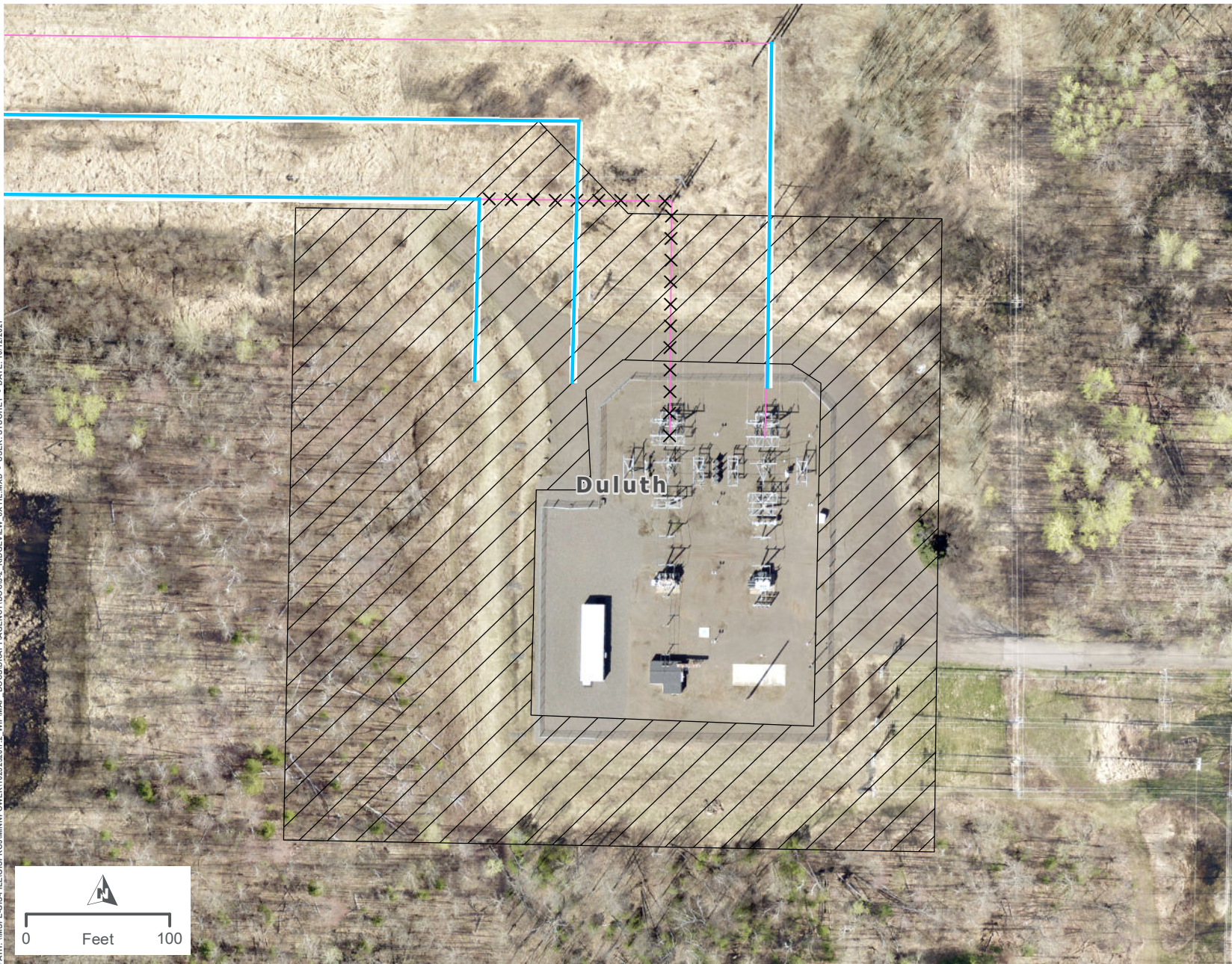






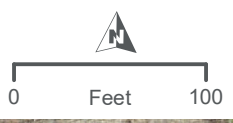
APPENDIX J

DETAILED ROUTE MAPS AND FIGURES SHOWING THE RIDGEVIEW SUBSTATION AND HILLTOP SUBSTATION EXPANSIONS

PATH: \\MSPEGIS\FILES\PROJECTS\MINNPOWER\10262307\2_WIP\MAP_DCS\DRIFT\AGENCY\DCS\J_2_RIDGEVIEW_3X1L.WXD - USER: STUOHEY - DATE: 10/12/2021

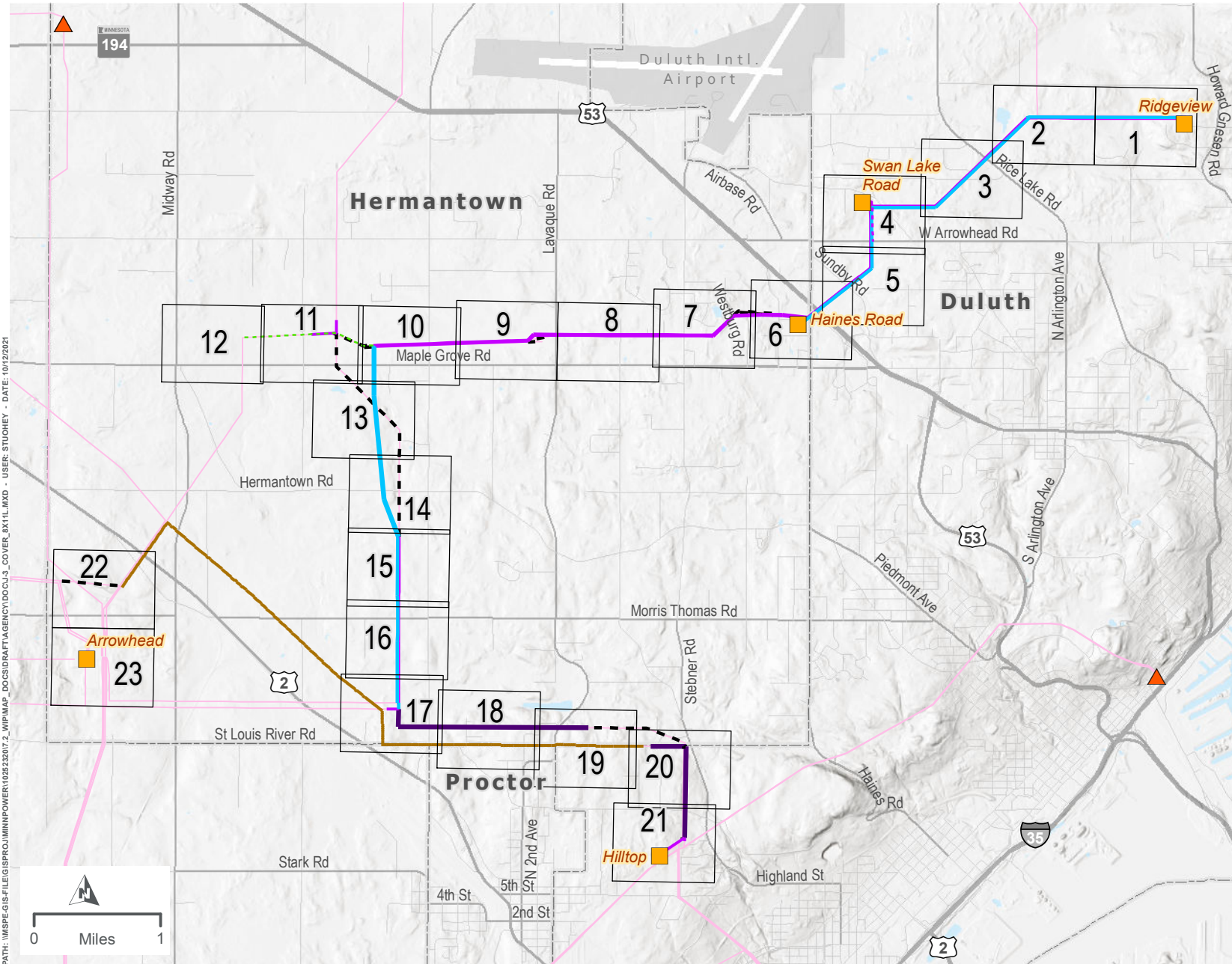


- LEGEND**
-  Substation Expansion Area
 -  Project 115 kV Transmission Line (Single Circuit)
 -  Removed Transmission Line (Realigned)
 -  Existing Transmission Line



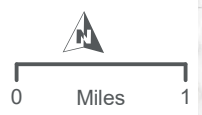
**RIDGEVIEW SUBSTATION EXPANSION
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-2



- LEGEND**
- Map Page
 - Project Substation
 - ▲ Non-Project Substation
 - Existing Transmission Line
 - Rebuilt Distribution
 - New Transmission Line
 - Rebuilt Transmission Line (Single Circuit)
 - Rebuilt Transmission Line (Double Circuit)
 - Removed Transmission Line
 - Thermal Upgrades
 - Rebuilt Fiber
 - Waterbody
 - Airport
 - City Boundary

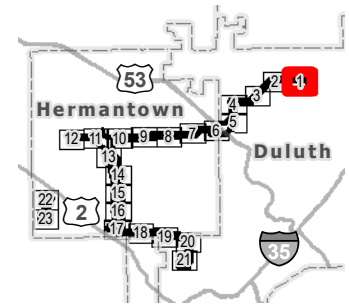
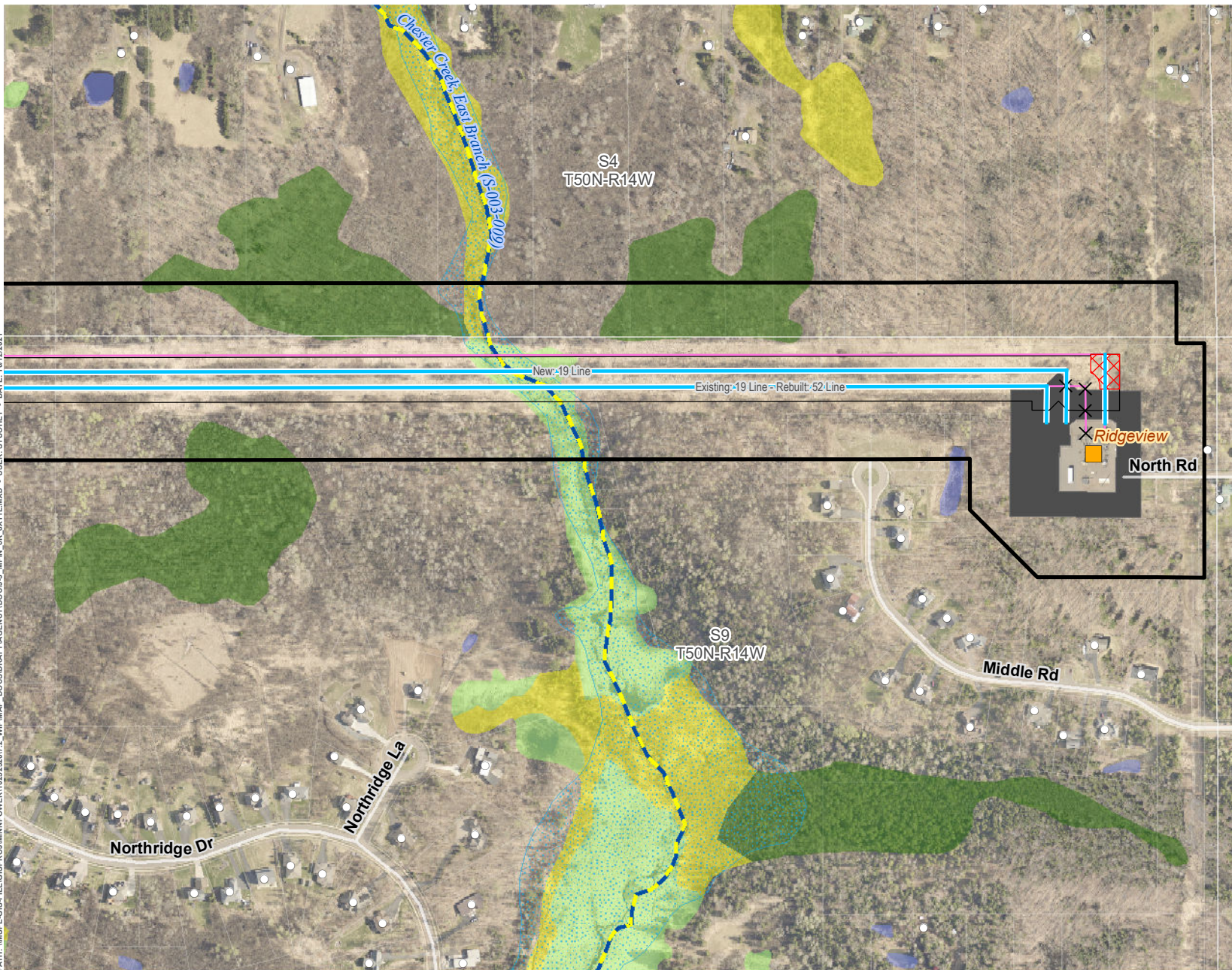
PATH: I:\MSPE\GIS\PROJECTS\MINNPOWER\102532017_2_WIP\MAP_DCS\DATA\AGENCY\DOC\J_3_COVER_0X11.LMXD - USER: STUDIOEY - DATE: 10/12/2021



PROJECT DETAIL - INDEX
DULUTH LOOP RELIABILITY PROJECT

APPENDIX J-3

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\MINNPOWER\1025232017_2_WPM\MAP_DCS\DR\RAFT\AGENCY\DCDC\J_3_MPN_6K_0X1L\MXD - USER: STUORHEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Approximate New Impact Area
- Project Substation
- Substation Expansion Area
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Shrub Wetland
- Freshwater Pond; Lake; Riverine

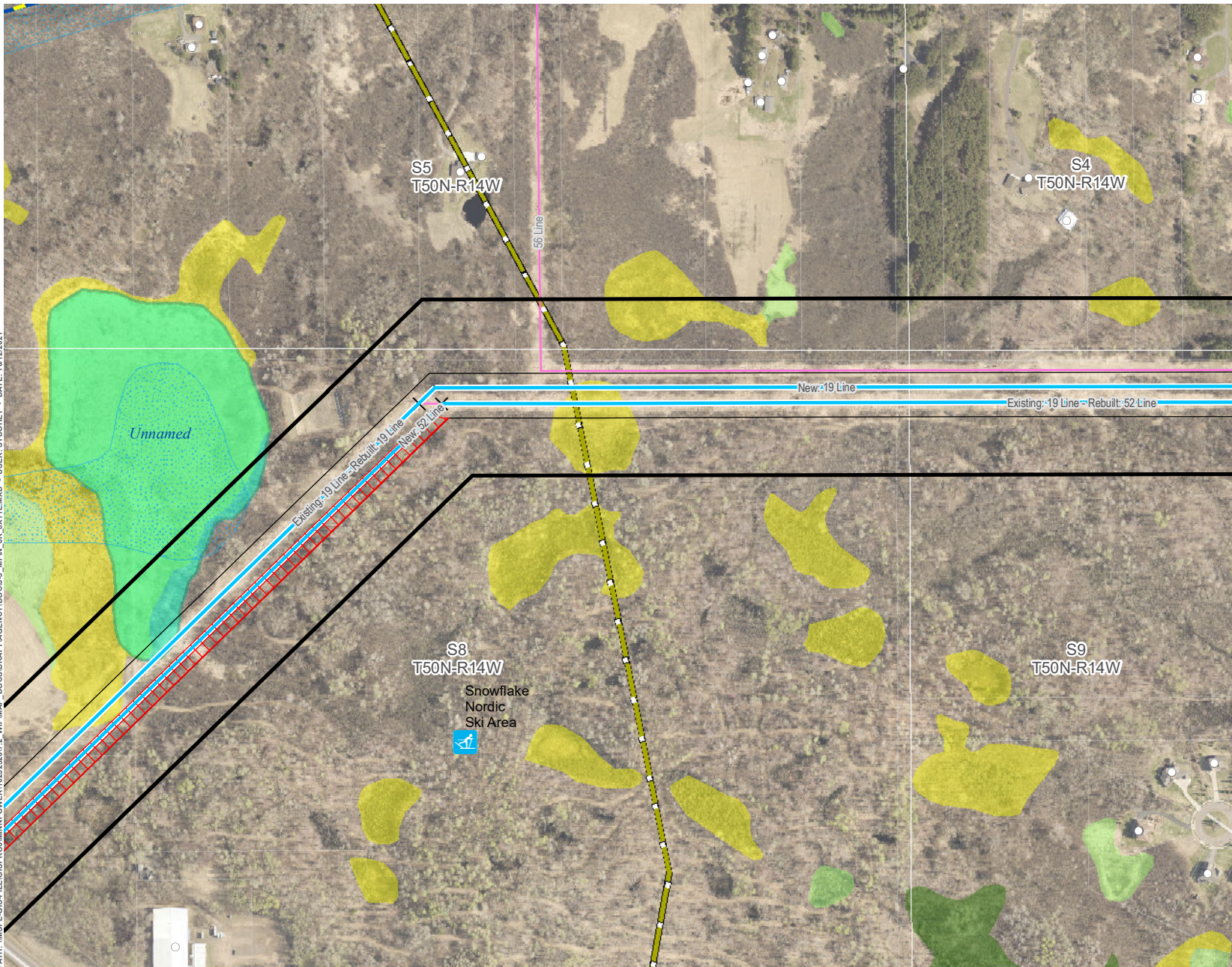
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - SWAN LAKE ROAD TO RIDGEVIEW
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 1 OF 23

PATH: \\MSPE-GIS-FILES\GIS\PROJECTS\1025328017_2_WIP\MAP_DOCS\DRIFT\AGENCY\DOC\J_3_MPH_6K_0X1TL.MXD - USER: STUOHLEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Approximate New Impact Area
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- Existing Structure
- Existing Transmission Line
- PWI Basin
- Existing/Proposed Trail
- Ski Area
- Approximate Rice Lake Trail Location
- Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Shrub Wetland

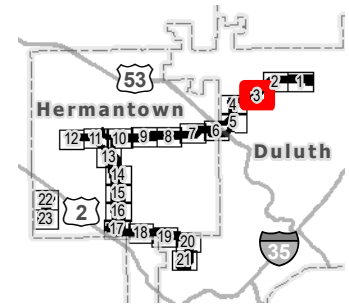
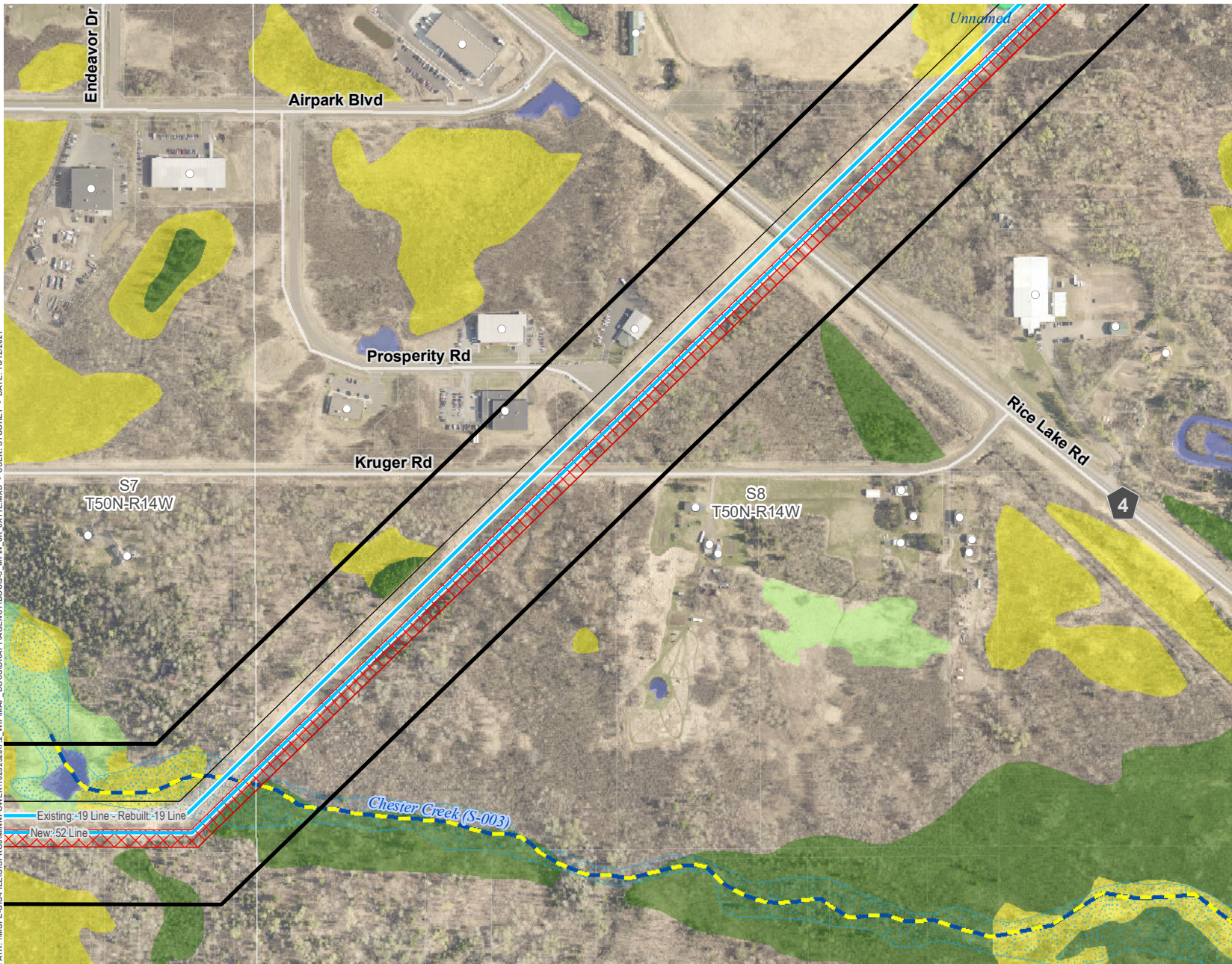
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - SWAN LAKE ROAD TO RIDGEVIEW
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 2 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\MINNPOWER\10252320\72_WIP\MAP - DOCS\DRIFT\AGENCY\DOCS\J-3_MPN_6K_0X1\1.MXD - USER: STUOHNEY - DATE: 10/12/2021



- LEGEND**
- Proposed Route
 - Approximate ROW
 - Approximate New Impact Area
 - Project 115 kV Transmission Line (Single Circuit)
 - Existing Transmission Line
 - Existing Structure
 - PWI Basin
 - Existing/Proposed Trail
 - Designated Trout Stream
 - PWI Watercourse
 - FEMA Floodplain
 - National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

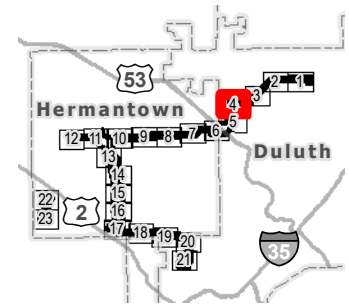
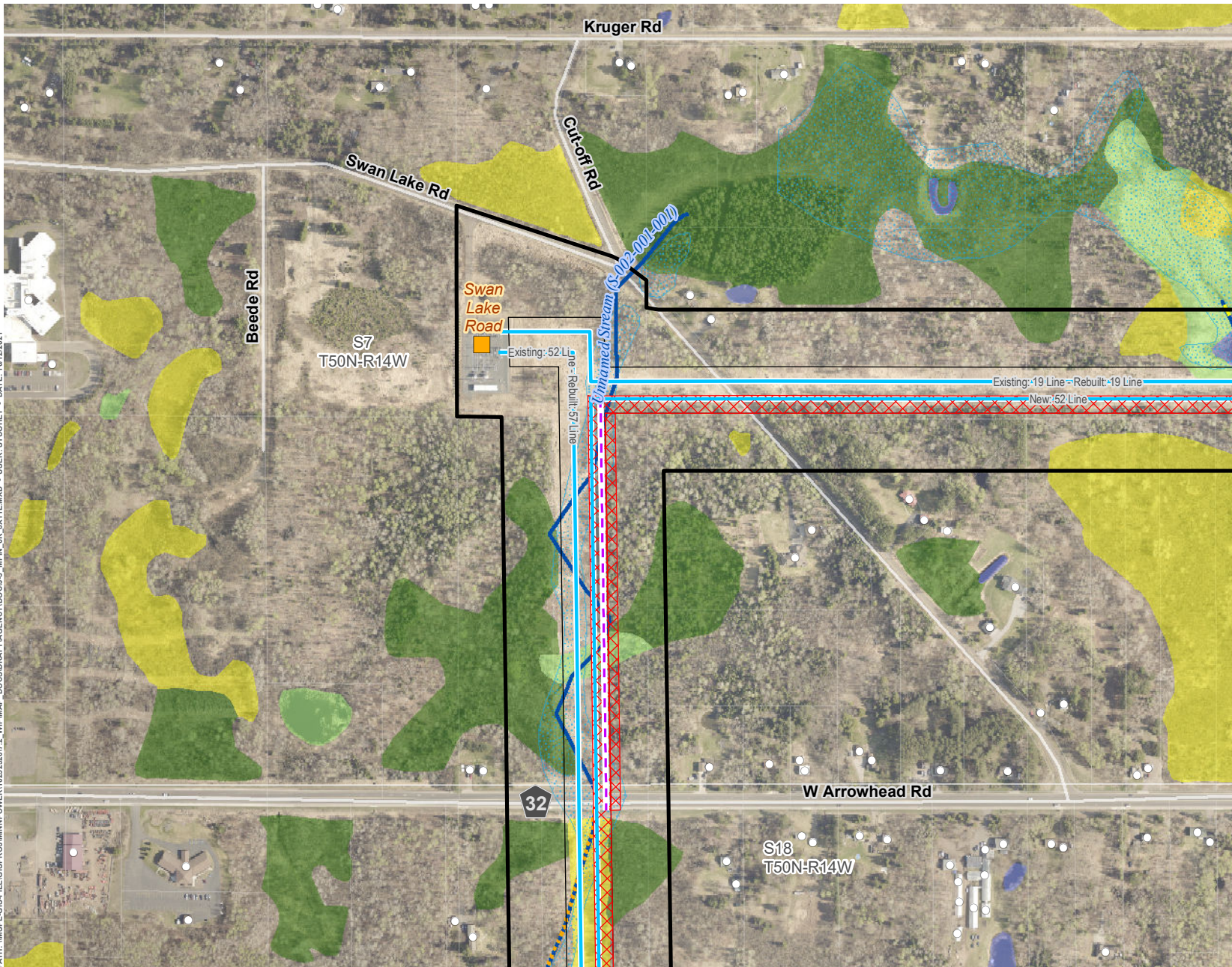
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - SWAN LAKE ROAD TO RIDGEVIEW
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 3 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECT\MINNPOWER\1025232017_2_WIP\MAP DOCS\DRIFT\AGENCY\DOCS\J_3_MPN_6K_0X1\1.MXD - USER: STUOHEY - DATE: 10/12/2021



- LEGEND**
- Proposed Route
 - Approximate ROW
 - Approximate New Impact Area
 - Project Substation
 - Relocated Distribution
 - Project 115 kV Transmission Line (Single Circuit)
 - Existing Structure
 - Existing Transmission Line
 - Existing/Proposed Trail
 - Designated Trout Stream
 - Protected Tributary to Designated Trout Stream
 - PWI Watercourse
 - FEMA Floodplain
 - National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.

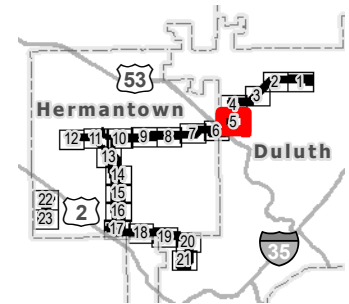
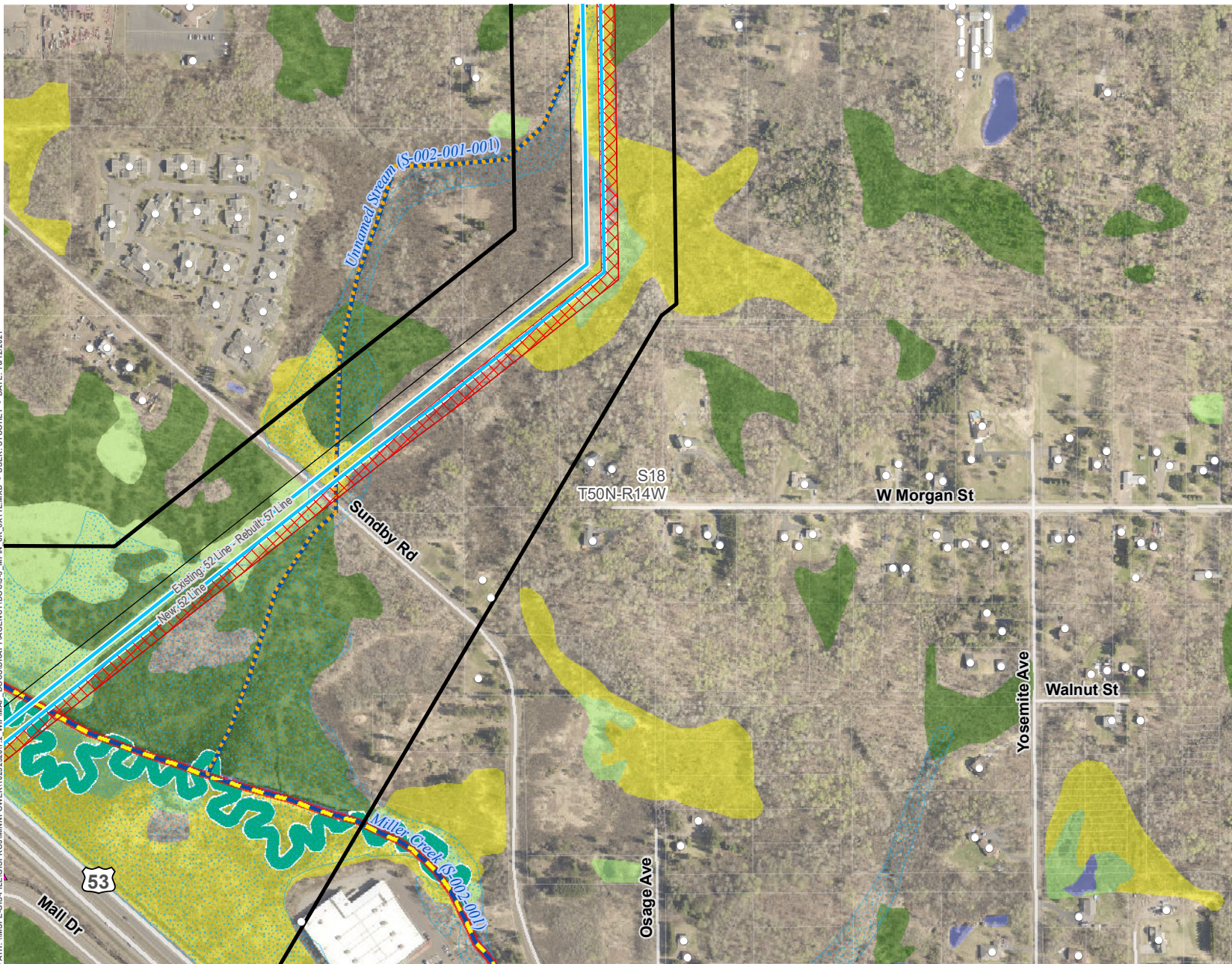


**PROJECT DETAIL - SWAN LAKE ROAD TO RIDGEVIEW
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 4 OF 23



PATH: \\MSPE-GIS-FILES\GIS\PROJECTS\POWER\10252307\2_MPM\MAP_DDCS\DRIFT\AGENCY\DOC\J-3_MPN_0K_0X1\1.MXD - USER: STUORHEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Approximate New Impact Area
- Project 115 kV Transmission Line (Single Circuit)
- Existing Transmission Line
- Existing/Proposed Trail
- Impaired Water
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- Unmapped Tributary
- PWI Watercourse
- Miller Creek Meander
- FEMA Floodplain
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Shrub Wetland
- Freshwater Pond; Lake; Riverine

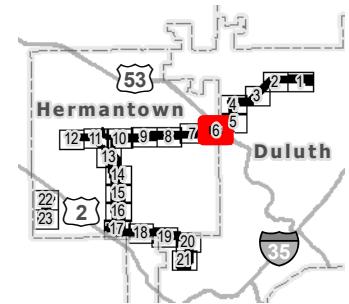
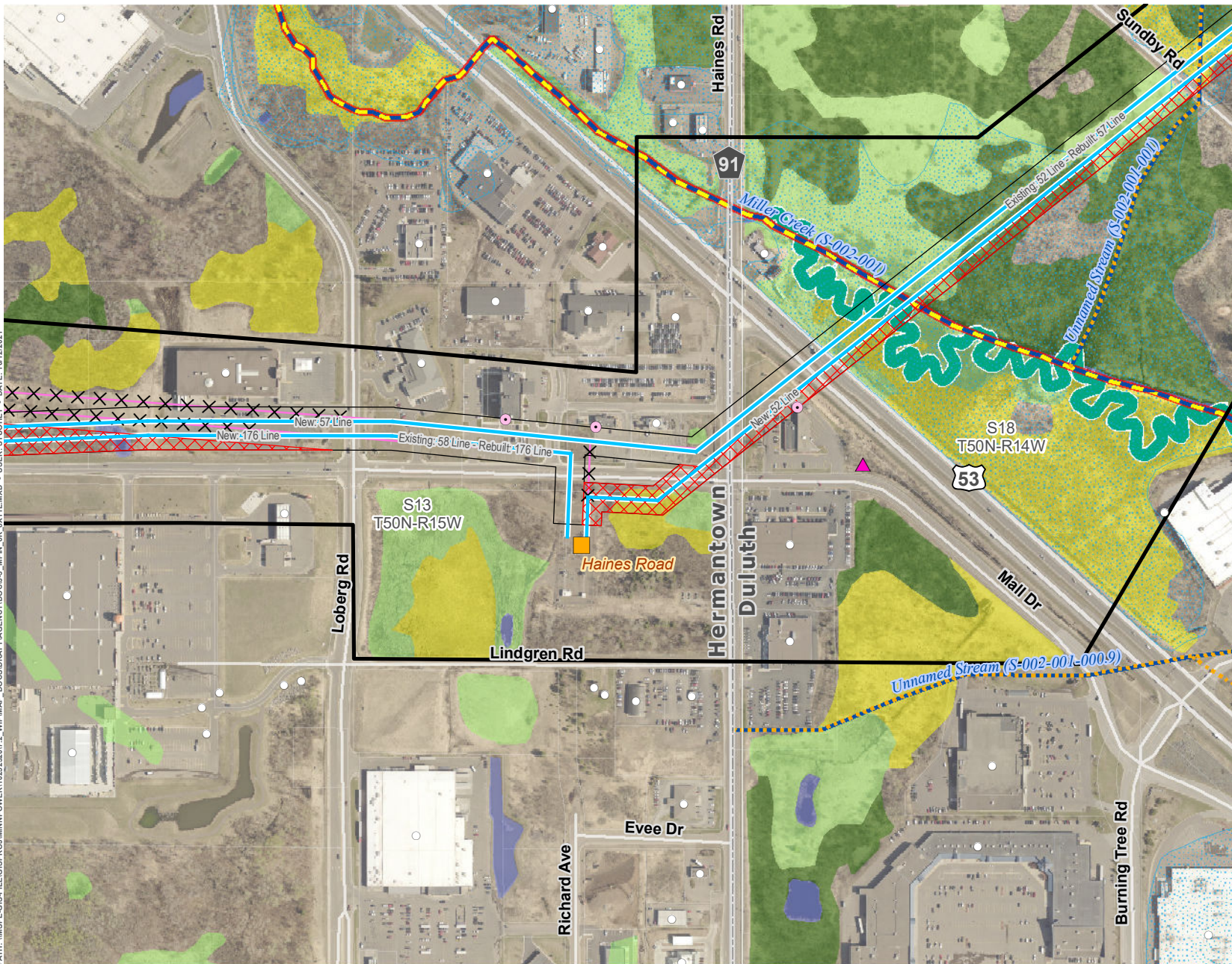
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HAINES ROAD TO SWAN LAKE ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 5 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\MINNPOWER\1025232017_2_WIP\MAP - DOCS\DRIFT\AGENCY\DOCS\3_MPN_6K_01\TL.MXD - USER: STUOHVEY - DATE: 10/12/2021



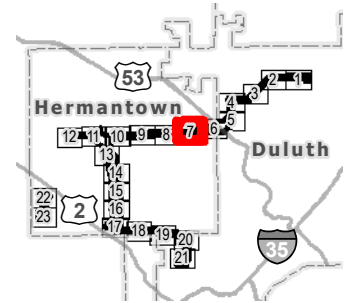
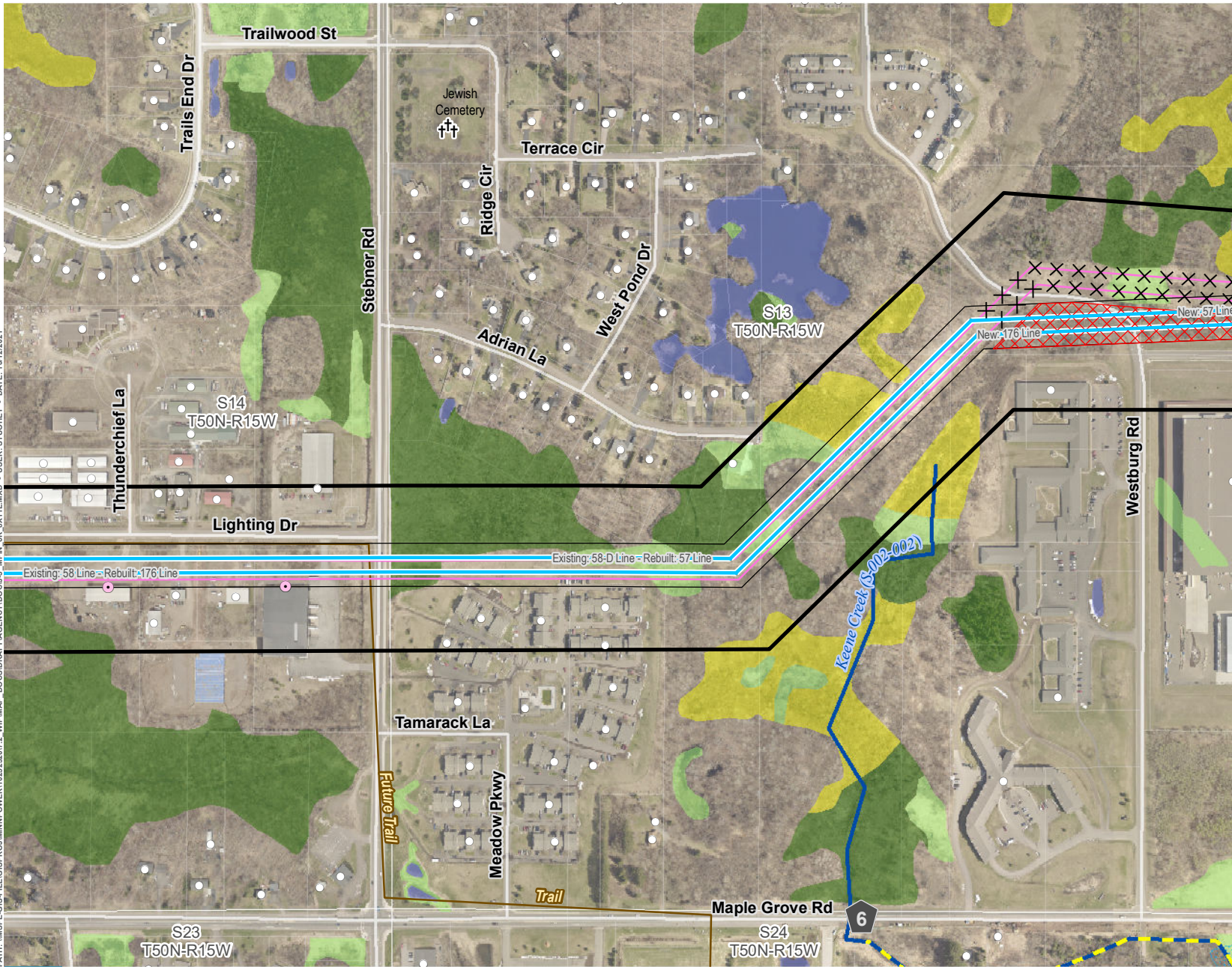
- LEGEND**
- Proposed Route
 - Approximate ROW
 - Approximate New Impact Area
 - Project Substation
 - Project 115 kV Transmission Line (Single Circuit)
 - Removed Transmission Line (Realigned)
 - Existing Structure
 - Structure in ROW
 - Existing Transmission Line
 - Existing/Proposed Trail
 - Impaired Water
 - Designated Trout Stream
 - Protected Tributary to Designated Trout Stream
 - Unmapped Tributary
 - PWI Watercourse
 - Miller Creek Meander
 - FEMA Floodplain
 - National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine
- *Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 6 OF 23

PATH: \\MSPE\GIS\PROJECTS\MINNPOWER\12523207\2_WIP\MAP_DCS\DR\RAFT\AGENCY\DC\JLS_MPH_0K_0X1\1.MXD - USER: STUOHEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Approximate New Impact Area
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- Existing Structure
- Structure in ROW
- Cemetery
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

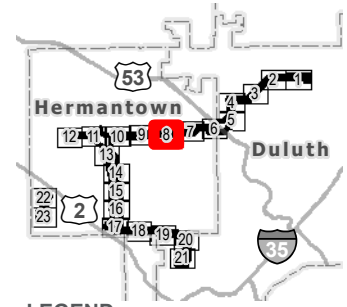
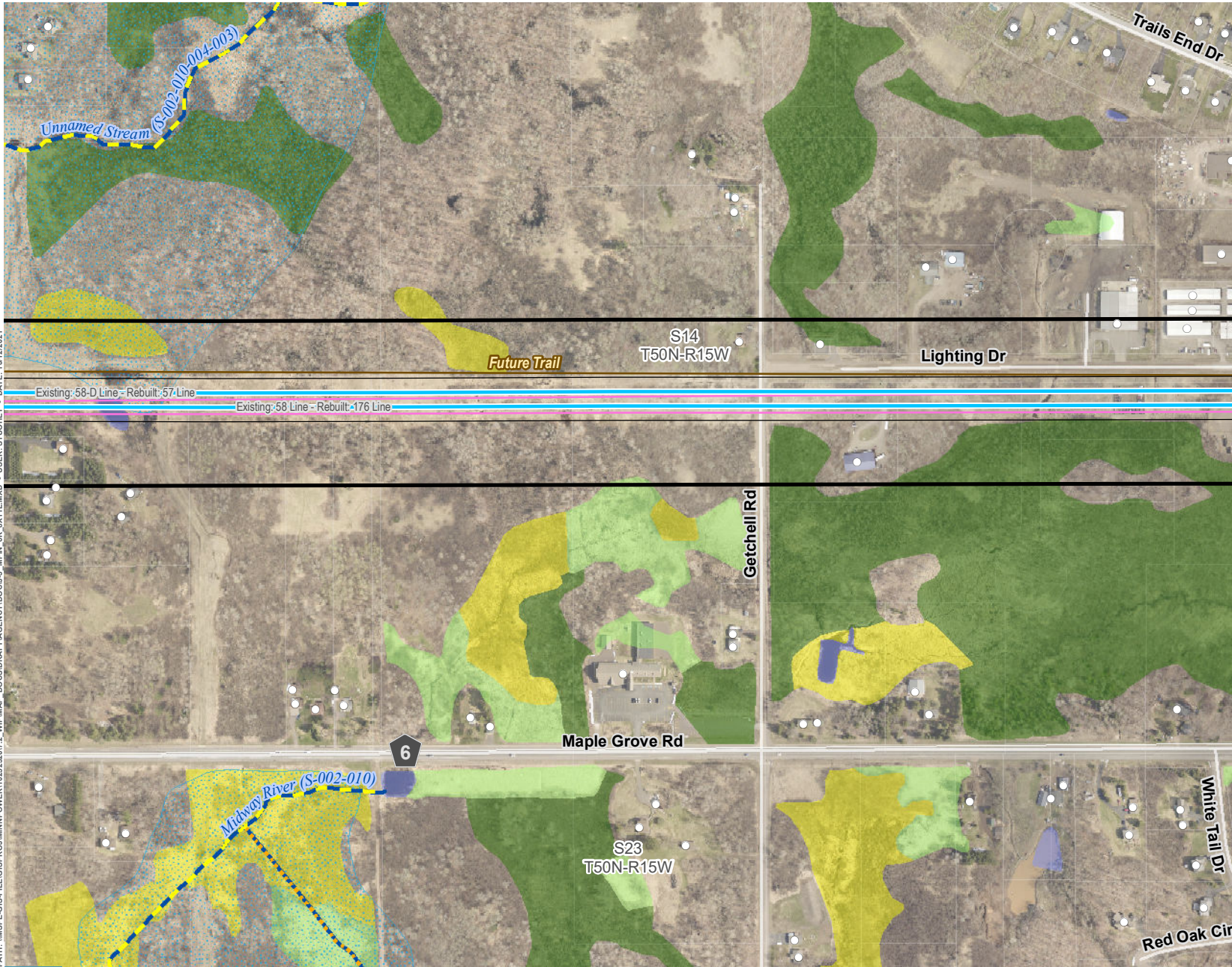
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 7 OF 23

PATH: \\MSPE-GIS-FILES\GIS\PROJECTS\POWER\1125232017_2_WIP\MAP - DCS\DRIFT\AGENCY\DCS\J_3_MPN_6K_0X1\1.MXD - USER: STUOHSEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Project 115 kV Transmission Line (Single Circuit)
- Existing Structure
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Shrub Wetland
- Freshwater Pond; Lake; Riverine

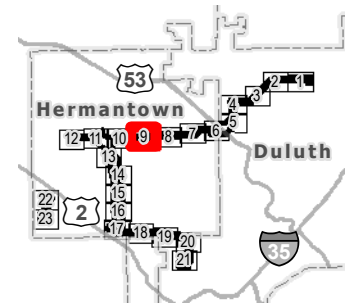
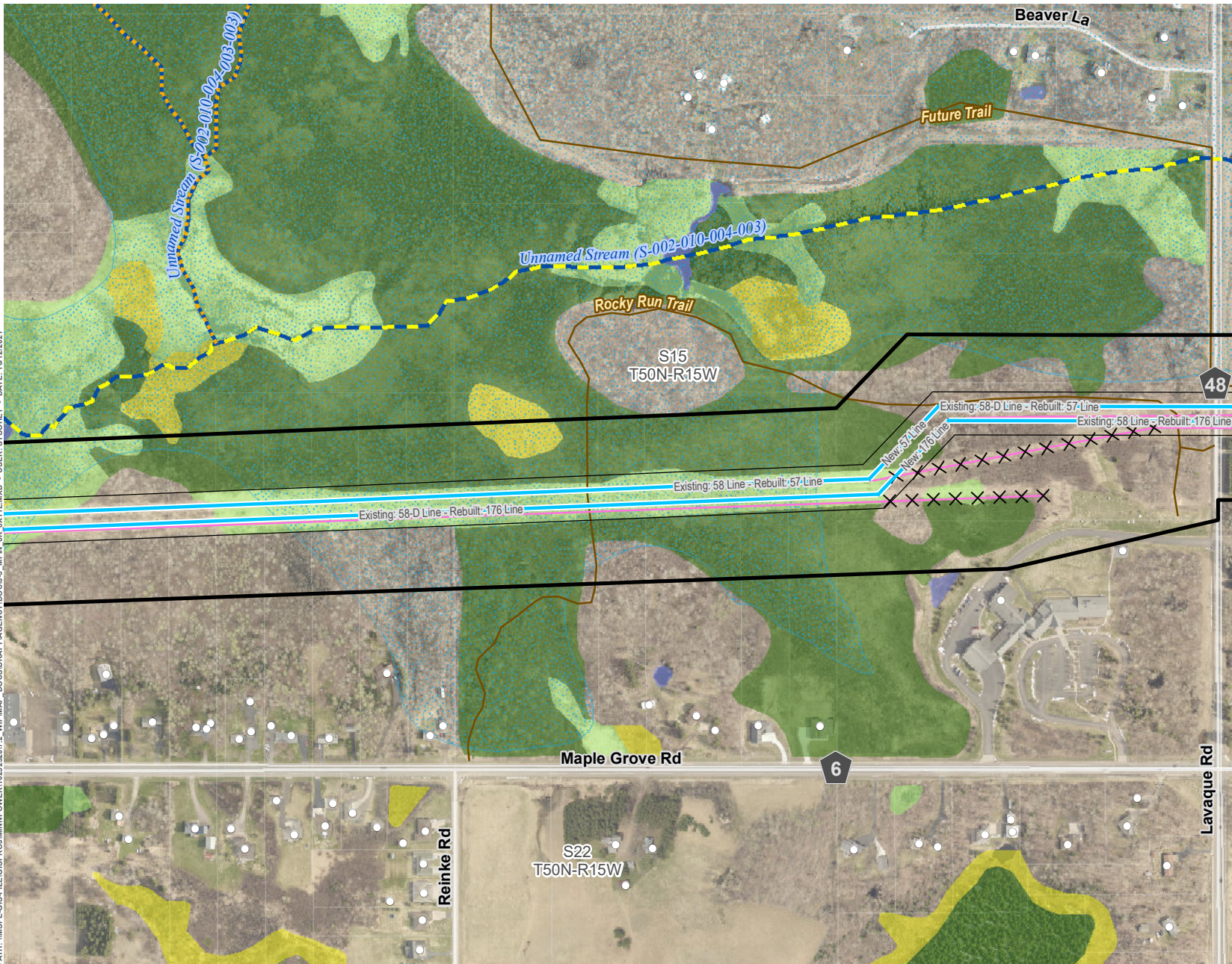
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 8 OF 23

PATH: \\MSPE-GIS-FILES\GIS\PROJECTS\MINNPOWER\1025232017_2_WPM\MAP - DOCS\DR\RAFT\AGENCY\DOC\GJ-3_MPN_6X_6X11L.MXD - USER: STODREY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- Existing Structure
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

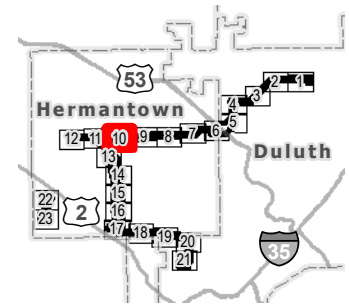
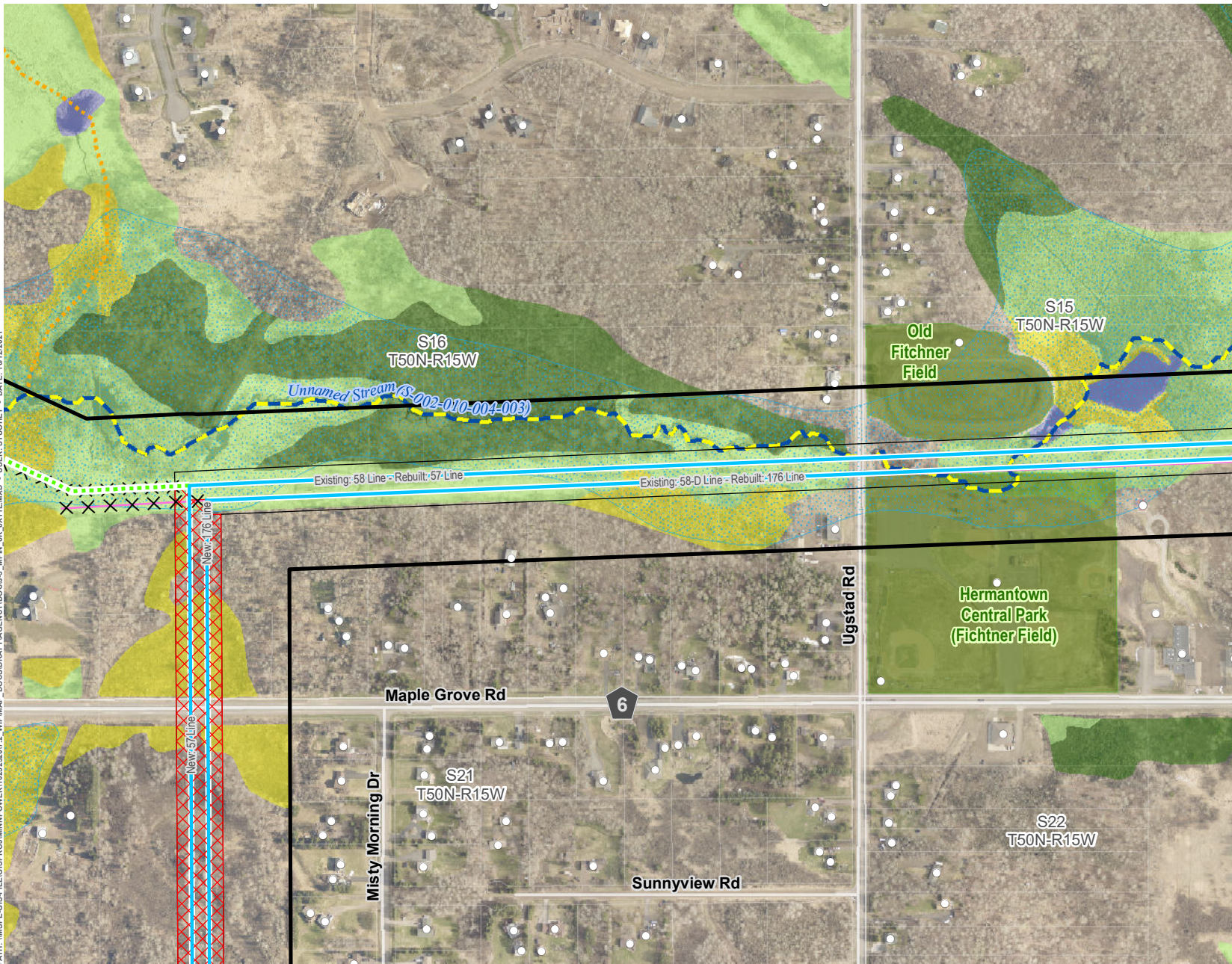
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 9 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\MINNPOWER\1025232017_2_WPMAP_DCS\DR\RAFT\AGENCY\DC\JLS_MPNL_6K_0X1L\MXD - USER: STUOHNEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Approximate New Impact Area
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- New Underground Fiber
- Existing Structure
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- Park
- National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

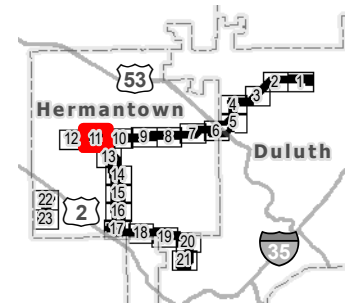
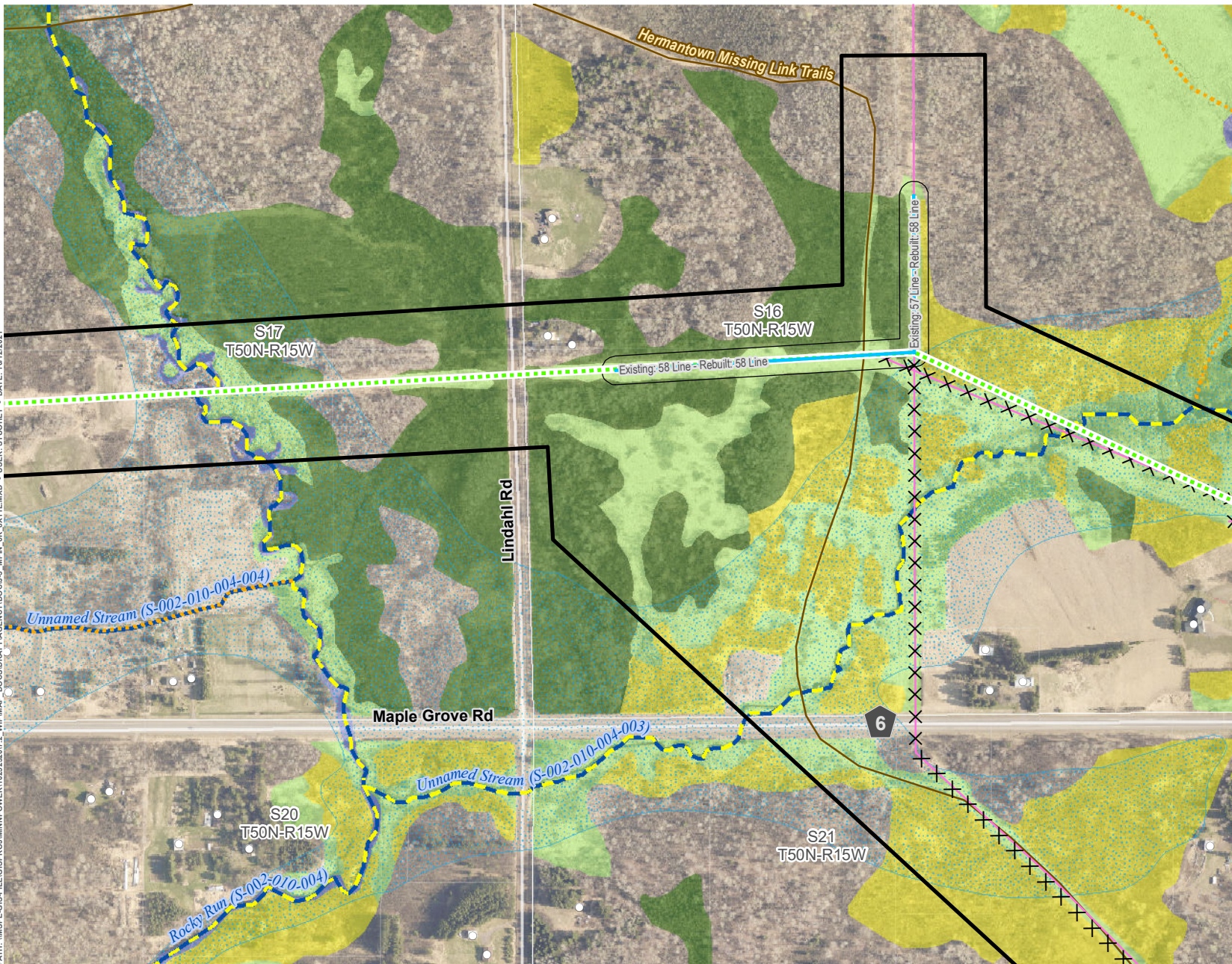
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 10 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECT\MINNPOWER\102532017_2_WPM\MAP_DOCS\DATA\AGENCY\DOC\J_3_MPN_6K_0X1\1.MXD USER: STUDIOEY DATE: 10/12/2021



LEGEND

- Proposed Route
- Approximate ROW
- Project 115 kV Transmission Line (Single Circuit)
- Removed Transmission Line (Realigned)
- New Underground Fiber
- Existing Structure
- Existing Transmission Line
- Existing/Proposed Trail
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

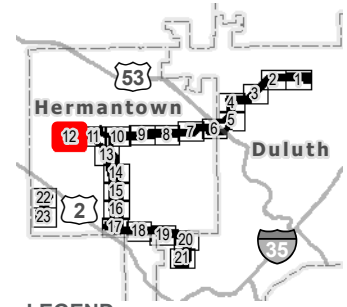
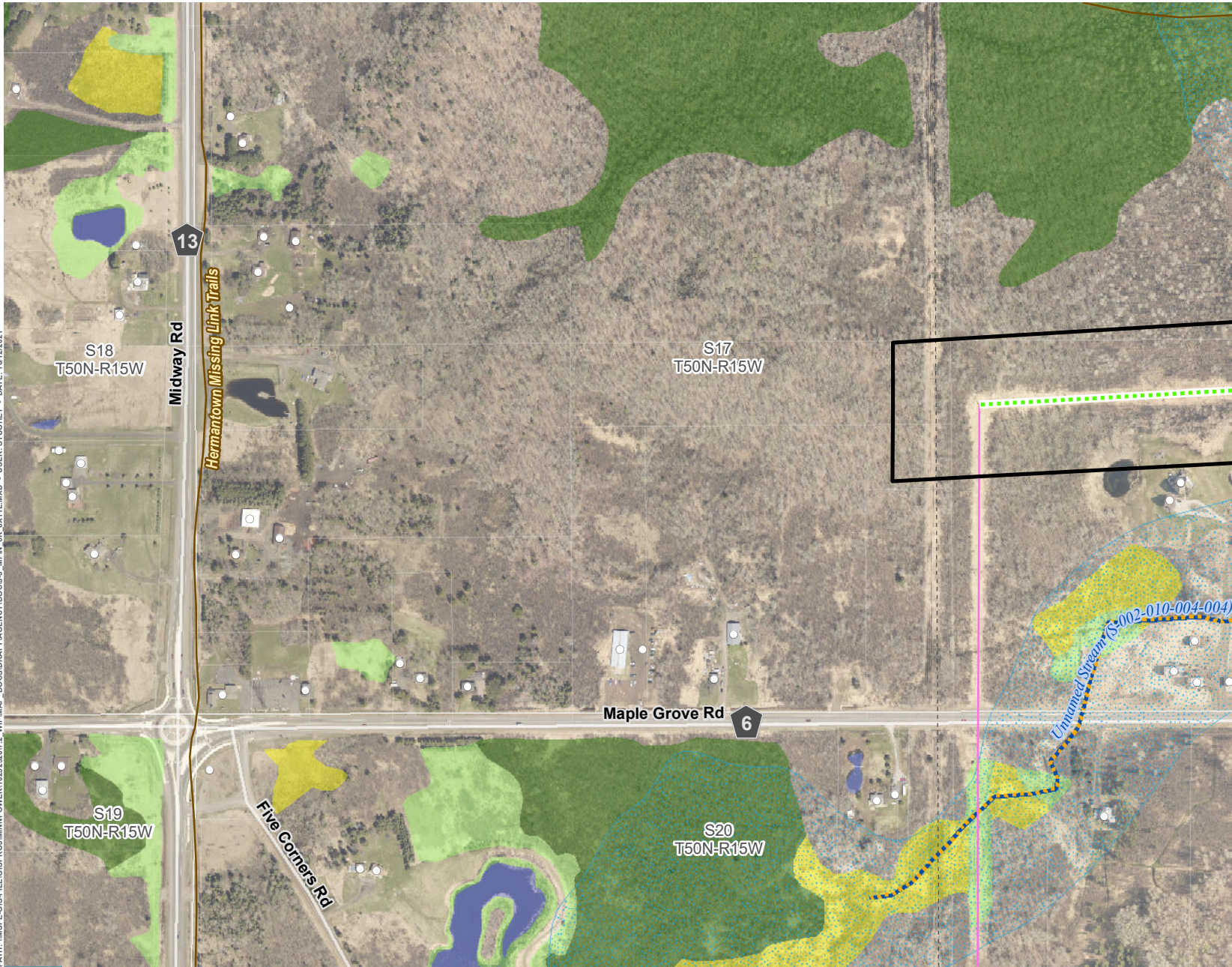
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - FIBER
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 11 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\POWER\102522017_2_WIP\MAP - DOCS\DRIFT\AGENCY\DOCS\3_MPH_6K_0X1L.MXD - USER: STUORHEY - DATE: 10/12/2021



LEGEND

- Proposed Route
- New Underground Fiber
- Existing Structure
- Existing Transmission Line
- Existing Pipeline
- Existing/Proposed Trail
- Designated Trout Stream
- Protected Tributary to Designated Trout Stream
- PWI Watercourse
- FEMA Floodplain
- National Wetlands Inventory**
- Freshwater Emergent Wetland
- Freshwater Forested Wetland
- Freshwater Shrub Wetland
- Freshwater Pond; Lake; Riverine

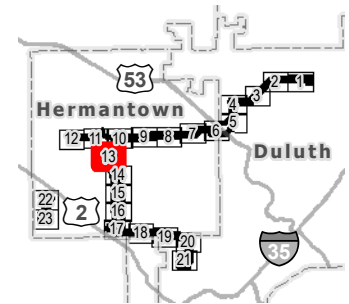
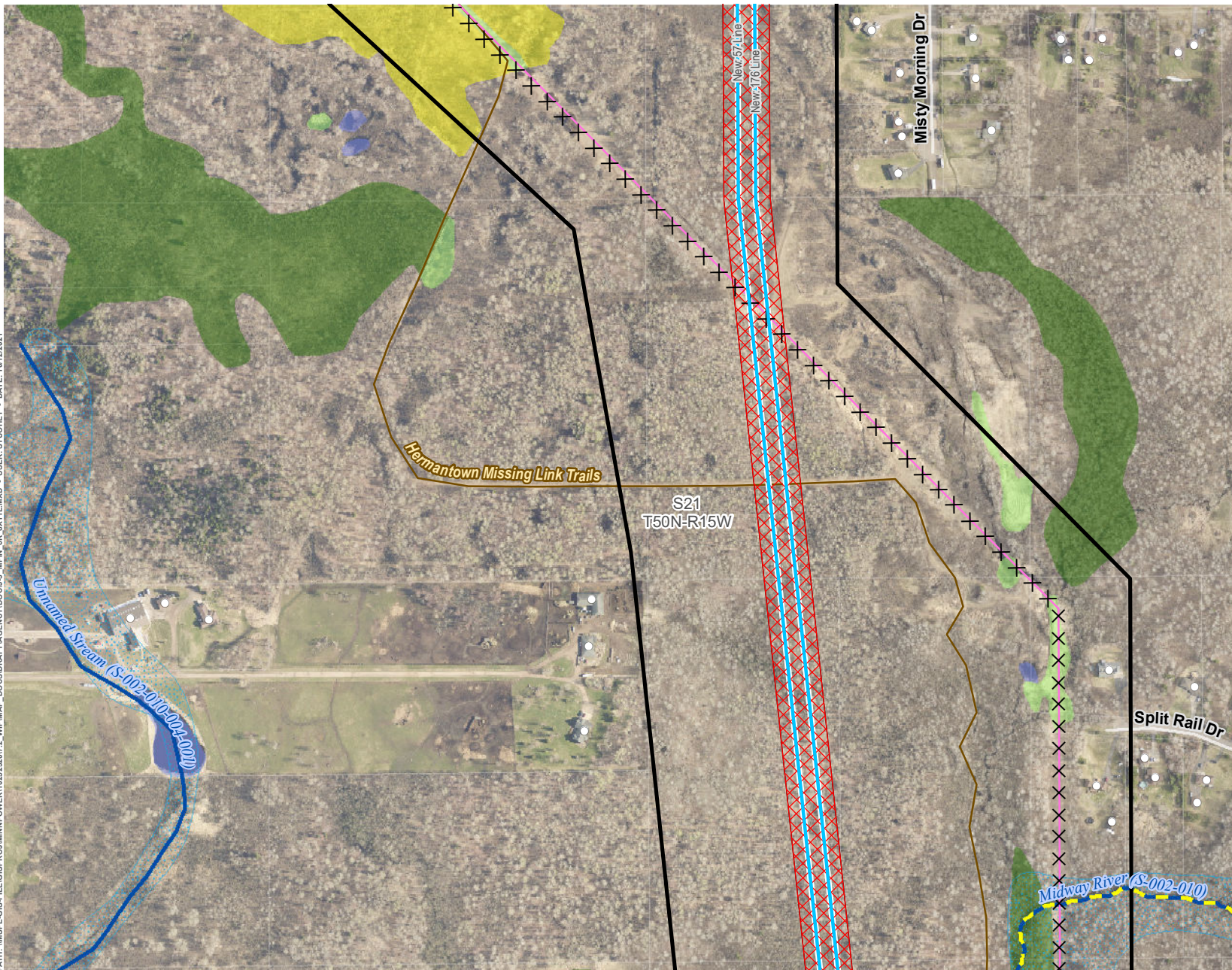
*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - FIBER
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 12 OF 23

PATH: \\MSPE-GIS-FILE\GIS\PROJECTS\MINNPOWER\1025232017_2_WIP\MAP - DOCS\DRIFT\AGENCY\DOCS\J_3_MPN_6K_0X1L1.MXD - USER: STUOHEY - DATE: 10/12/2021



- LEGEND**
- Proposed Route
 - Approximate ROW
 - Approximate New Impact Area
 - Project 115 kV Transmission Line (Single Circuit)
 - Removed Transmission Line (Realigned)
 - Existing Structure
 - Existing Transmission Line
 - Existing/Proposed Trail
 - Designated Trout Stream
 - PWI Watercourse
 - FEMA Floodplain
 - National Wetlands Inventory**
 - Freshwater Emergent Wetland
 - Freshwater Forested Wetland
 - Freshwater Shrub Wetland
 - Freshwater Pond; Lake; Riverine

*Note: Removals shown for significant realignments only. Line removals associated with the reconstruction of transmission lines, including minor centerline shifts are not indicated for clarity purposes. See Proposed System Overview for further definition on final line configurations and designations.



**PROJECT DETAIL - HILLTOP TO HAINES ROAD
DULUTH LOOP RELIABILITY PROJECT**

APPENDIX J-3: PAGE 13 OF 23