









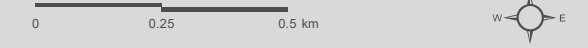
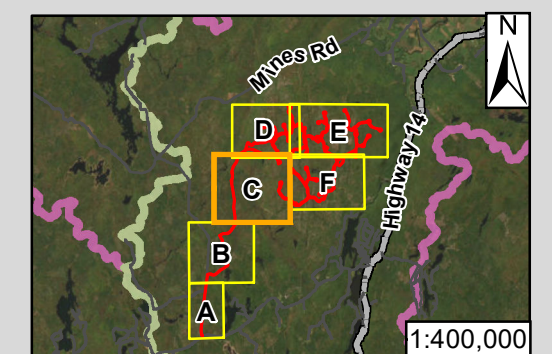


WATERCOURSE AND FISH HABITAT SUITABILITY ASSESSMENT

FIGURE 10 C

-  Proposed Turbine Location
 -  Proposed Substation Location
 -  Study Area
 -  Potential Development Area (PDA)
- Watershed**
-  Avon Secondary Watershed (1DE-2)
 -  St. Croix Primary Watershed (1DE)
- Assessed Watercourse/Fish Suitability**
-  Confirmed
 -  Likely
 -  Seasonal
 -  Unlikely



SCALE 1:115,000
 MAP DRAWING INFORMATION:
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MAP CREATED BY: DU
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

PROJECT: 21-1329
 STATUS: DRAFT
 DATE: 2022-12-14

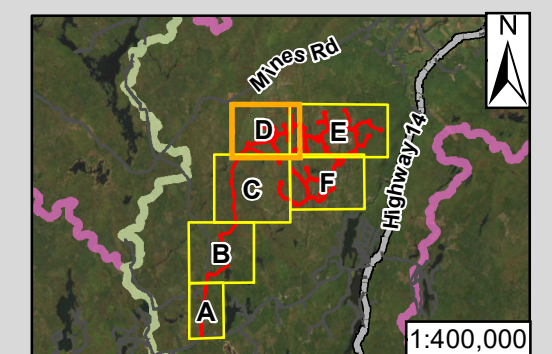
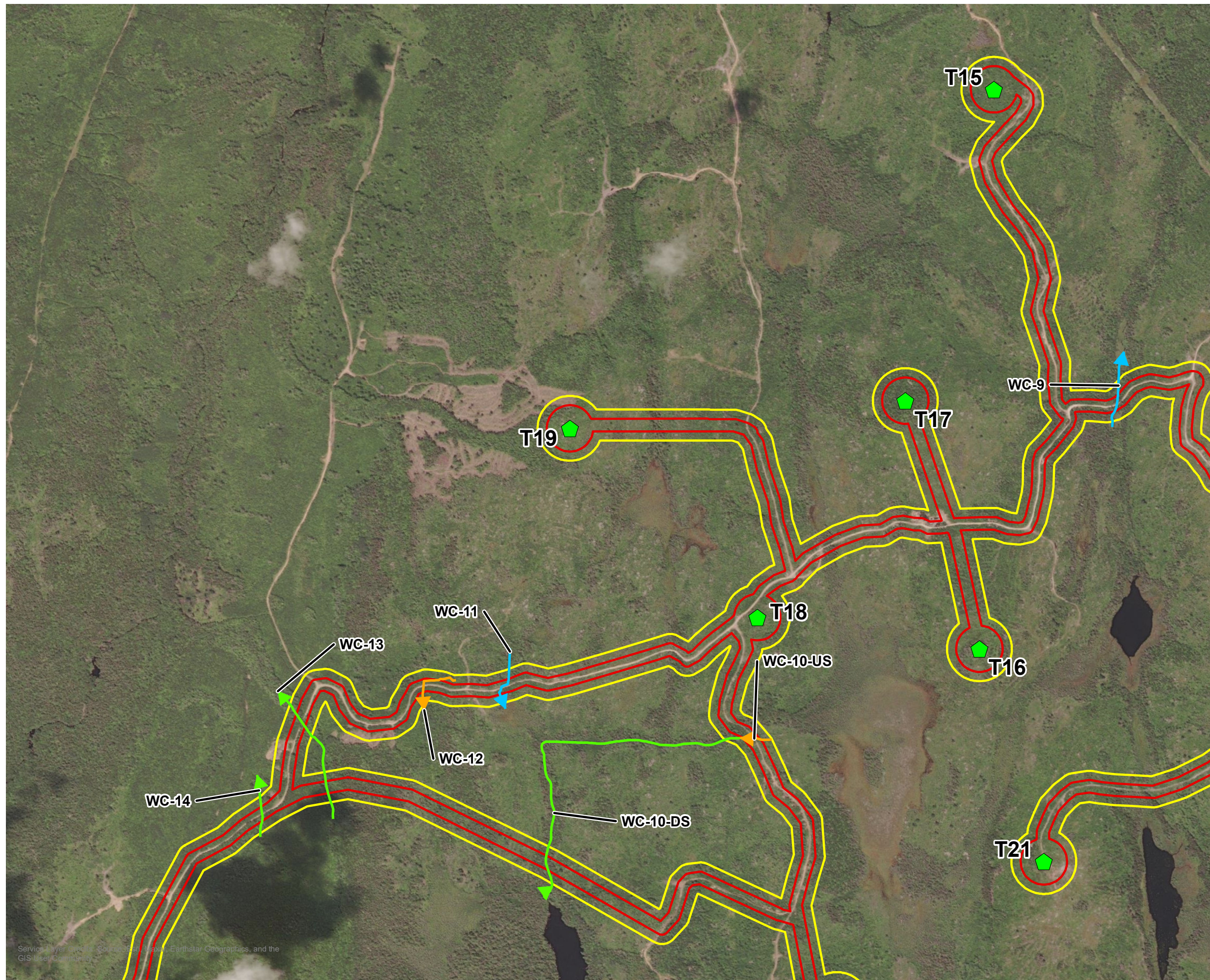


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WATERCOURSE AND FISH HABITAT SUITABILITY ASSESSMENT

FIGURE 10 D

-  Proposed Turbine Location
 -  Proposed Substation Location
 -  Study Area
 -  Potential Development Area (PDA)
- Watershed**
-  Avon Secondary Watershed (1DE-2)
 -  St. Croix Primary Watershed (1DE)
- Assessed Watercourse/Fish Suitability**
-  Confirmed
 -  Likely
 -  Seasonal
 -  Unlikely



SCALE 1:12,000

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PROJECT: 21-1329











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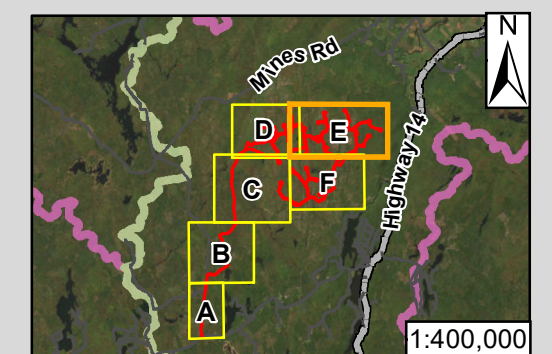
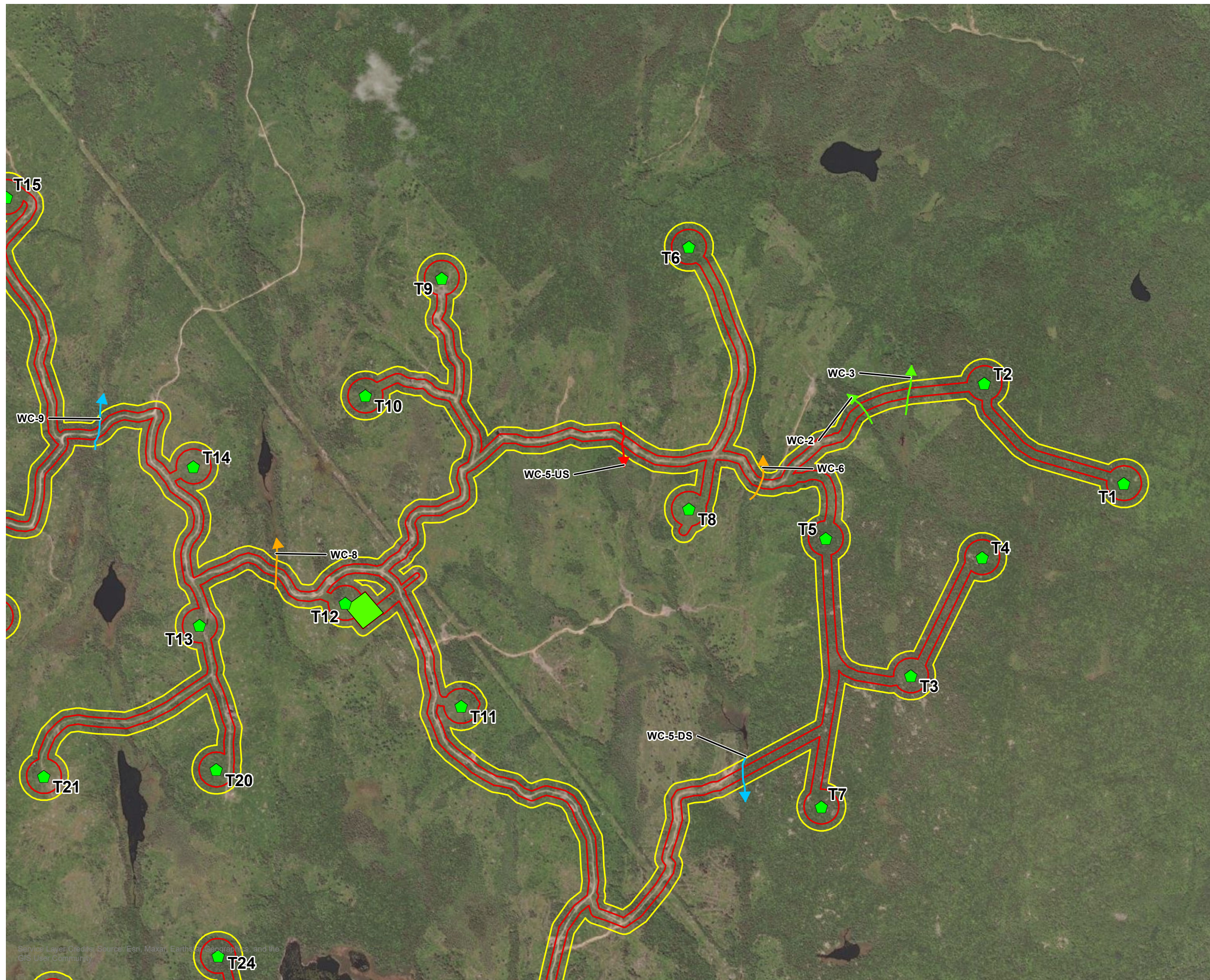
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WATERCOURSE AND FISH HABITAT SUITABILITY ASSESSMENT

FIGURE 10 E

-  Proposed Turbine Location
 -  Proposed Substation Location
 -  Study Area
 -  Potential Development Area (PDA)
- Watershed**
-  Avon Secondary Watershed (1DE-2)
 -  St. Croix Primary Watershed (1DE)
- Assessed Watercourse/Fish Suitability**
-  Confirmed
 -  Likely
 -  Seasonal
 -  Unlikely



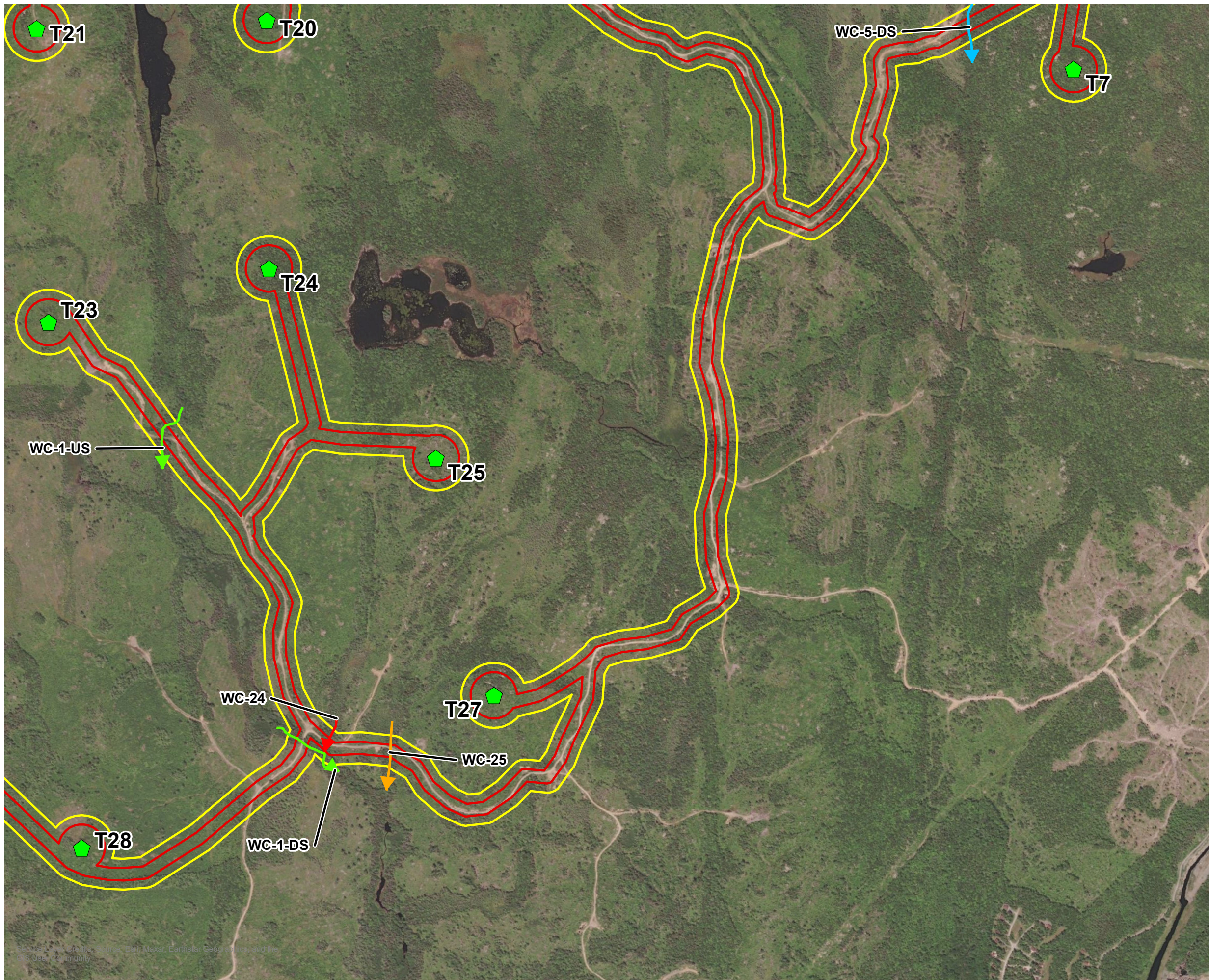
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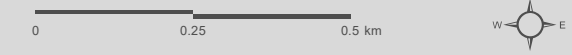
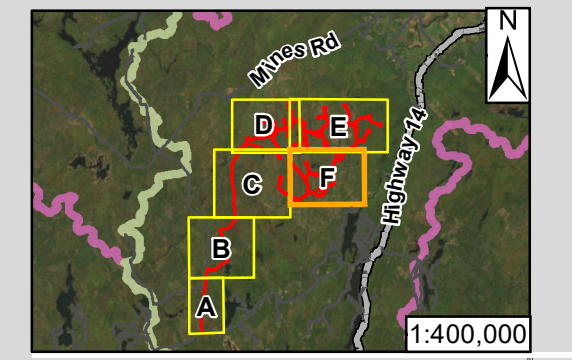
PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14



BENJAMINS MILL WIND PROJECT

WATERCOURSE AND FISH HABITAT SUITABILITY ASSESSMENT
FIGURE 10 F

- Proposed Turbine Location
- Proposed Substation Location
- Study Area
- Potential Development Area (PDA)
- Watershed**
- Avon Secondary Watershed (1DE-2)
- St. Croix Primary Watershed (1DE)
- Assessed Watercourse/Fish Suitability**
- Confirmed
- Likely
- Seasonal
- Unlikely



SCALE 1:12,000
MAP DRAWING INFORMATION:
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PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

3.1.4.3 Assessment Conclusions

The watercourse and fish habitat valued environmental component (VEC) includes aquatic life such as freshwater fish, benthic invertebrate species, and the habitat that supports them, as well as aquatic species at risk (SAR). Watercourses and fish habitat are considered a VEC because of their importance in supporting aquatic life; as a fisheries resource; as a food source for humans, other fish, and wildlife; for providing recreational opportunities; and because they are of importance to the public, stakeholders, and Indigenous communities.

According to DFO SAR mapping review, Atlantic salmon, Inner Bay of Fundy population (*Salmo salar*) are identified throughout the Avon River watershed (DFO 2021). Although suitable Atlantic salmon habitat was not identified during initial field studies, watercourses that may be impacted by the final design will undergo additional detailed assessments to ensure that potential impacts to the species are considered and appropriately mitigated.

The proposed WTG locations were selected to avoid encroachment of watercourses and are not within 30 m of a watercourse. However, 28 watercourse crossings with linear features of the PDA were identified for 24 watercourses, and four of the watercourses have more than one crossing location with the PDA. Of the 28 watercourse crossings with the PDA, 23 are associated with existing access roads, many of which have existing culverts or bridges. Consultation with NSECC will be conducted prior to development as part of the watercourse alteration permit process. Alteration of watercourses with the potential to provide suitable fish habitat will be done so in consultation with DFO and avoided to the extent feasible.

Species at risk with the potential to be present in the LAA include Atlantic salmon, striped bass, and American eel. Atlantic salmon, however, are not expected to inhabit watercourses evaluated within the Study Area based on the low pH recorded at the watercourses, with the potential exception of two tributaries of Avon River (WC-2-2022 and WC-3-2022) based on substrate and other habitat factors. Striped bass (Bay of Fundy Population) have the potential to occur in larger, faster moving watercourses within the Study Area, including WC-1-2021, WC-4-2021, and the downstream crossing location of WC-5-2021. American eel are habitat generalists and could realistically be found in any of the watercourses in the Study Area.

Species of conservation concern with the potential to be present within the PDA are brook trout and alewife. These are fish that are considered by AC CDC to be vulnerable in Nova Scotia (ranked S3), but are not currently protected under SARA or NS ESA. Brook trout were confirmed at Five Islands Lake Brook location (WC-5-DS) and potential suitable habitat was identified for brook trout within watercourses throughout the PDA. Alewife are not likely to reside within the PDA; however, they do have the potential to be present in downstream watercourses and lakes.

The majority of watercourse crossings with linear features in the PDA (i.e., 23 out of 28 crossings) are associated with existing access roads, many of which have existing culverts or bridges that are likely to not require alterations or instream work. The proposed WTG

locations, which were selected to avoid encroachment of watercourses, and do not intersect or are not within 30 m of a watercourse. The information obtained from the watercourse assessment will be taken under consideration by the proponent when finalizing the Project footprint and selecting the final turbine layout. Consultation with NSECC will be conducted prior to development as part of the watercourse alteration permit process. Alteration of watercourses with the potential to provide suitable fish habitat will be done so in consultation with DFO and where feasible, the design of the Project will be finalized in a way to interact with as few watercourses as possible.

3.1.5 Birds and Bird Habitat

Scope of VEC

Birds and bird habitat have been identified as one of the biophysical VECs because of their relationship with other biological and physical components addressed as VECs, as well as the potential impacts on bats that the Project can have during all phases of the Project.

To support the assessment of potential effects of the Project on birds and bird habitat, the scope of work for the bird surveys was based on the recommended Environment and Climate Change Canada's Canadian Wildlife Service (CWS) protocols (EC-CWS 2007a), and feedback from Nova Scotia Environment and Climate Change (NSECC), and NSDNRR during the regulatory consultation process. The following scope of work (SOW) was completed as part of the bird and bird habitat assessment for the proposed Project. The scope of work included:

- An initial desktop assessment of bird and bird habitats near the Project;
- A desktop assessment of bird species at risk (SAR) and species of conservation concern (SoCC) with the potential to occur near the Project or previously identified in the region;
- Two years of field Surveys for birds including:
 - Winter Residency Surveys (targeting overwintering/resident bird species);
 - Spring Surveys (targeting migrating birds using the area as a stopover and breeding nocturnal owls);
 - Summer Surveys (targeting breeding birds, including a targeted common nighthawk survey); and
 - Fall Surveys (targeting migrating birds).
- Two years of both radar and acoustic monitoring.

The SAR assessment is comprised of a review of two custom AC CDC reports and the SAR detected during the various field assessments. Details regarding approach, methodology and results of the bird SAR assessment are presented in **Section 3.1.7**.

It is noted that as field work progressed, and as more information became available, the surveys were refined based on the available habitat types and expected species diversity within the Project study area.

















It is also noted that the radar and acoustic monitoring study was conducted independently to the field surveys. Therefore, the results are used in conjunction to support the findings of the surveys, rather than incorporated directly **Appendix G**.

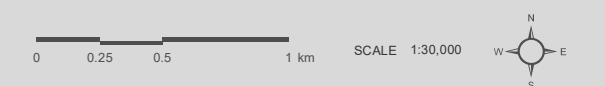
The Canadian Wildlife Service (CWS) (2007b) recommends selecting survey locations within representative habitats likely to be used by songbirds in the region and spacing the survey locations at least 250 m apart in forest, or 500 m apart in open habitat. Following this recommendation, a study design was developed that incorporated a LAA defined as a 500 m buffer around the PDA. This approach was chosen to identify Project-specific environmental interactions in relation to potential turbine locations (EC-CWS 2007b) and represents the maximum area environmental interactions can be predicted and measured with a reasonable degree of accuracy and confidence.

For more detailed methodology and results, refer to the full birds and bird habitat assessment (**Appendix F**).

BENJAMINS MILL WIND PROJECT

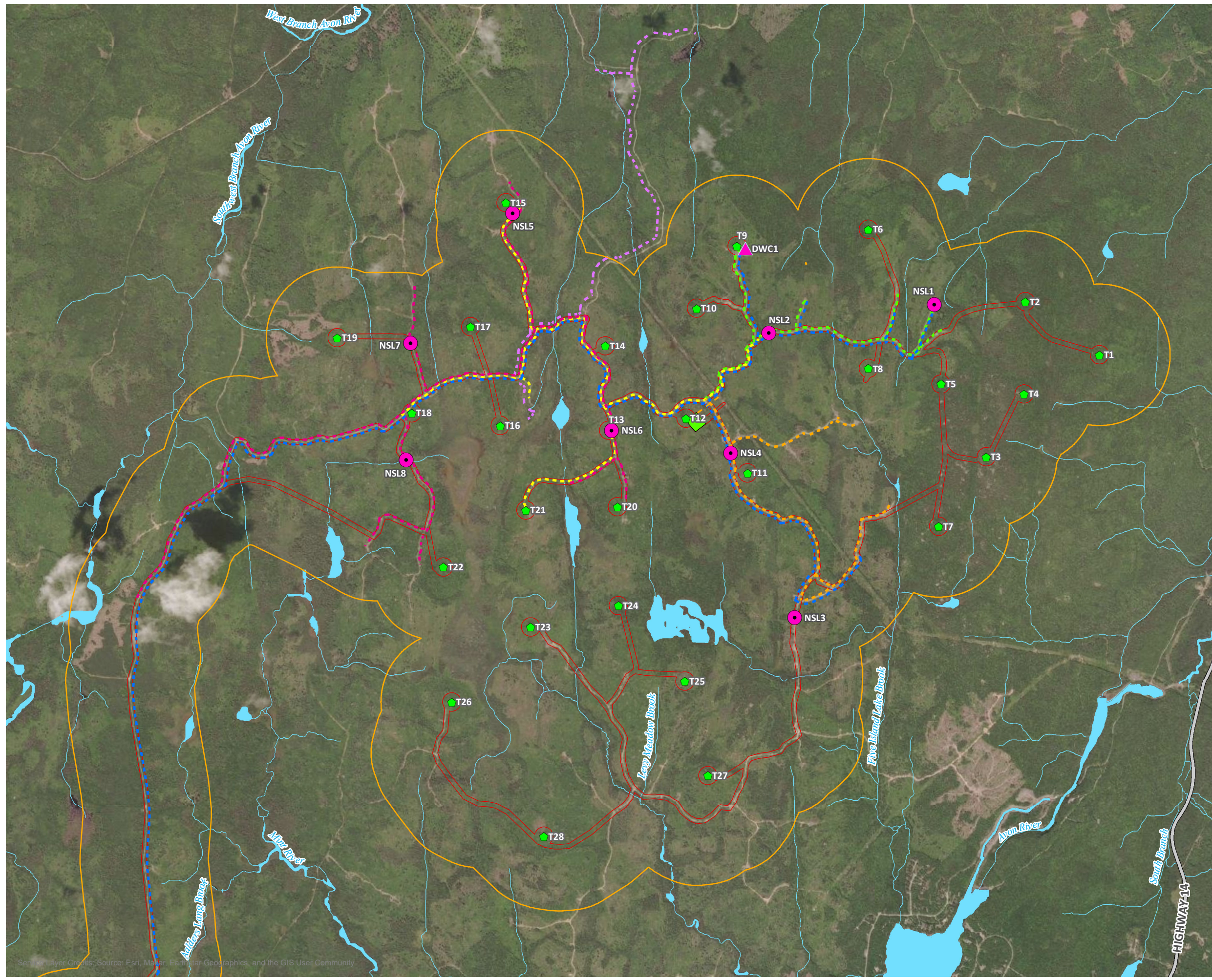
STUDY AND LOCAL ASSESSMENT AREA FOR BIRDS (WINTER SEARCH AREAS AND DIURNAL WATCH COUNT & NOCTURNAL SURVEY LOCATIONS)
FIGURE 11

-  Diurnal Watch Count Location
-  Nocturnal Survey Locations
- Winter Area Search**
-  April 13, 2021 (4.6 km)
-  April 14, 2021 (4.84 km)
-  April 7, 2021 (7.45 km)
-  April 9, 2021 (4.76 km)
-  February 22, 2022 (11.37 km)
-  February 26, 2022 (21.88 km)
-  Proposed Turbine Location
-  Proposed Substation Location
-  Local Assessment Area (LAA)
-  Potential Development Area (PDA)
-  Proposed Interconnection Line
-  Highway
-  Watercourse
-  Waterbody
-  Wetland



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MAP CHECKED BY: KR
MAP PROJECTION: NAD 1983 UTM ZONE 20N



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