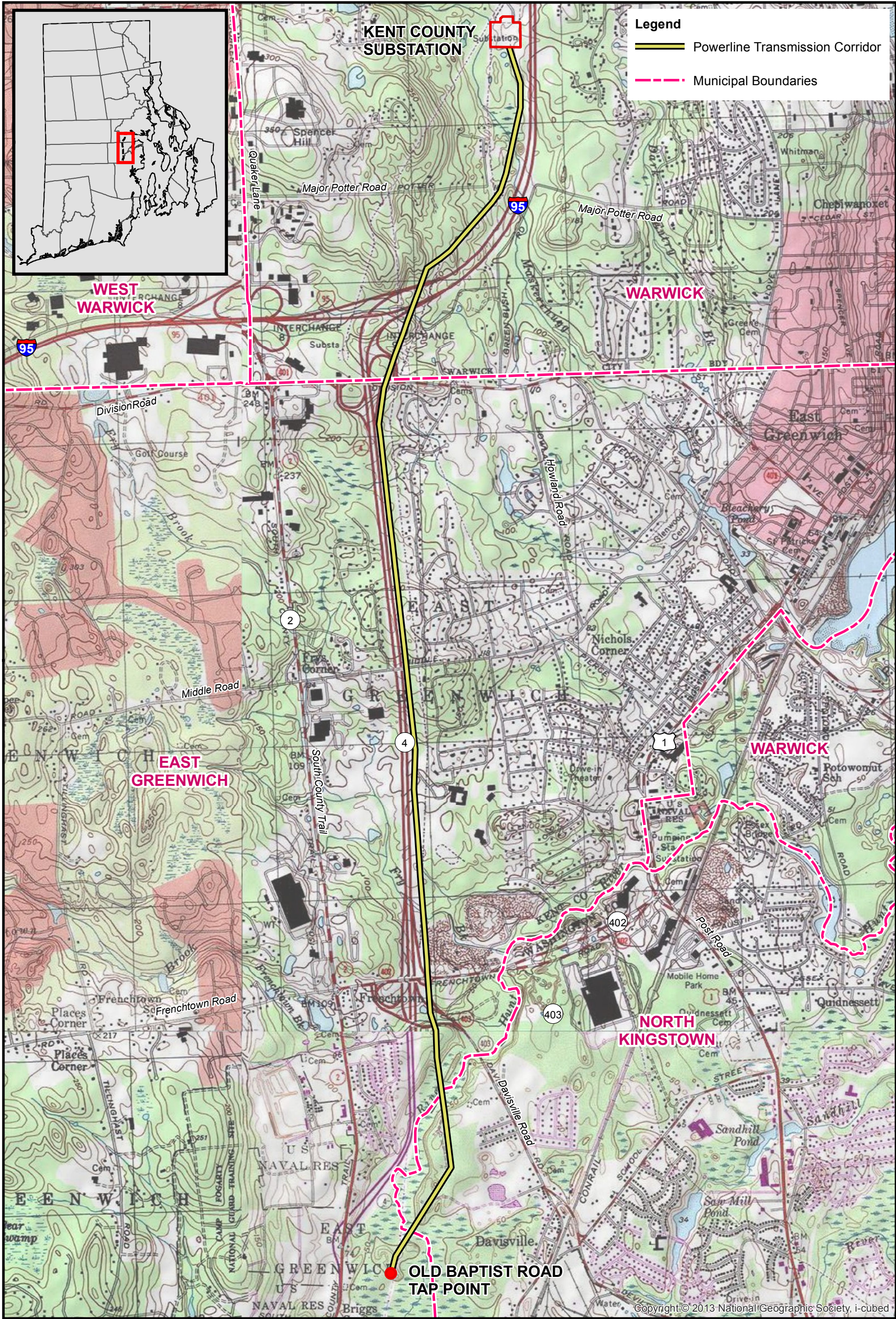
G-185S 115kV Transmission Line Reconductoring Project

Warwick, East Greenwich, and North Kingstown
Rhode Island

Prepared for The Narragansett Electric Company d/b/a National Grid
280 Melrose Street
Providence, Rhode Island 02907

Prepared by *Vanasse Hangen Brustlin, Inc.* 
10 Dorrance Street, Suite 400
Providence, Rhode Island 02903

January 2014

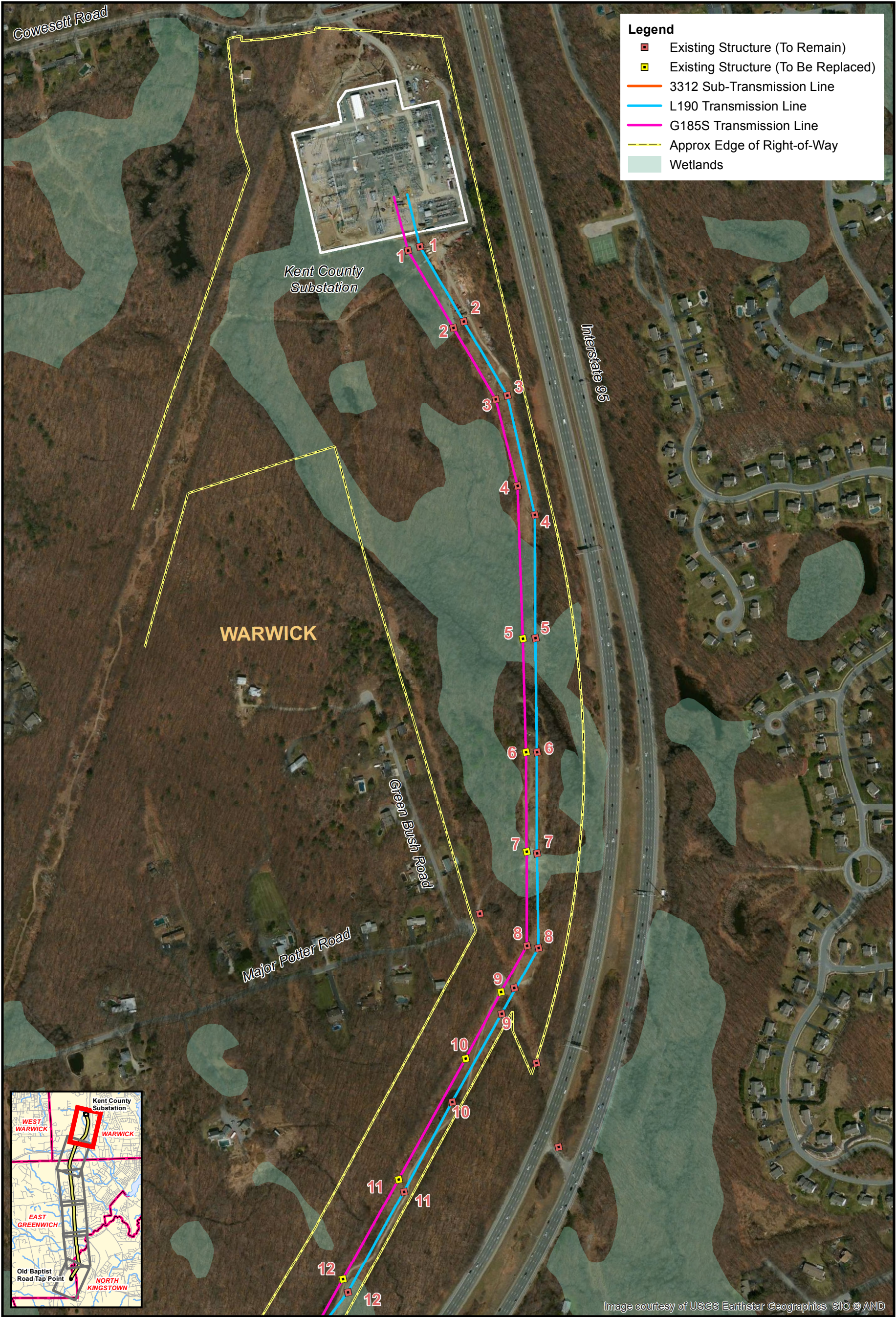


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Site Location Map
Figure 1-1**

Source:
USA Topo Maps (2012)

nationalgrid
Yanase Hangen Brustlin, Inc.

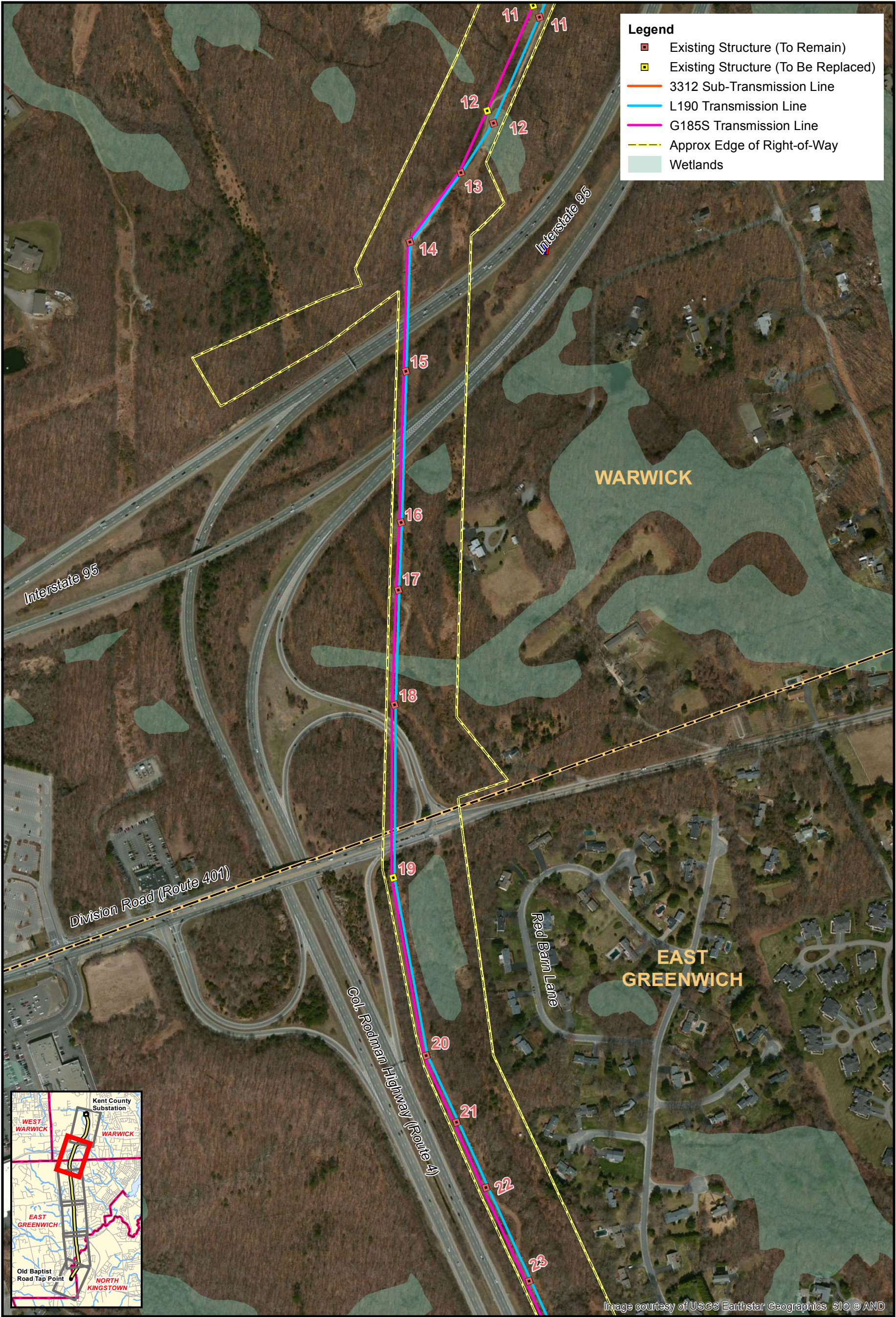


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 1 of 6)**

Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)

nationalgrid
Yanase Hangen Brustlin, Inc.



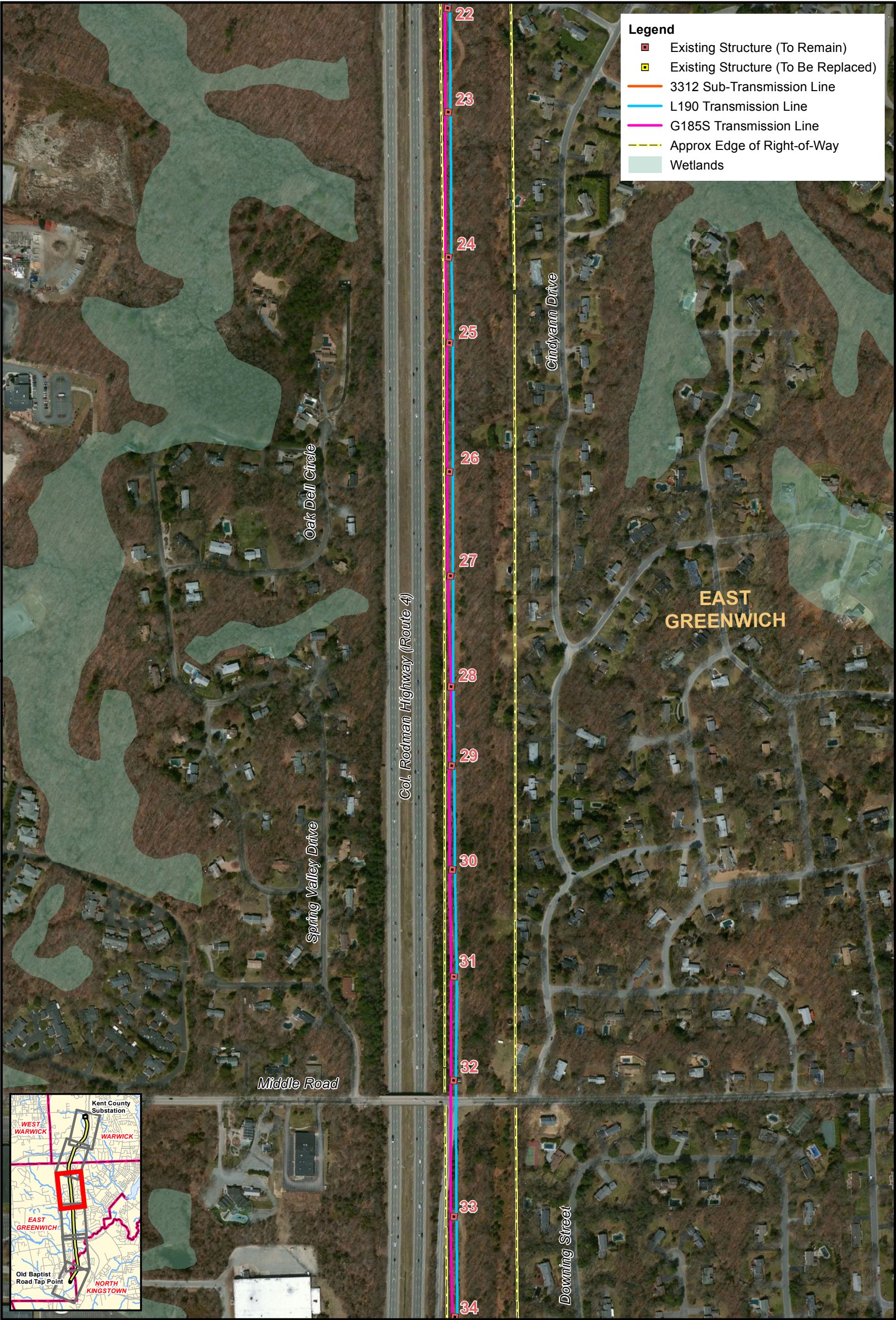
**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 2 of 6)**

Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)

nationalgrid

VHB Yvanse Hangen Brustlin, Inc.



**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 3 of 6)**

Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)



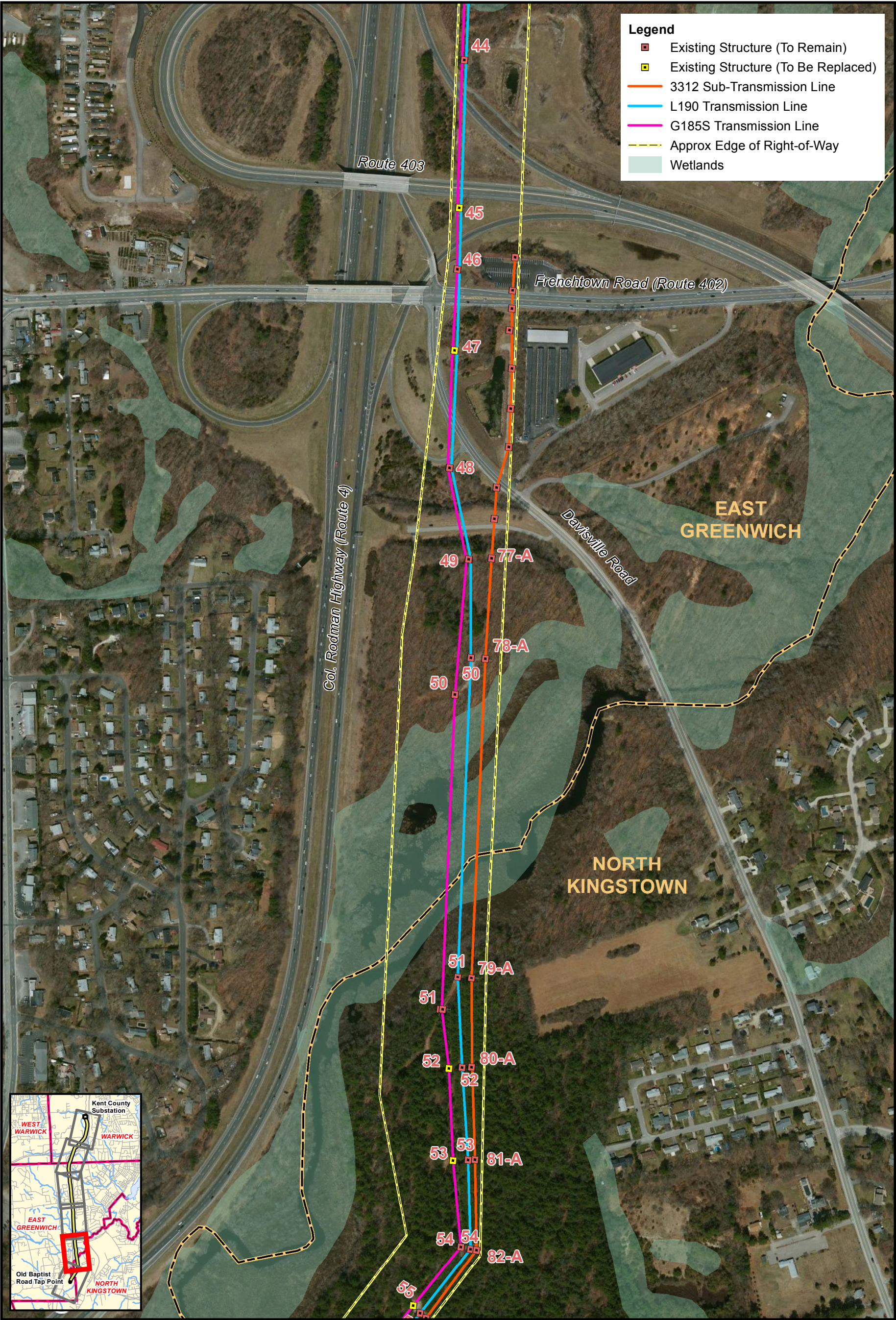


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 4 of 6)**

Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)



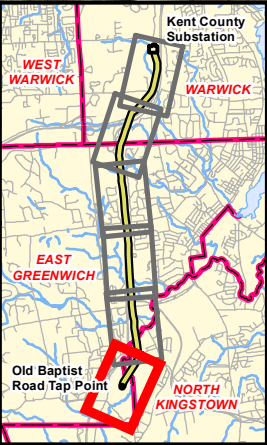
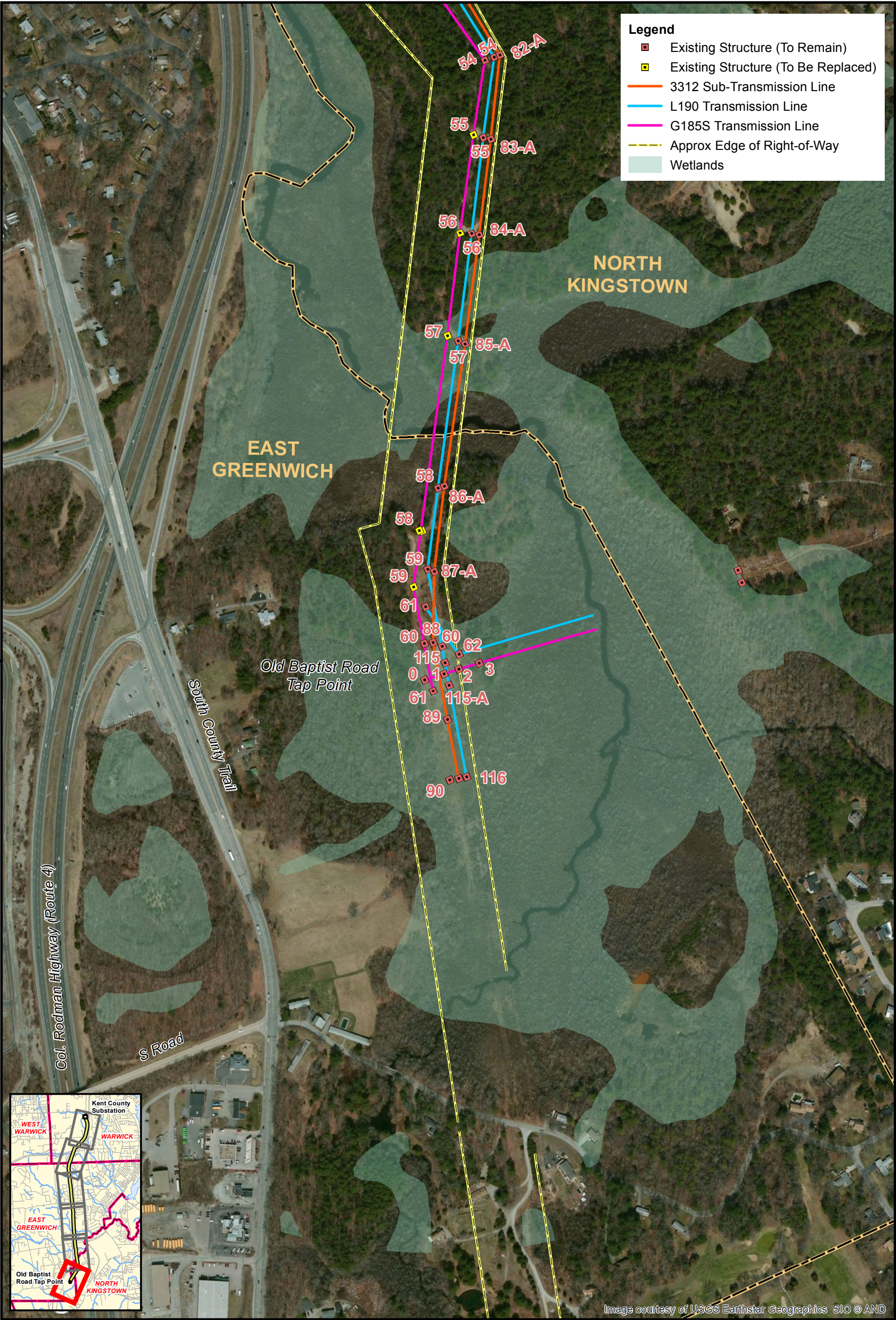


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 5 of 6)**

Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)

nationalgrid
Yanase Hangen Brustlin, Inc.

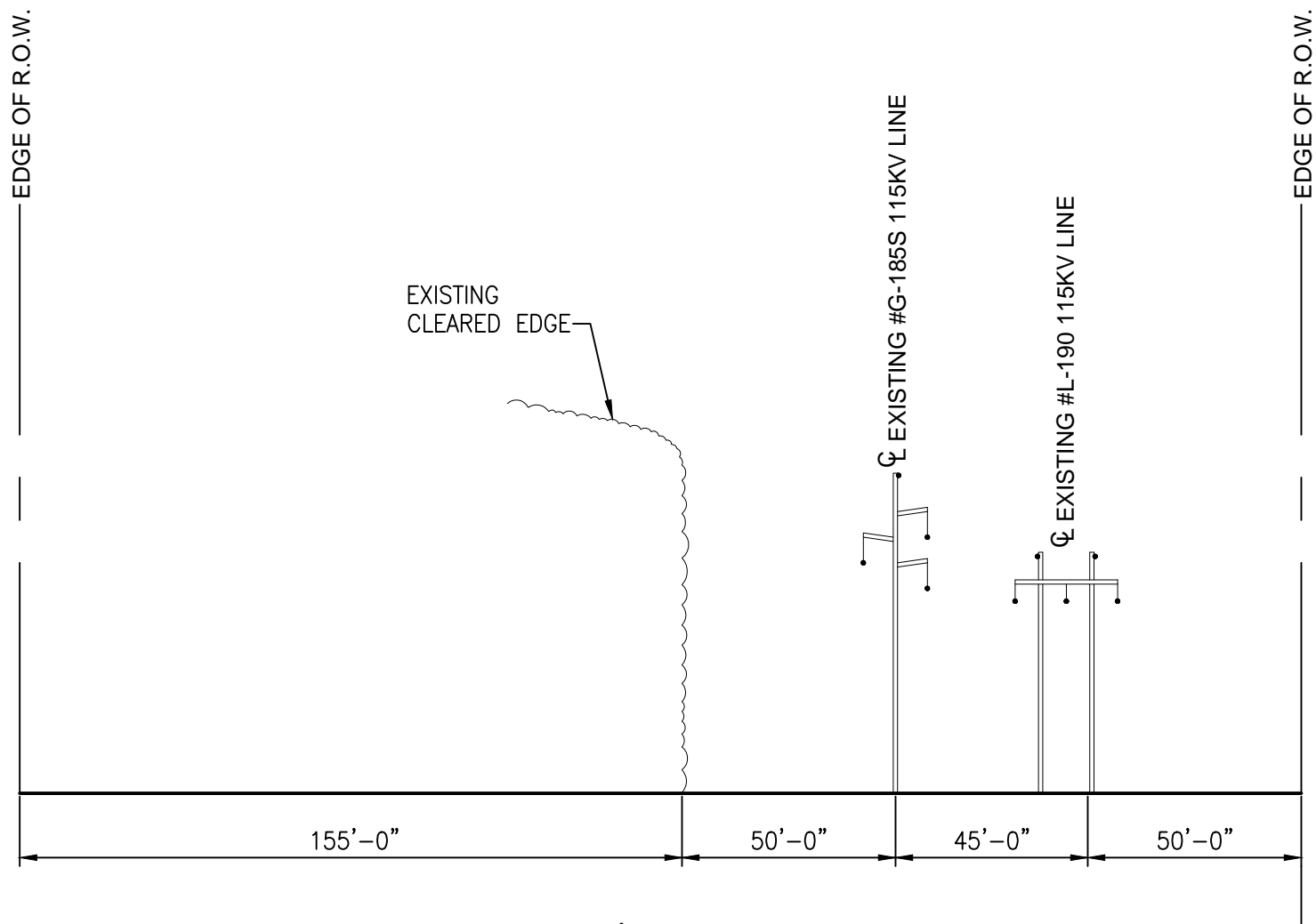


**G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND**

**Project Alignment
Figure 3-1 (Sheet 6 of 6)**

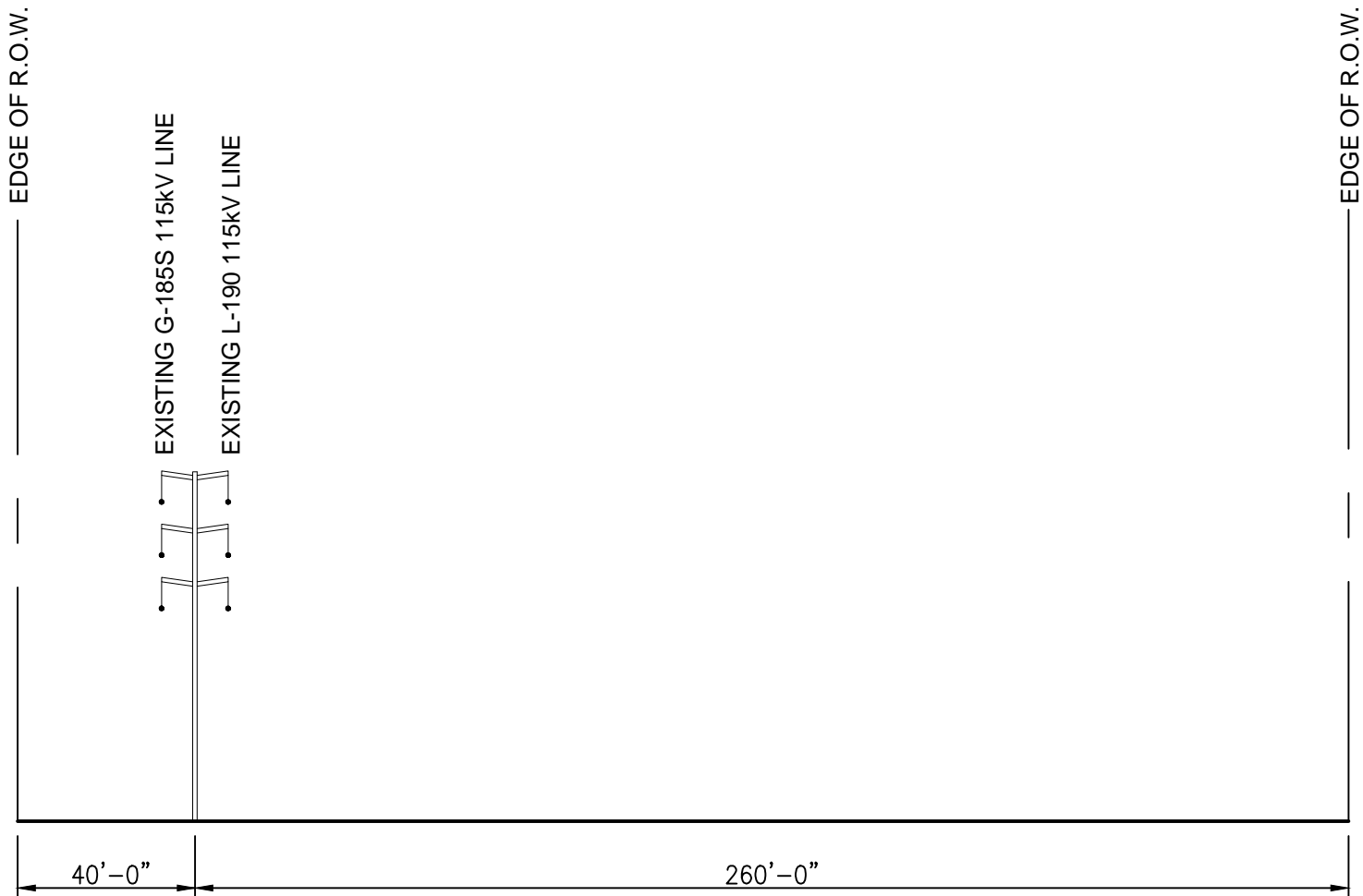
Source:
Bing Aerial Maps (2013)
RIGIS Wetlands (1993)





300' RIGHT-OF-WAY
CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES
BETWEEN KENT COUNTY SUBSTATION AND INTERSTATE 95
FACING NORTH

Scale	<u>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</u> <u>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</u>	Source: National Grid (2013)
NTS	ROW Cross Section Kent County Substation to Interstate 95 Figure 3-2	



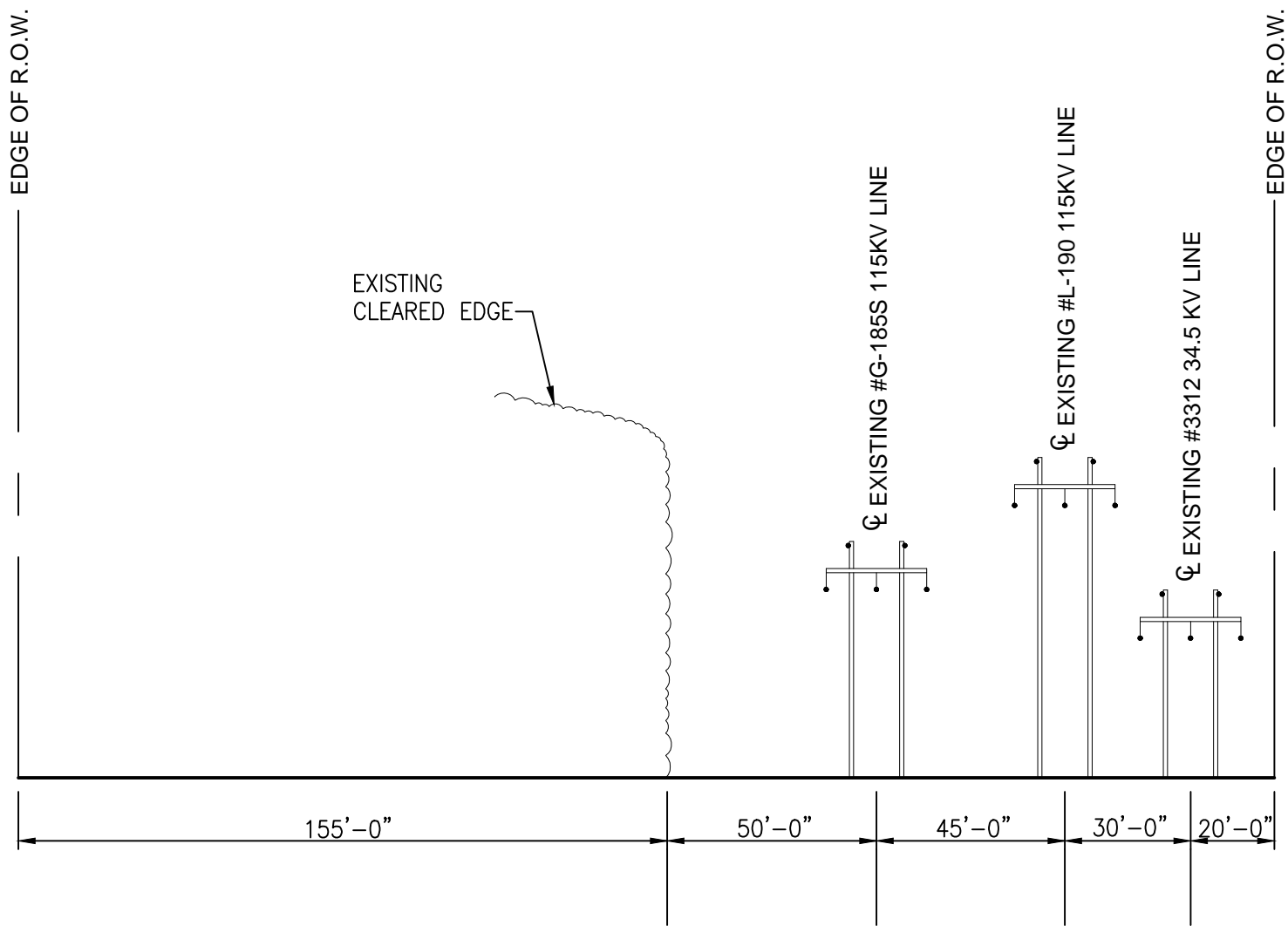
300' RIGHT-OF-WAY

CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES

BETWEEN INTERSTATE 95 AND FRENCHTOWN ROAD

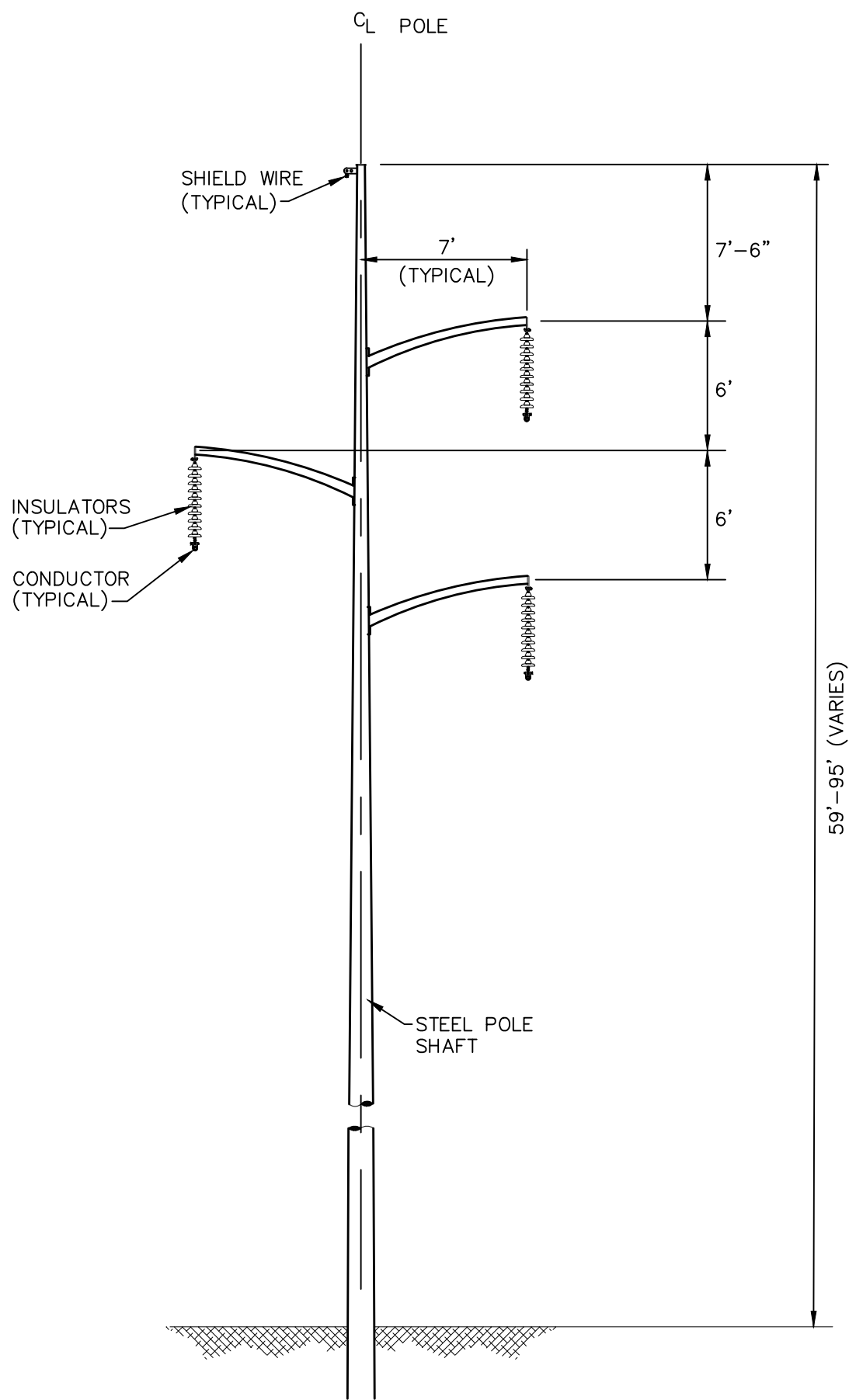
FACING NORTH

Scale	<u>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</u> <u>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</u>	Source: National Grid (2013)
NTS	ROW Cross Section-I-95 to Frenchtown Road Figure 3-3	nationalgrid <small>Yonkers Hargens Drustine, Inc.</small>



300'± RIGHT-OF-WAY
CROSS-SECTION SHOWING TYPICAL ARRANGEMENT OF LINES
BETWEEN FRENCHTOWN ROAD AND OLD BAPTIST ROAD TAP POINT
FACING NORTH

Scale	<u>G-185S TRANSMISSION LINE RECONDUCTORING PROJECT</u> <u>WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND</u> ROW Cross Section Frenchtown Road to Old Baptist Road Tap Point Figure 3-4	Source: National Grid (2013) nationalgrid <small>Yonkers Hargens Drustine, Inc.</small>
NTS		



TYPICAL STRUCTURE
FACING NORTH

Scale

NTS

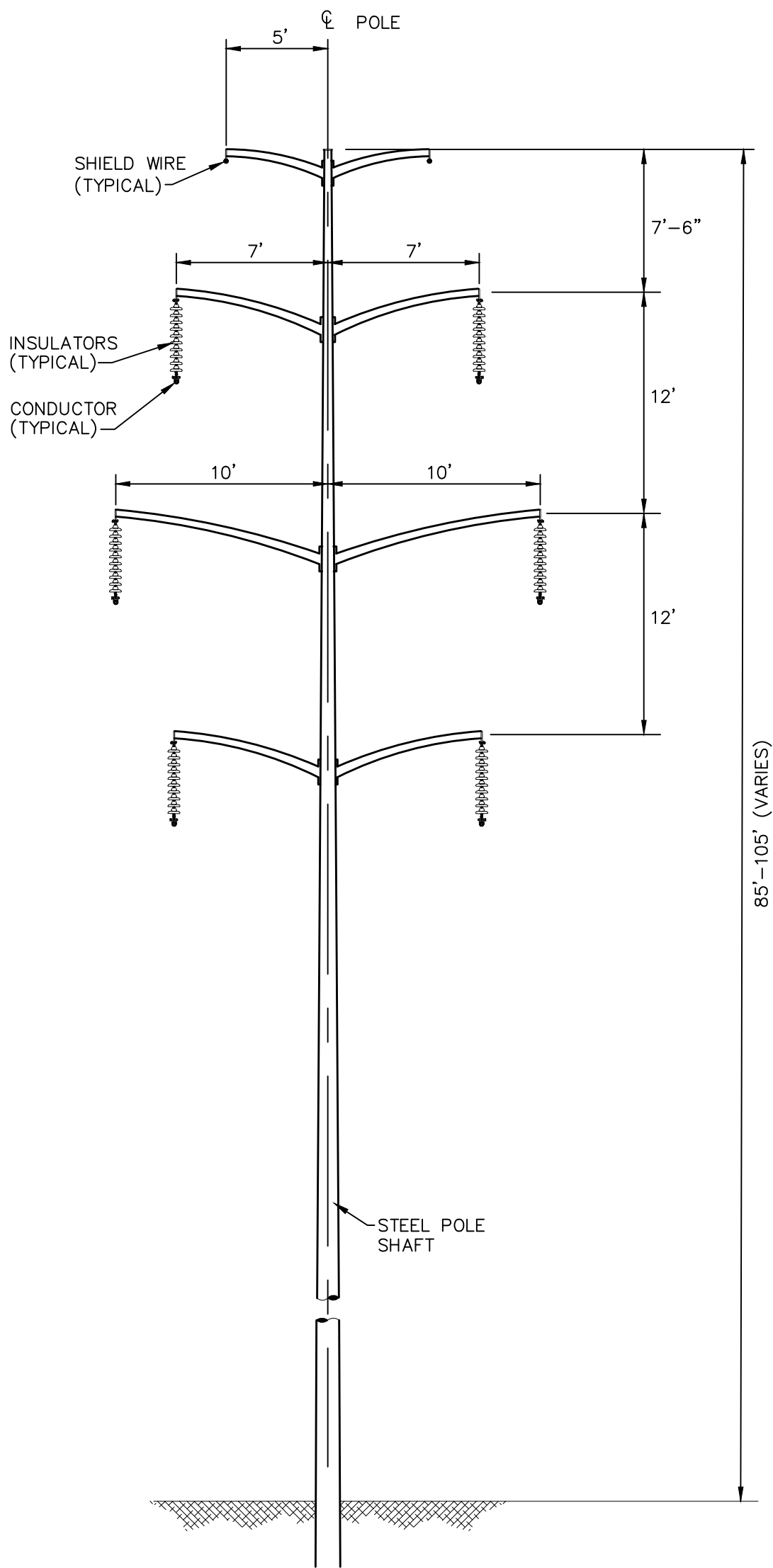
G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

**Typical Single Circuit Steel Pole
Davit Arm Structure
Figure 3-5**

Source:
National Grid (2013)

nationalgrid

Yonkers Hargens Drustine, Inc.



Scale

NTS

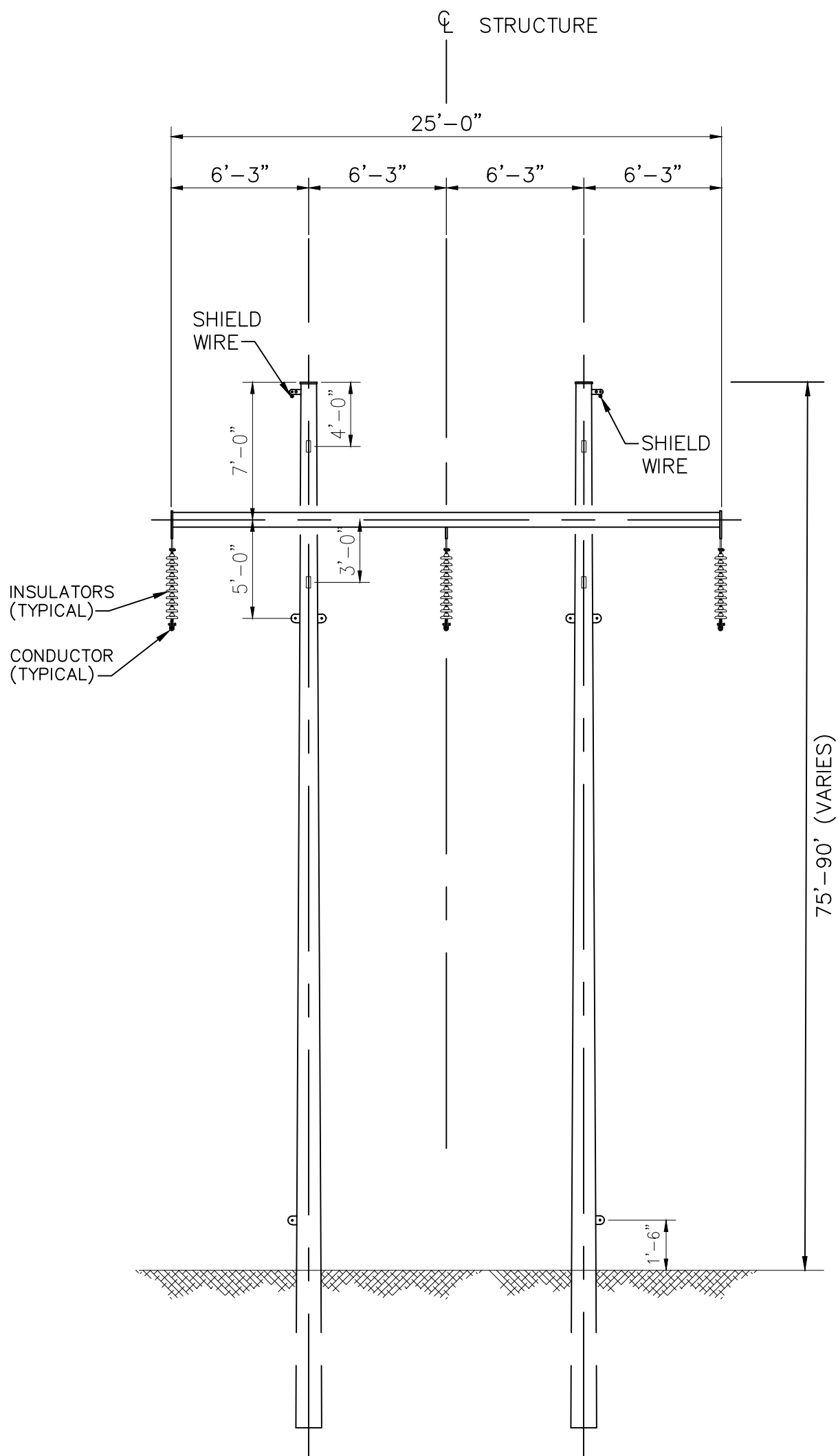
G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Typical Double Circuit Steel Pole
Davit Arm Structure
Figure 3-6

Source:
National Grid (2013)

nationalgrid

Yonkers Hargens Drustine, Inc.



Scale

NTS

G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Typical Single Circuit H-Frame Structure
Figure 3-7

Source:
National Grid (2013)

nationalgrid

Yonkers Hargens Drustine, Inc.

Activity	2013				2014				2015			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Preliminary Engineering												
Licensing and Permitting												
Engineering												
Procurement												
Construction												

Scale

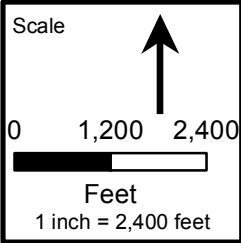
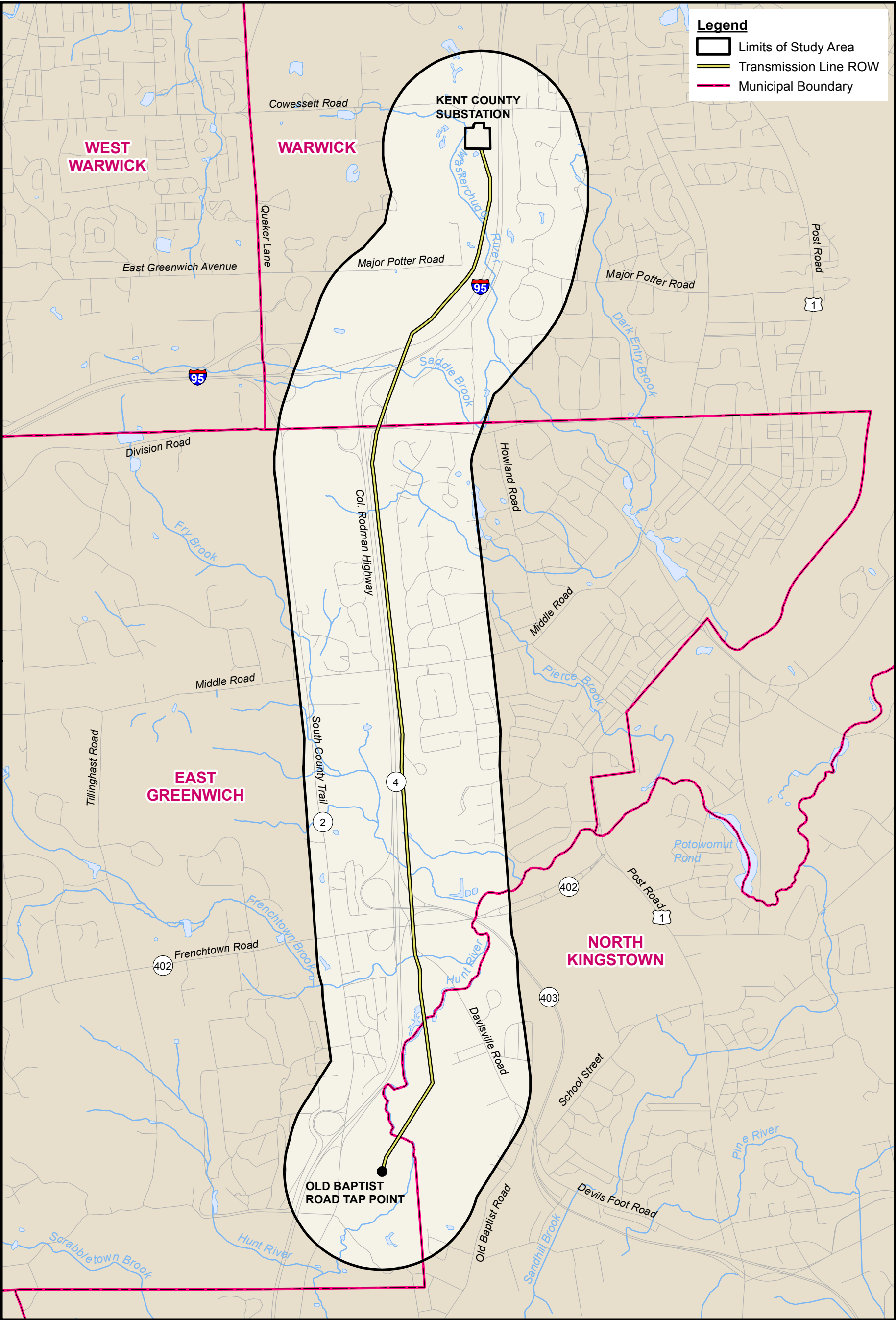
NTS

G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Project Schedule
Figure 3-8

Source:
National Grid (2013)





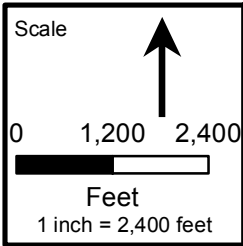
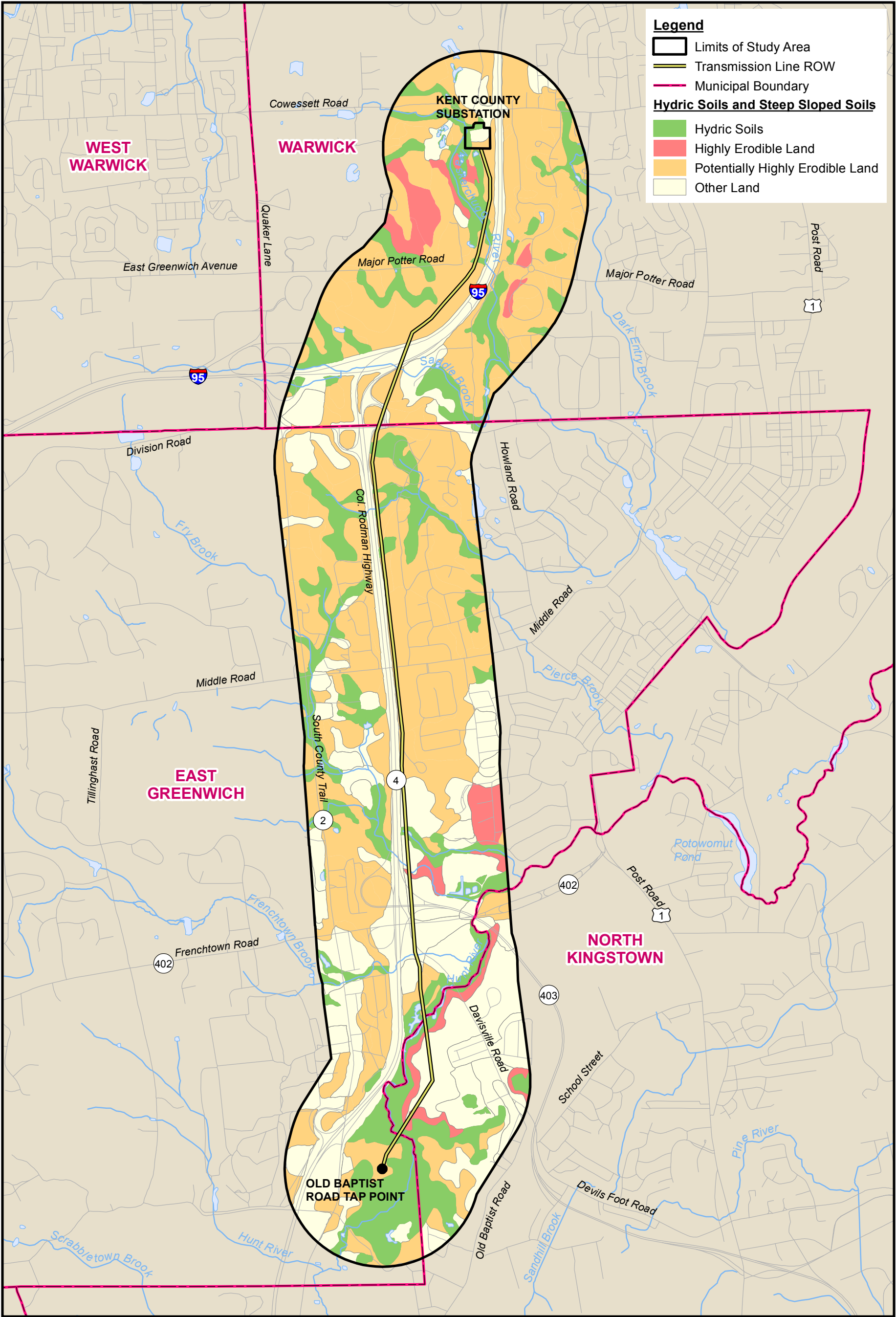
G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Base Plan
Figure 5-1

Source:
RIGIS (2013)

nationalgrid

VHB Yvanse Hangen Brustlin, Inc.

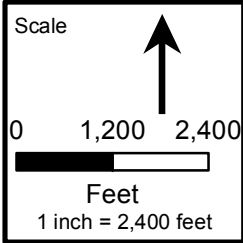
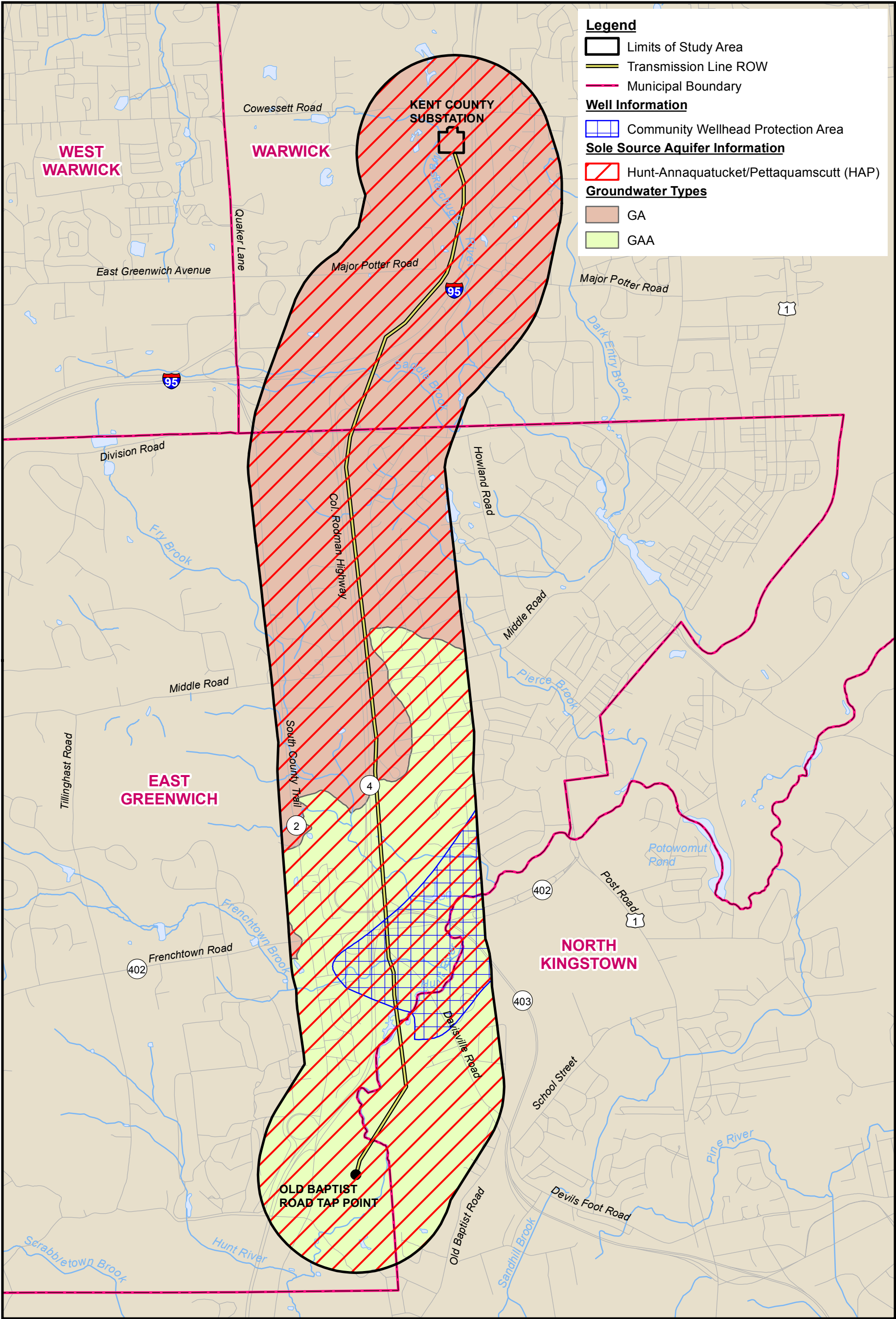


G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Soils Plan
Figure 5-2

Source:
RIGIS Soils Data (2013)

nationalgrid
Yanase Hangen Brustlin, Inc.



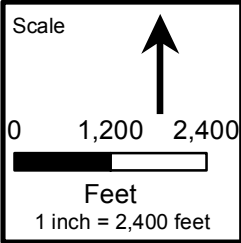
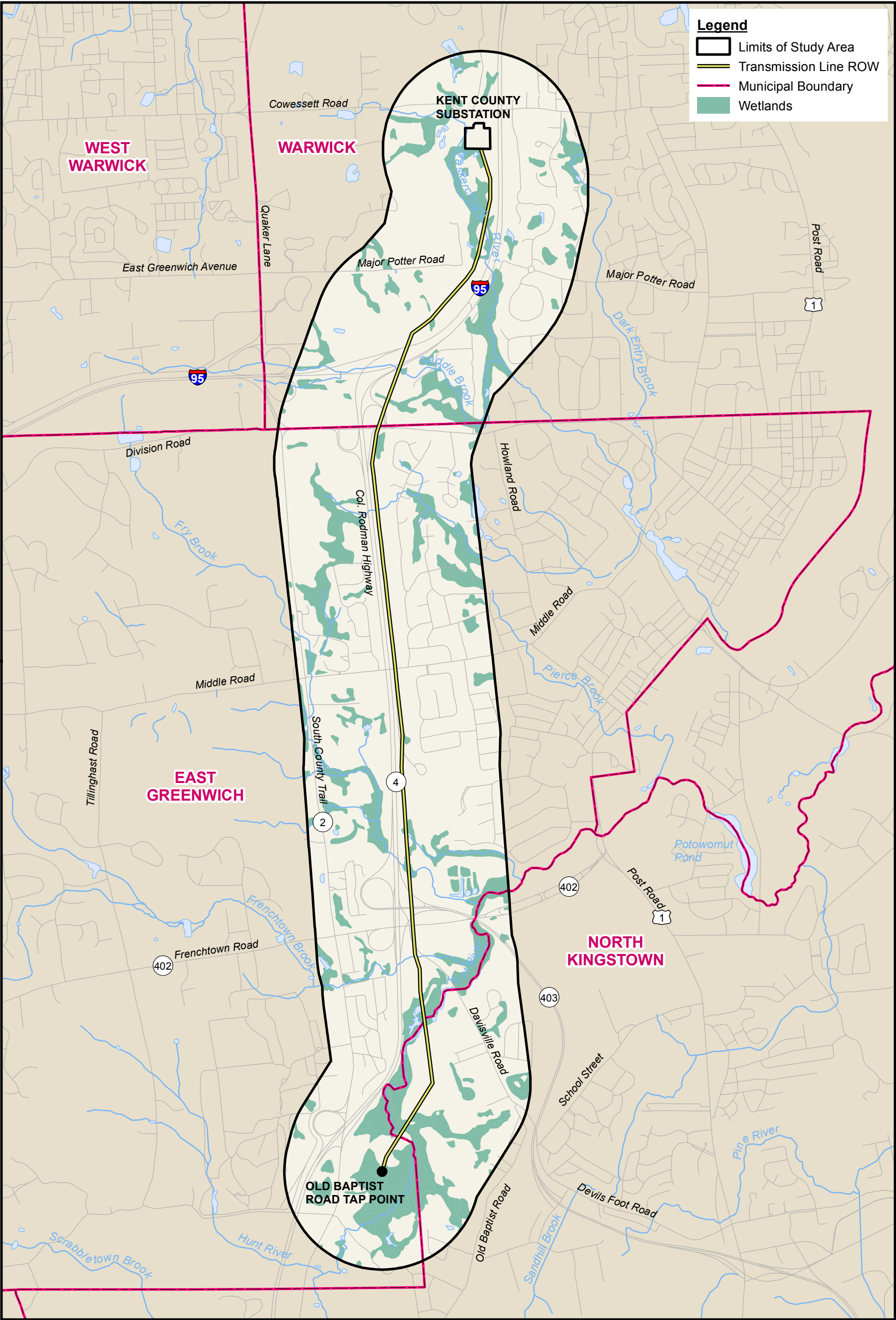
G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Surface and Groundwater Resources Plan

Figure 5-3

Source:
RIGIS Wellhead Data (March 2012)
RIGIS Aquifer Data (September 2011)
RIGIS Groundwater Data (March 2012)





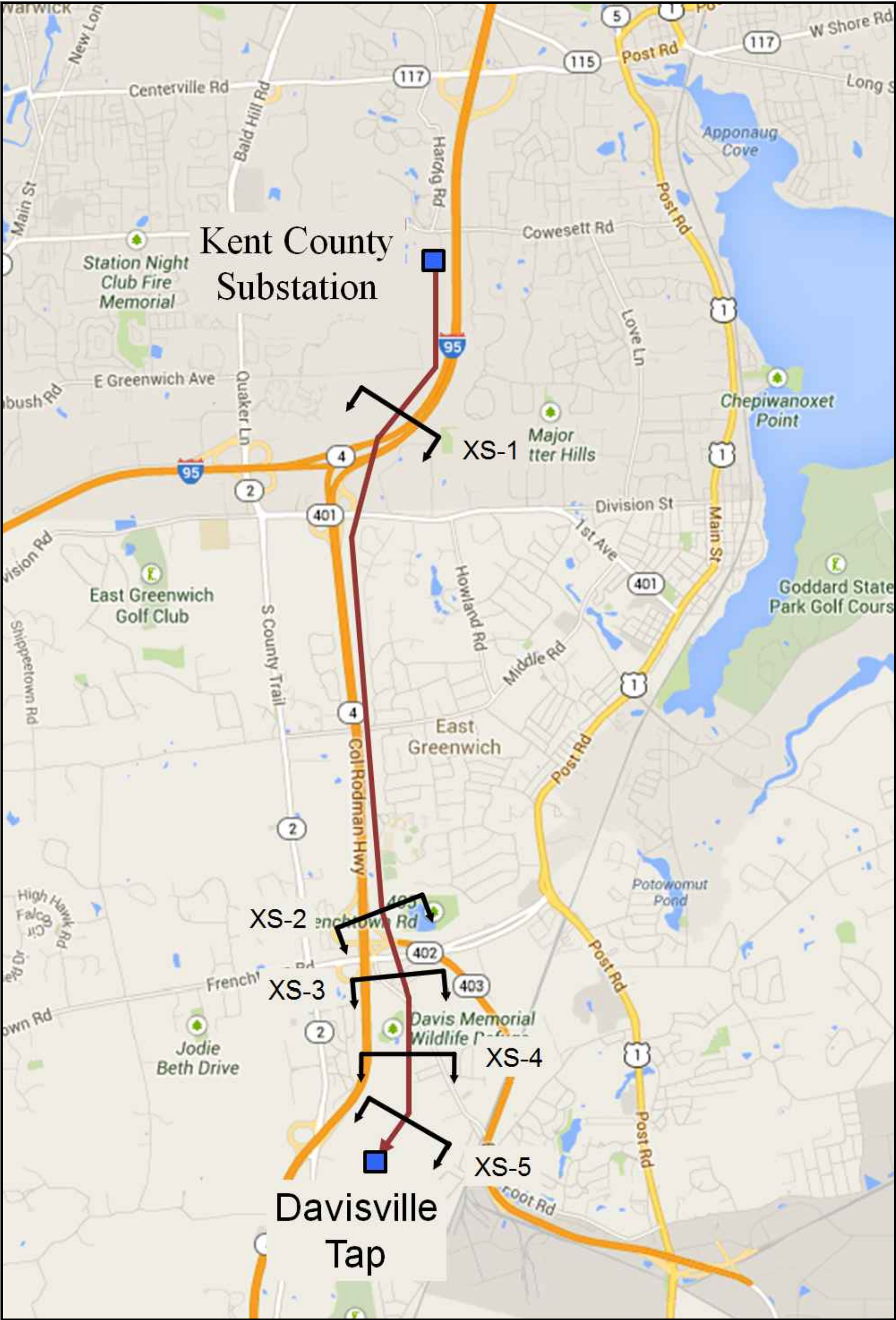
G-185S TRANSMISSION LINE RECONDUCTORING PROJECT
WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND

Wetland Plan
Figure 5-4

Source:
RIGIS (1993)

nationalgrid

VHB Yvanse Hangen Brustlin, Inc.



Scale	G-185S TRANSMISSION LINE RECONDUCTORING PROJECT WARWICK, EAST GREENWICH AND NORTH KINGSTOWN, RHODE ISLAND	Source: Exponent (2013)
NTS	EMF Modeling Cross Sections Figure 6-2	nationalgrid <small>Yonkers Hargens Drustine, Inc.</small>