

## SECTION 10 BUFFERS

Natural buffer strips will be maintained adjacent to streams within the development area, and also will be utilized in Project design to prevent erosion and sedimentation during construction and provide onsite stormwater management. Vegetated buffers are a key component to ensuring that the low-impact development of this Project is successful and for protection of water quality.

To maintain natural buffers adjacent to streams and roads, clearing limits will be carefully planned and flagged in the field prior to construction. The demarcation plan will be created and agreed upon and executed prior to the start of construction. The contractor selected for Project construction and the environmental monitor employed by the Applicant will be responsible for ensuring that protective measures identified in this application are employed effectively in the field.

If construction activity requires work within an identified buffer area, disturbance will be minimized and all disturbed area will be re-seeded immediately following completion of construction, or the following spring if construction ends during winter conditions. The Applicant will be responsible for maintaining the vegetation and proposed buffers in accordance with the Post-Construction Vegetation Management Plan, which is provided in Exhibit 10-1 (Post-Construction Vegetation Management Plan).

Additional information regarding stream and stormwater buffers are provided in Section 7 (Wetlands, Watercourses, Wildlife and Fisheries) and Section 12 (Stormwater Management) respectively. Due to the remote location of the Project and limited scenic impacts from adjacent uses there are no visual buffers proposed for the Project.

The Applicant has made adequate provision for providing Project buffers.

### Exhibits

- Exhibit 10-1 Post-Construction Vegetation Management Plan

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**EXHIBIT 10-1      POST-CONSTRUCTION VEGETATION MANAGEMENT PLAN**

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# Post-Construction Vegetation Management Plan

**Western Maine Renewable Energy Project  
Somerset County, Maine**



*Prepared For:*



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## 1.0 INTRODUCTION

Western Maine Renewables, LLC, (Western Maine) is proposing construction of the approximately 59-megawatt Western Maine Renewable Energy Project (Project), located in Town of Moscow, Somerset County, Maine. Western Maine has prepared this Post-Construction Vegetation Management Plan (VMP) as a stand-alone document containing restrictive maintenance requirements for natural resources along the overhead 34.5-kilovolt electrical collector line right-of-way (ROW) between the Project substation and Stream Road (Appendix A – Maps). The majority of the electrical collector line for the Project and all of the utility lines for the radar towers run underground along Project roads or existing timber management roads.

The requirements presented in this VMP, as proposed by Western Maine and incorporated into state permits for the Project, apply to routine maintenance along the electrical line corridor and are not intended to apply to emergency maintenance and repair actions. Throughout this document, references to the collector line corridor refers only to the 50 foot wide by 2,265 linear foot long 34.5 kV overhead collector line and the 40 foot wide by 2,370 linear foot long 12.7 kV distribution line as depicted in Appendix A Maps. , unless specified otherwise. This VMP also includes the anticipated procedures for managing invasive plant species located in the turbine areas, along access roads, and within the electrical collector line corridor.

Throughout construction, numerous construction techniques, mitigation measures and restrictions will be implemented to minimize potential adverse effects on natural resources. To continue that effort, the goal of this VMP is to supply Western Maine’s maintenance personnel and contractors with a single, cohesive set of vegetation maintenance specifications for use during routine operation of the facility.

The natural resources subject to restrictive maintenance requirements include wetlands and vernal pools and streams. There are no Inland Waterfowl and Wading Bird Habitats or Significant Sand & Gravel Aquifers located within the Project area. In locations where individual restrictions or procedures overlap or multiple restrictions apply, maintenance personnel and contractors will adhere to the more stringent restrictions and associated procedures.

## 2.0 VEGETATION MAINTENANCE IN OVERHEAD ELECTRICAL LINE CORRIDORS

The primary functions of routine vegetation maintenance activities are to maintain the integrity and functionality of the line, to maintain access in case of emergency repairs, and to facilitate safety inspections. The objective of management along the collector line corridor will be to control large woody vegetation to ensure the integrity and safe operation of the collector line. To accomplish this objective, integrated vegetation management practices will be implemented and will incorporate hand-cutting and selective herbicide applications in and around sensitive natural resource such as wetlands, vernal pools and streams. Mechanical mowing may occur to regain control of vegetation when typical maintenance procedures are insufficient.

Vegetation will remain in place to the extent practicable to minimize any negative environmental impacts. Large trees will be removed during initial clearing of the corridor prior to constructing the collector line. Follow-up maintenance activities during operation of the line includes the selective removal of capable species and dead or danger (hazardous) trees. Capable species are defined as vegetation capable of growing to a height that could interfere with the clearance required between conductors and vegetation. Sound industry practice requires that a minimum separation be maintained between vegetation and the conductors. Due to the sag of electric transmission lines between poles, which may vary with the distance between poles, tension on the wire, electric load, air temperature and other variable conditions, the

appropriate clearance is typically achieved by removing all capable species and topping other vegetation exceeding 8–10 feet in height (Figure 1).

Once the vegetation in an area is sufficiently controlled (usually within 3–4 years following construction), vegetation maintenance practices will generally be implemented on a 4- or 5-year cycle. The maintenance cycle is dependent upon growth, weather, geographic location, and corridor width. Substantial branches that overhang the line corridor and any dead or damaged trees outside the corridor with the potential to contact power lines or come within 15 feet of a conductor (“danger trees”) may be removed as soon as they are identified.

The following procedures will be implemented during all vegetation maintenance activities to ensure that sensitive natural resources are protected:

- All resources and associated buffers will be flagged or located with a Global Positioning System (GPS) prior to any maintenance operations;
- All areas of significant soil disturbance will be stabilized and reseeded immediately following the completion of maintenance activities in the area;
- Equipment access through wetlands or over waterbodies will be avoided as much as practicable by using existing public or private access roads, with landowner approval when required;
- Construction mats or the equivalent will be used for equipment support if saturated soils are present; and
- If rutting or significant damage to wetland or waterbody bank vegetation occurs, the site will be repaired immediately following completion of maintenance activities in the area.

## 2.1 Mechanical Techniques

Mechanical methods of maintaining vegetation height along the collector line corridor following construction will primarily consist of hand cutting in and around sensitive natural resources such as wetlands, vernal pools and streams. Limited use of motorized equipment in areas directly accessible from public or private access roads also may occur. All capable species and any dead or danger trees will be cut at ground level, except in waterbody buffer zones. Large vegetation cut during routine maintenance will be removed, chipped, or flailed on site, or otherwise handled in accordance with the Maine Slash Law (Maine Forest Service 2017).

## 2.2 Herbicides

Herbicide application will be consistent with most New England utilities’ practices and will be used in conjunction with the mechanical methods of vegetation maintenance described above. Only herbicides registered and approved by the U.S. Environmental Protection Agency (EPA) (EPA-approved) and the Maine Board of Pesticides Control (BPC) will be used. Herbicide will be applied through directional spraying on targeted species along line corridors with a low volume foliar application. Herbicides also may be applied to cut stumps and surfaces of larger trees. Direct application to individual plant species, as opposed to a broadcast application, will control only the targeted woody vegetation. Such targeted application will allow low-growing plant communities consisting of grasses, forbs, and shrubs to remain unharmed. Selective herbicides also will be used to minimize the impacts to non-target species. Aerial application of herbicides will not be performed.

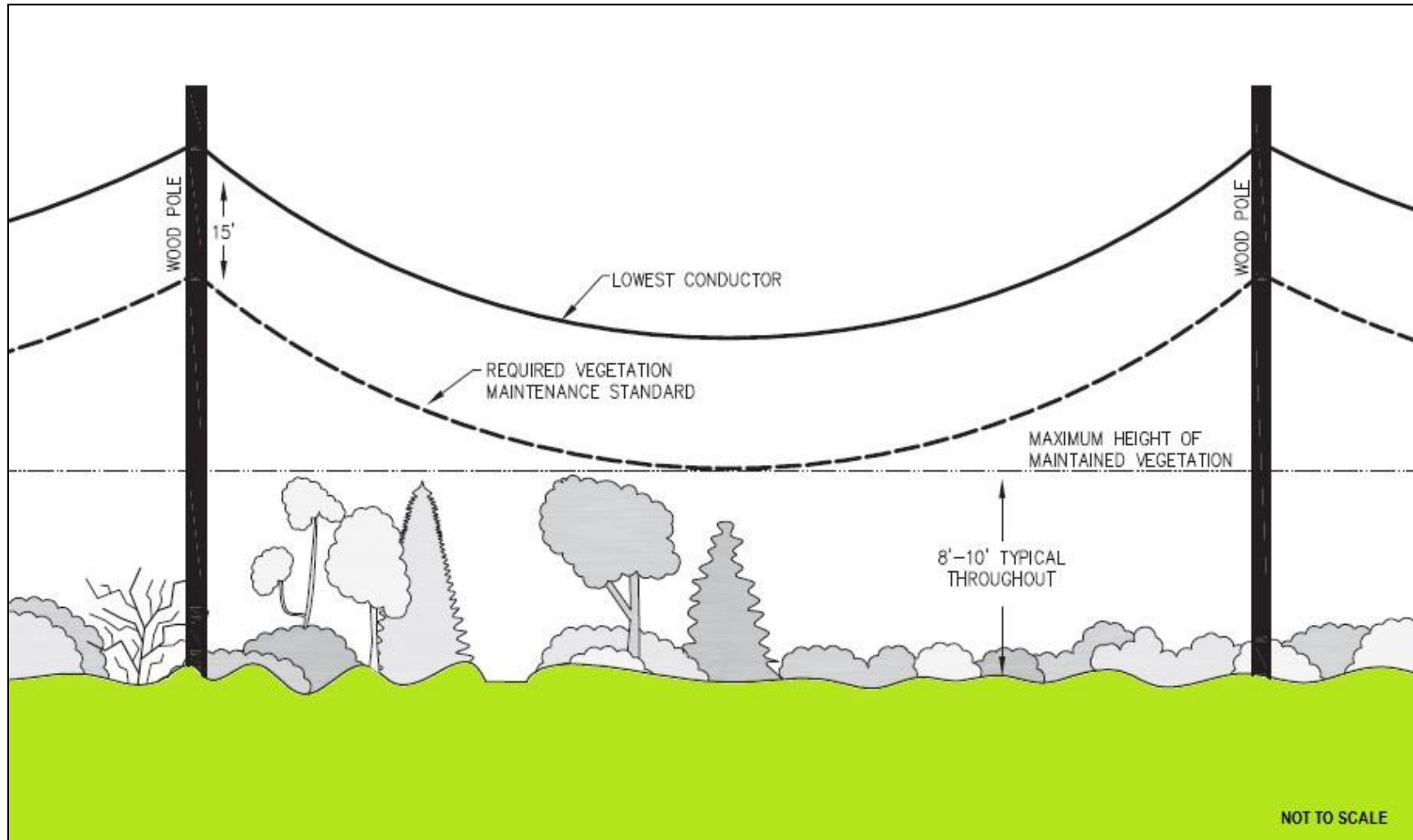


Figure 1. Diagram Illustrating Minimum Vegetation Maintained Between Vegetation and Conductors for the Western Maine Renewable Energy Project; Somerset County, Maine, 2020.

The transmission line corridor will receive herbicide treatment the year following construction and again 2 or 3 years after construction, to manage vegetation growth. When vegetation control is achieved, treatment will occur on a standard 4- or 5--year cycle or as needed. By using selective herbicide application methods, the line corridor will eventually consist of dense, low-growing plants and will impede woody vegetation from becoming established. Thus, fewer woody species will require treatment in future applications.

The following procedures will be implemented during vegetation maintenance activities involving herbicides:

- Herbicides will be used in accordance with the manufacturer's EPA-approved labeling and will not be applied directly to water or areas where surface water is present;
- Herbicides will not be applied, mixed, stored, or transferred between containers within the designated buffer areas or applied within 25 feet of wetlands with standing water;
- Herbicides will not be applied, mixed, stored, or transferred between containers within 100 feet of vernal pool depressions;
- Herbicides will be used in strict accordance with the manufacturer's EPA-approved labeling and will not be applied directly to water or areas where surface water is present;
- Herbicides will not be applied, mixed, transferred or stored within designated buffers, or applied by broadcast application within 25 feet of wetlands with visible surface water or wetlands dominated by emergent or aquatic plants;
- Herbicides will only be applied, mixed, transferred, or stored near vernal pool basins or streams in accordance with BPC regulations;
- Herbicides will not be applied, mixed, transferred or stored within 100 feet of any known well or spring or within 100 feet of a home or other human dwelling (Note there are no known wells, springs or human dwellings identified within the collector line ROW);
- Herbicides will not be applied, mixed, transferred or stored within 100 feet of a dwelling or within 250 feet of any residences listed on the BPC's Pesticide Notification Registry;
- Herbicides with a low potential for mobility and low persistence in the environment will be used in sensitive areas such as wetlands;
- Herbicides will not be applied to any area when it is raining or when winds exceed 15 miles per hour, as measured on-site at the time of application;
- The foreman of every crew applying herbicides will be licensed by the BPC and will remain in eye contact and within earshot of all persons on his/her crew applying herbicides. At least one individual from any company applying herbicides must hold a Commercial Master License issued by the BPC and must be in Maine during any application. Application of pesticides will occur in accordance with the Maine Pesticides Control Act (Maine Forest Service 2020), including regulations to minimize drift, to maintain setbacks from sensitive areas during application, and to maintain setbacks from surface waters during the storing, mixing, or loading of herbicides;
- Chemicals will typically be mixed in a truck-mounted tank remaining on the access roads. Herbicides will be applied by spot-treating target species and will be performed by personnel with backpacks traveling along the ROW by foot or by all-terrain vehicle;

- Each target tree will be sprayed just enough to wet the foliage, while avoiding any dripping or run-off; and
- The location of all wetlands and vernal pools crossed by the collector line will be shown on the final construction drawings. The presence of water on the surface will be determined prior to herbicide use in any wetland. Western Maine will assure that all resources and buffers are located and properly delineated on the ground for clear identification by all herbicide applicators.

### 3.0 SYSTEMS FOR LOCATING AND MARKING RESTRICTED AREAS

Prior to conducting maintenance activities along the collector line corridor, restricted areas will be identified with colored flagging or signage. In some instances, signage may be attached to structures to facilitate identification of the sensitive resources. Structures along the collector line will be numbered at the time of construction.

A database of the sensitive areas and buffers listed above that are located along the collector line corridor will be maintained by Western Maine. The database will include the types of sensitive areas along the line and associated locations in relation to the nearest numbered structure or road. Data will be provided to any maintenance contractor prior to the commencement of maintenance activities, which will enable contractors to locate and mark restricted areas in the field and facilitate compliance with the conditions of this VMP.

### 4.0 INVASIVE SPECIES

Invasive plants are non-native species that frequently cause environmental or economic harm following introduction to an area. Invasive plants often lack natural predators and can successfully colonize and thrive beyond the natural range of the species. Generally, these species have competitive adaptations, aggressive reproductive strategies, and efficient dispersal mechanisms, which often allow them to out-compete native plants. The spread of invasive plant species in both wetland and upland habitats is of concern for numerous reasons, such as reduced biological diversity, decreased quality of wildlife habitat, adverse aesthetic effects, and diminished recreational opportunities.

#### 4.1 Existing Invasive Species in the Area

For the purposes of this VMP, the Project Area is defined as the developed portions of the Project site, including the turbine areas, corridors for the electrical collector lines and utilities, access roads, substation, Operations & Maintenance facility, and radar towers. Tetra Tech, Inc. surveyed the Project Area for invasive plant species in 2020 and documented six species: reed canary grass (*Phalaris arundinacea*), spotted knapweed (*Centaurea stoebe*), purple loosestrife (*Lythrum salicaria*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and western lupine (*Lupinus polyphyllus*). Reed canary grass and spotted knapweed were ubiquitous in all areas except the western string of turbine pad sites, while other species were less common. A map set detailing locations of invasive plant species are provided in Appendix A, descriptions of documented invasive plant populations and locations are provided in Appendix B, and Appendix C includes representative photographs of invasive plants found in the Project Area.

Reed canary grass dominated the vegetation cover in many of the wetlands near disturbed areas during the late summer months. The species is present along the main travel roads and generally was found to cover upwards of 50 percent of open wetland areas near roads. The ROW in the southeast corner of the substation is dominated by over 1 acre that is predominantly reed canary grass, as is the smaller transmission-line ROW that continues northwest from this location.

Spotted knapweed also is common throughout much of the disturbed areas of the Project Area, especially where vegetative cover is otherwise sparse. This plant is ubiquitous along roads and other compacted cleared areas, but often as a few dispersed individuals and was not always mapped during the survey. Presence is particularly notable in the access road that traverses north to the northern radar fields and within the graveled area for the substation.

Western lupine was identified along the road embankment and ditch for the access road along the northern side of the southern radar field. The plants occur mostly in clumps and were identified by their taller stature and as having more leaflets than would be present for the native, rare wild lupine (*Lupinus perennis*). This species was noted casually during wetland surveys and is present in other areas of the Project Area, but not in the density observed near the southern radar field.

For some invasive species, only a single population was identified within the Project Area during the surveys. Due to the meandering survey methodology, it is possible that some populations were missed. While Canada thistle is relatively common in the area, only one population was confirmed within the Project Area. The Maine Natural Areas Program (MNAP) considers this species as a “severely invasive” species. It is a perennial species that spreads by rhizomes and seed production (MNAP 2019). One small population of purple loosestrife (including nine plants) was identified at the northern end of the southern radar field. This species is listed as very invasive by MNAP and reproduces by seeds, which can stay viable for several years (MNAP 2019). Two bull thistle populations were observed; one in a distinct cluster of up to 80 individuals on a raised berm adjacent to a road; and another with only a few individuals in a roadside ditch located north of the southern radar field. This species reproduces exclusively by seed but can have 100–300 seeds per flower head (DiTomaso et al., 2013).

#### 4.2 Invasive Species Monitoring Program

Western Maine is committed to monitoring the status of invasive plant species within the Project Area and identifying areas where invasive species control measures may be required to maintain or enhance the functions and values of both wetlands and uplands. As noted above, and for the purpose of this VMP, the Project Area is defined as the developed portions of the Project, including the turbine areas, corridors for the electrical collector lines and utilities, access roads, substation, Operations and Maintenance facility, and radar towers. The monitoring program will target known occurrences of invasive species identified above, along with new occurrences of invasive species. The program also will provide recommendations that will be used to select and implement appropriate control strategies for each invasive species location.

The primary objectives of the invasive species monitoring program are to: (1) update the status of invasive species within the Project Area for the purpose of targeting areas requiring control measures, and (2) define the types of control measures most appropriate for each invasive species location.

The establishment of invasive plant species is a concern in any areas where soil is disturbed. Following Project construction, Western Maine will retain a qualified, independent consultant to conduct the invasive species monitoring program, which will consist of completing field surveys of the Project Area to monitor the presence of invasive species, and providing recommendations for control options. For each invasive species location, the consultant will complete invasive species monitoring forms, take photographs of the species and surrounding landscape, and record the location using a GPS receiver. Any site condition with the potential to affect control methods also will be noted (e.g., wetlands, streams). Field surveys will be completed during the growing season when plant species are most easily identified. Monitoring will be scheduled to allow time for invasive species treatments to be implemented during the same growing season.



Construction of the Project is expected to be completed by 2023. Invasive species monitoring within the Project Area will be initiated in the first full growing season following Project completion. Monitoring will continue for a maximum of 5 years based on the results of initial surveys and agency consultations. It is possible that monitoring frequency may be reduced if invasive plant densities are determined to be low, within the first 5 years of monitoring.

Monitoring will locate invasive species to allow implementation of control measures as soon as practicable, particularly in areas where invasive species colonization is a direct result of Project activities. Monitoring and control schedules for invasive species may be adjusted to respond to site-specific issues (e.g., monitoring less frequently as densities decrease, instituting treatment in consecutive years to control an aggressive population).

The results of each year of invasive species monitoring will be detailed in an annual report that includes: a summary of the field survey methods and results, a table identifying invasive species in the Project Area, a map depicting GPS locations for all invasive species occurrences, completed monitoring forms, and representative photographs. The report will compare existing site conditions, as based on monitoring results compared to pre-construction data to determine invasive species trends within the Project Area. The monitoring report also will include recommendations regarding invasive species control measures, including locations requiring control, suggested control strategies, and the associated implementation schedule. Monitoring reports will be submitted to the Maine Department of Environmental Protection (MDEP) annually, with a deadline of March 31 following the year in which monitoring was conducted.

Implementation of invasive species control measures will be based on monitoring results and will not require approval from regulatory agencies. Control measures will be applied consistent with permit conditions and relevant safety requirements governing such activities.

#### 4.3 Invasive Species Control Strategies

Effective invasive species control strategies for the Project must consider the following factors:

- Characteristics and functions/values of the wetlands and uplands in the Project Area;
- Invasive species present within the Project Area and associated densities;
- Sensitive areas within the Project Area, including wetlands, streams, vernal pools, wildlife habitat, sand and gravel aquifers, and visual buffers;
- Adjacent land use developments, which can affect the value of wetlands in the Project Area and influence the choice of control strategies; and
- Landowner cooperation and the potential lack of access, depending on the conditions of easements across private properties.

Based on the aforementioned factors, invasive species control measures may not be practicable or highly effective within all areas of the Project Area. Furthermore, once invasive species become established, complete eradication is unlikely given the aggressive nature of most invasive species.

In general, there are three types of invasive species control methods: mechanical, chemical, and biological. These control methods may be combined to enhance effectiveness.

Mechanical control measures such as digging, pulling, and cutting may be effective in controlling isolated invasive plants or small stands of plants. These methods are often necessary in sensitive natural resources areas where chemical treatment is not permitted, such as wetlands, streams, and wildlife habitat buffers. However, mechanical techniques are often labor intensive and may be impractical in areas with dense infestations of invasive species. This method also can be ineffective for certain invasive species.



Chemical control (i.e., herbicides) is the most common alternative used for managing invasive species along transmission line corridors and adjacent to roadways, and herbicide applications often provides the most cost-effective method for controlling dense infestations of invasive species. Herbicide application is an environmentally-acceptable management practice, provided that treatment areas are carefully selected. For instance, herbicides should not be applied in wetlands with standing water, or adjacent to streams.

Biological controls can be administered to control certain invasive species. For instance, populations of purple loosestrife can be managed using beetles (*Galerucella* spp.). The beetles feed on bud, leaf, and stem tissue, causing defoliation and preventing flowering/seed production.

With all invasive species, the best method of control is to prevent the plant from becoming established. Once invasive species are present in an area, complete eradication is often difficult given the aggressive nature of these plants. In addition to attempts to eliminate invasive species populations, limiting further spread of these plants is critical. Various strategies for eradication and control of the invasive species documented in the Project Area are described below.

Invasive species were present in much of the Project Area, with reed canary grass (1-Severely Invasive) and spotted knapweed (3-Invasive, habitat-specific threats) being the most prevalent. Reed canary grass is present along most of the roadways; however, it becomes scarce west of Bassett Brook. This species also dominated the vegetation coverage of many of the open wetlands during late summer. Reed canary grass also is abundant in the turbine pad survey areas in both the radar fields, especially near wetlands and damp open areas. Reed canary grass is difficult to control because it has vigorous, rapidly spreading rhizomes and forms a large seed bank. Digging the plants up can be effective for small patches; however, the most effective control method for reed canary grass is when a long-term, ecosystem-wide strategy is implemented. This species is of most concern in areas where the plant is forming extensive monocultures, thereby out-competing native vegetation. Reed canary grass growing in isolated patches may remain untreated if the population is not threatening a natural resource, such as a wetland or stream system. At this time, no control is suggested for the reed canary grass located within the Project Area. Cleaning of equipment after working in areas that contain reed canary grass can help reduce its spread to other areas during construction.

Spotted knapweed also is common along, and within, roadways and is generally present in areas of compact soil and gravel additions. As such, multiple pockets of this invasive species were found within the southeast corner of the Project Area, in the substation area. This plant, like reed canary grass, tends to thrive in disturbed areas. Therefore cleaning of equipment when moving from areas containing this species can help control its spread.

One population of bull thistle (4-Potential to be Invasive, monitor) was found along Stream Road, near the intersection with the road that extends west, to the western string of turbine pads. Although this population contains upwards of 60 plants, the population is in a distinct cluster. A small population of Canada thistle (1-Very Invasive) was observed north of the south access road. Due to the spreading nature of this plant, construction crews should be aware of its potential presence and implement measures to reduce the chance of further spread, when working in this area.

One population of purple loosestrife was observed within the Project Area, near the building on the north end of the southern radar field. The population consists of nine plants, although only one was large and flowering during the survey. While not identified within the turbine pads in this field, care should be taken during construction within this area, to prevent further spread of this (2-Very Invasive) species.

Western lupine was observed in dense patches along the northern access road to the southern radar field. The species was observed casually in other areas of the Project Area during other resource surveys, but

was not observed as a dominant cover species. MNAP lists this species as “4-Potential to be Invasive, monitor.” In dense stands it can outcompete other species and change soil properties in nutrient poor sites, potentially altering natural community structure. This species can hybridize with other lupine species, although it is unknown if it hybridizes with the native sundial lupine (*Lupinus perennis*).

Hemp nettle (*Galeopsis tetrahit*) also was found in highly disturbed areas within the Project Area. Although not on the MNAP 2019 advisory list, it is listed as an invasive species in multiple states and Canada. Bird’s-foot trefoil (*Lotus corniculatus*) is another non-native plant that was observed in highly disturbed areas (especially along road/transmission line berms), where it dominated the herbaceous layer. Although not on the MNAP 2019 advisory list, this species is widespread and can be an agricultural pest (GoBotany 2020). Neither of these species were mapped during the survey.

Contractors will avoid direct impacts to known populations of invasive species. In consultation with the third-party inspector for the Project, measures to limit the spread of invasive species in areas surrounding populations identified during construction will include the following:

- Minimize ground disturbance and exposure of soil near all recorded populations of invasive species (Appendix A) to reduce sprouting from the seed bank. Use of construction equipment within areas containing these species should be avoided, if possible;
- All construction vehicles and/or construction mats used in these areas will be washed prior to moving to a new area within the Project Area. All mud, dirt, debris, and plant material will be removed from the exterior, undercarriage, and tires/tracks of the equipment with a high-pressure washer. All construction equipment and vehicles working in areas with documented invasive species will be inspected prior to leaving the site; and
- Soils excavated immediately adjacent to occurrences of all recorded invasive species will be loaded directly into trucks, removed from the site, and taken to a proper disposal site. Excavated soil from these areas will not be transported to other parts of the Project Area.

Following Project construction, the annual monitoring surveys should include careful observations, as detailed above, at locations identified as containing invasive species populations, to determine if initial control efforts were successful in limiting the spread of these species. Additional control efforts are likely to be required in these areas to limit growth and spread in future years.

Western Maine will institute the control measures described above during all construction activities within areas in which invasive species are identified. Following construction, early treatment measures can prevent the spread of invasive species, particularly in areas where such species were documented as not present prior to Project construction. As a result, an aggressive invasive species control approach will be implemented within the first 5 years immediately following construction completion. Particular treatment efforts will focus on preserving and enhancing the functions and values of wetlands and uplands in the Project Area.

Based on results of the post-construction monitoring program, annual invasive species treatment measures will be scheduled as soon as practicable upon receipt of field monitoring recommendations. The treatment schedule will depend on the types of control measures recommended and the species documented. For example, mechanical removal can occur throughout most of the year provided plants are identifiable. On the contrary, herbicide applications and biological controls are generally most effective when implemented during the growing season.

Depending on monitoring results, Western Maine may contract a field biologist or wetland scientist to work with the invasive species management contractor to: (1) oversee the implementation of invasive

species control measures, (2) recommend methods to maximize the potential re-establishment of native vegetation, and (3) suggest wetland plantings to enhance habitat value. Locations that receive treatment to control invasive species will be monitored in subsequent years to assess the effectiveness of such measures.

Although specific treatments will be refined based on the results of the monitoring program, it is anticipated that the most effective general approach for controlling invasive species within the Project Area will likely be a combination of mechanical removal and application of herbicides in selected locations during the growing season. During mechanical removal, plants that are cut or pulled will be treated as solid waste and disposed of off-site to limit the potential of further spread.

Repeated spot herbicide applications may be required in subsequent growing seasons to achieve effective control. Based on the amount of invasive species documented in the Project Area prior to construction, large-scale control is not anticipated. The need for, and types of chemical control of invasive species will be carefully evaluated, particularly in sensitive areas such as wetlands, streams, and vernal pools; and areas not owned by Western Maine. Additionally, invasive species may be present in wetland and upland areas that are outside of the defined boundaries of the Project Area. Western Maine does not have authority to attempt to control invasive species that may occur in areas adjacent to the Project.

Herbicide applications will be performed in accordance with applicable laws and regulations put forth by the MDEP, the BPC, and the EPA. The type of herbicide(s) to be used, method of application, and schedule for application will be determined based on the locations of the targeted areas and the particular invasive species to be controlled.

Similarly, the use of any biological control measures will be coordinated with the MDEP. The species used for biological control will be obtained from approved sources and released pursuant to specifications.

## 5.0 TRAINING MAINTENANCE PERSONNEL

Western Maine personnel and contractors who will be participating in vegetation maintenance activities will receive appropriate environmental training before accessing the corridors. The level of training will be commensurate with the type of duties to be performed, and training will occur prior to the start of maintenance activities. If new or replacement personnel do not receive the initial training, a similar training will occur prior to the performance of any maintenance activities along transmission line corridors.

Prior to receiving maintenance training, each participant will be required to review this VMP. The training session will consist of a review of all protected resources and restricted areas, the respective maintenance requirements and restrictions for each area, and a review of how resources and restricted areas can be located in the field (relative to the nearest numbered structure). Training will include a review of basic causes and preventative and remedial measures for contamination, erosion, and sedimentation of water resources, as well as a review of the VMP. The review of the VMP will include basic identification of the invasive species observed within the Project Area, as well as additional invasive species that are likely to occur. Training also will include information regarding safety, clean-up, monitoring, and reporting requirements.

## 6.0 REFERENCES

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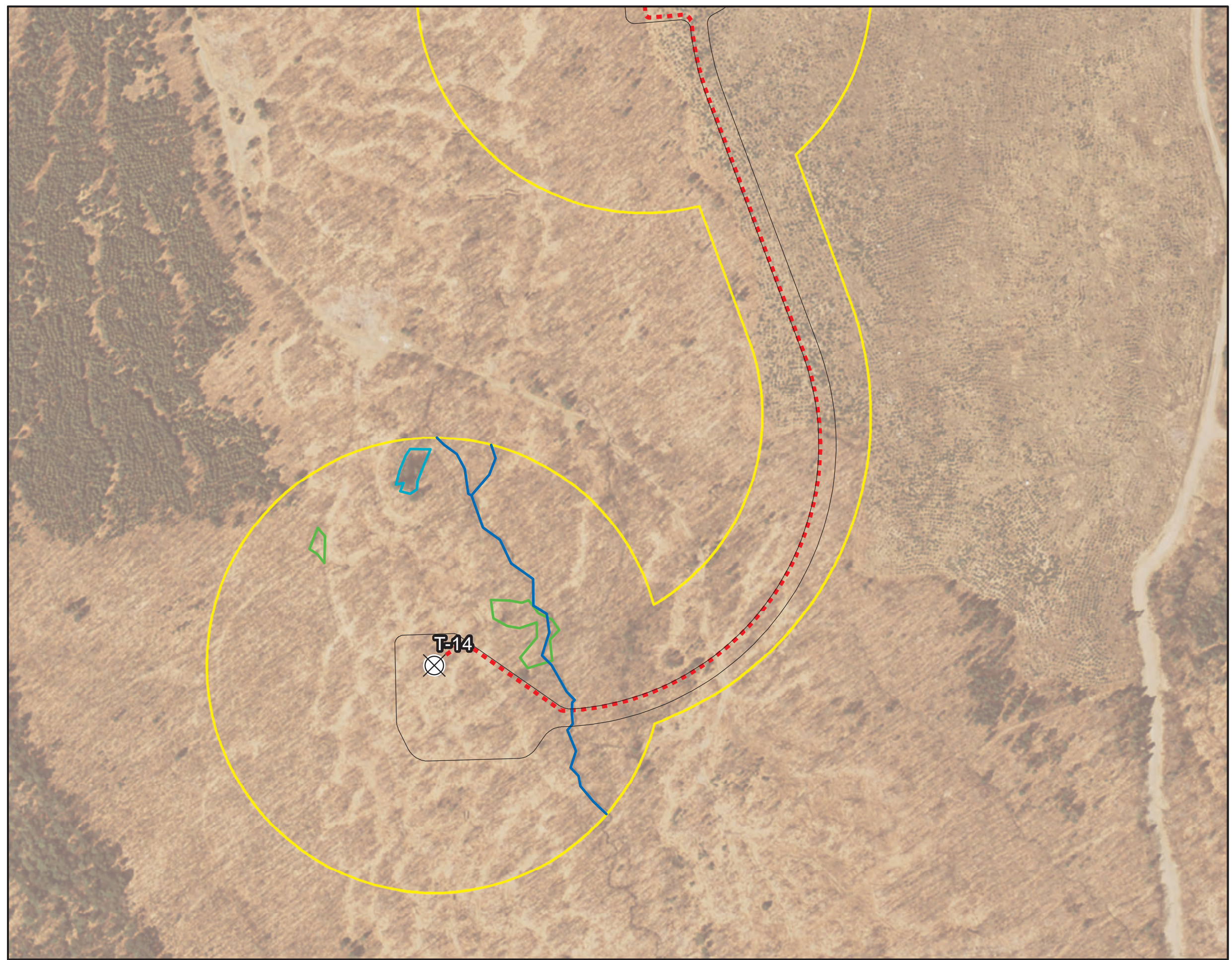
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## APPENDIX A. MAPS





**Legend**

- Project Area
- Access Roads and Pads
- X Turbine Location
- Delineated Wetland
- Delineated Vernal Pool
- Delineated Stream

**Connection System**

- 34.5kV Underground

0 250 500 Feet

**Figure 2**  
**Invasive Species Survey Results**  
**Plate 1 of 14**  
**Western Maine Renewable Energy Project**

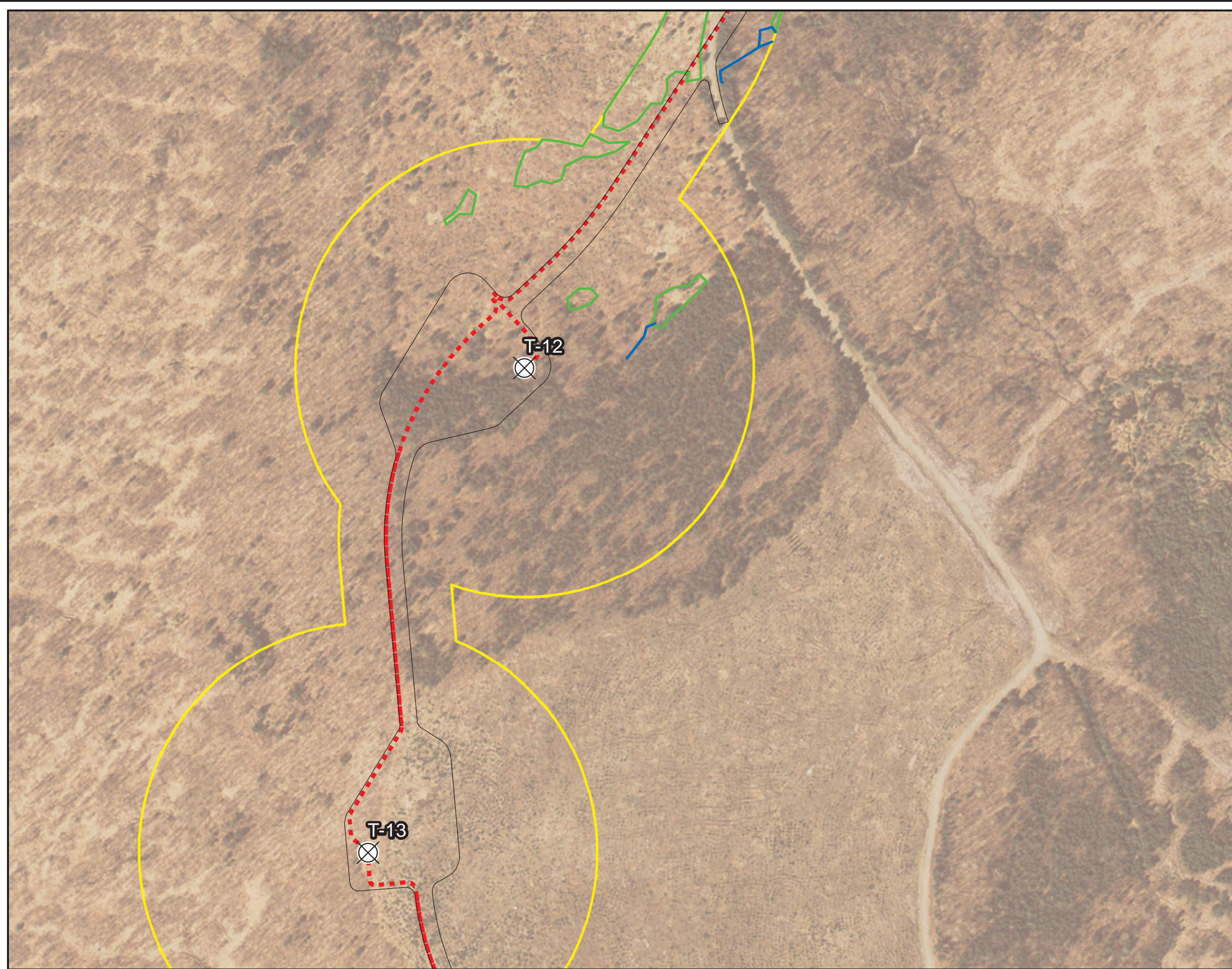
Prepared For:

Prepared By:	Date:
	<b>05/2021</b>

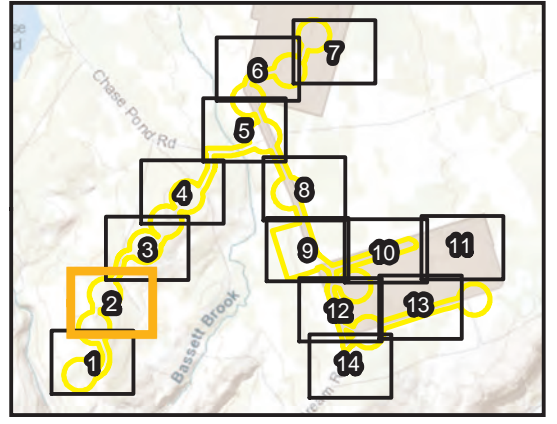
Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





- Legend**
- Project Area
  - Access Roads and Pads
  - Turbine Location
  - Delineated Wetland
  - Delineated Stream
- Connection System**
- 34.5kV Underground



**Figure 2**  
**Invasive Species Survey Results**  
 Plate 2 of 14  
 Western Maine Renewable Energy Project

Prepared For:

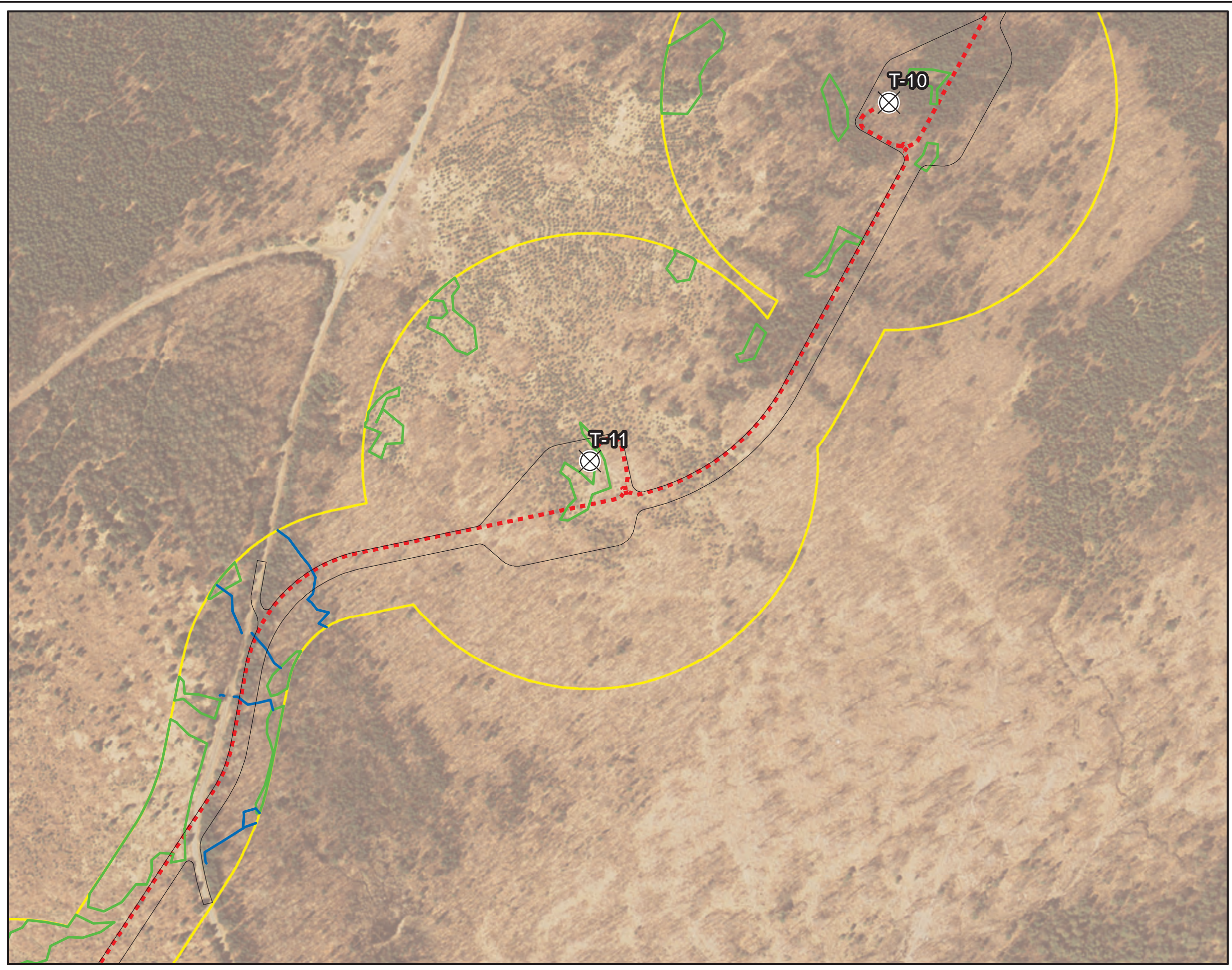
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Source: Esri, et. al., 2020; Tetra Tech, 2020

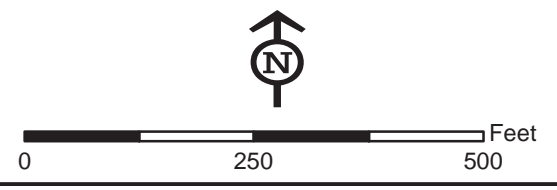
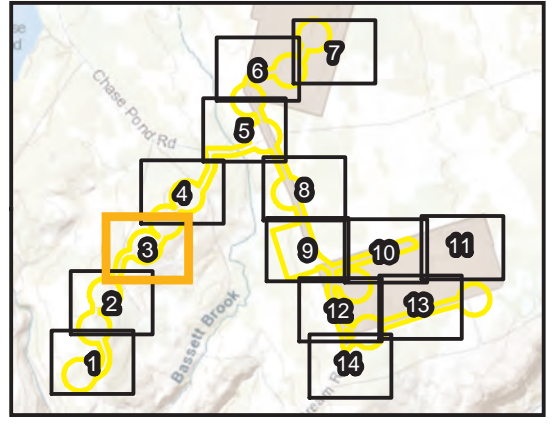
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- Legend**
- Project Area
  - Access Roads and Pads
  - X Turbine Location
  - Delineated Wetland
  - Delineated Stream
- Connection System**
- 34.5kV Underground



**Figure 2**  
**Invasive Species Survey Results**  
**Plate 3 of 14**  
**Western Maine Renewable Energy Project**

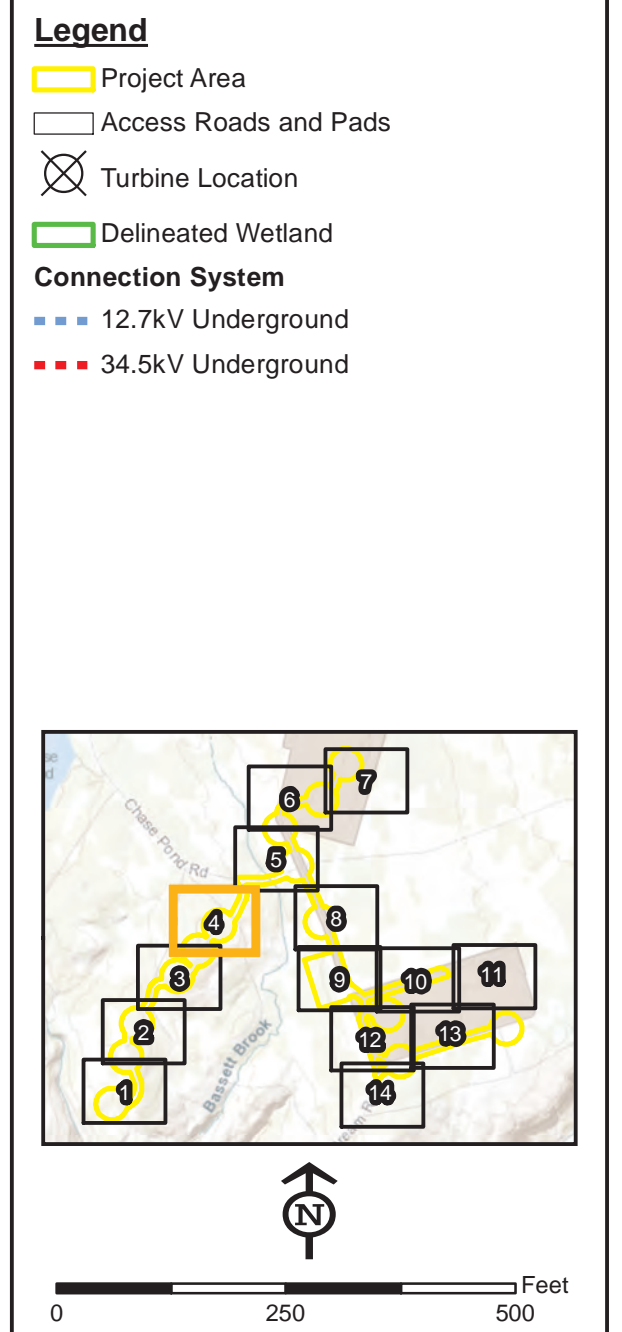
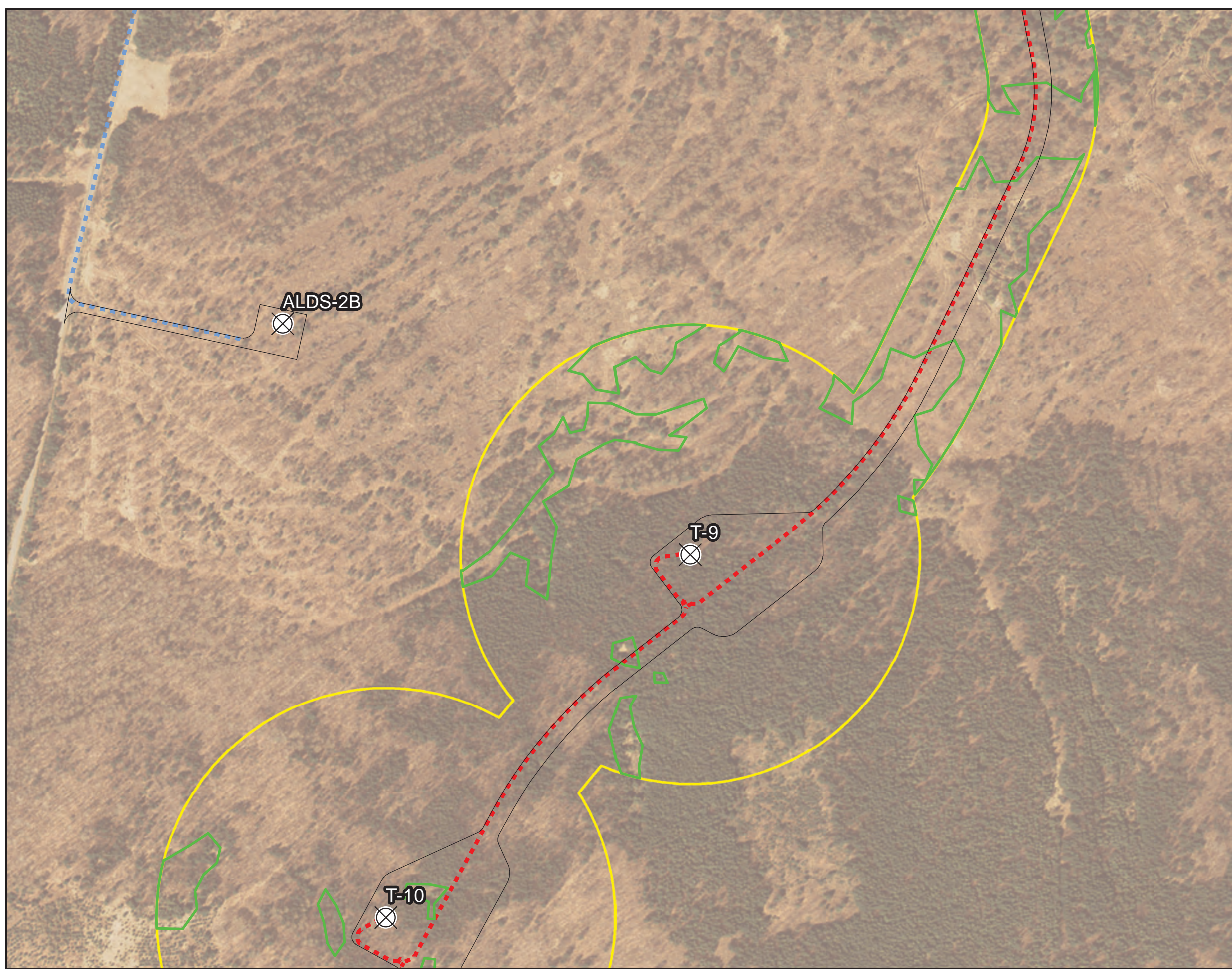
Prepared For:

Prepared By:	Date: <b>05/2021</b>
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Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
Universal Transverse Mercator, Zone 19 North





**Figure 2**  
**Invasive Species Survey Results**  
 Plate 4 of 14  
 Western Maine Renewable Energy Project

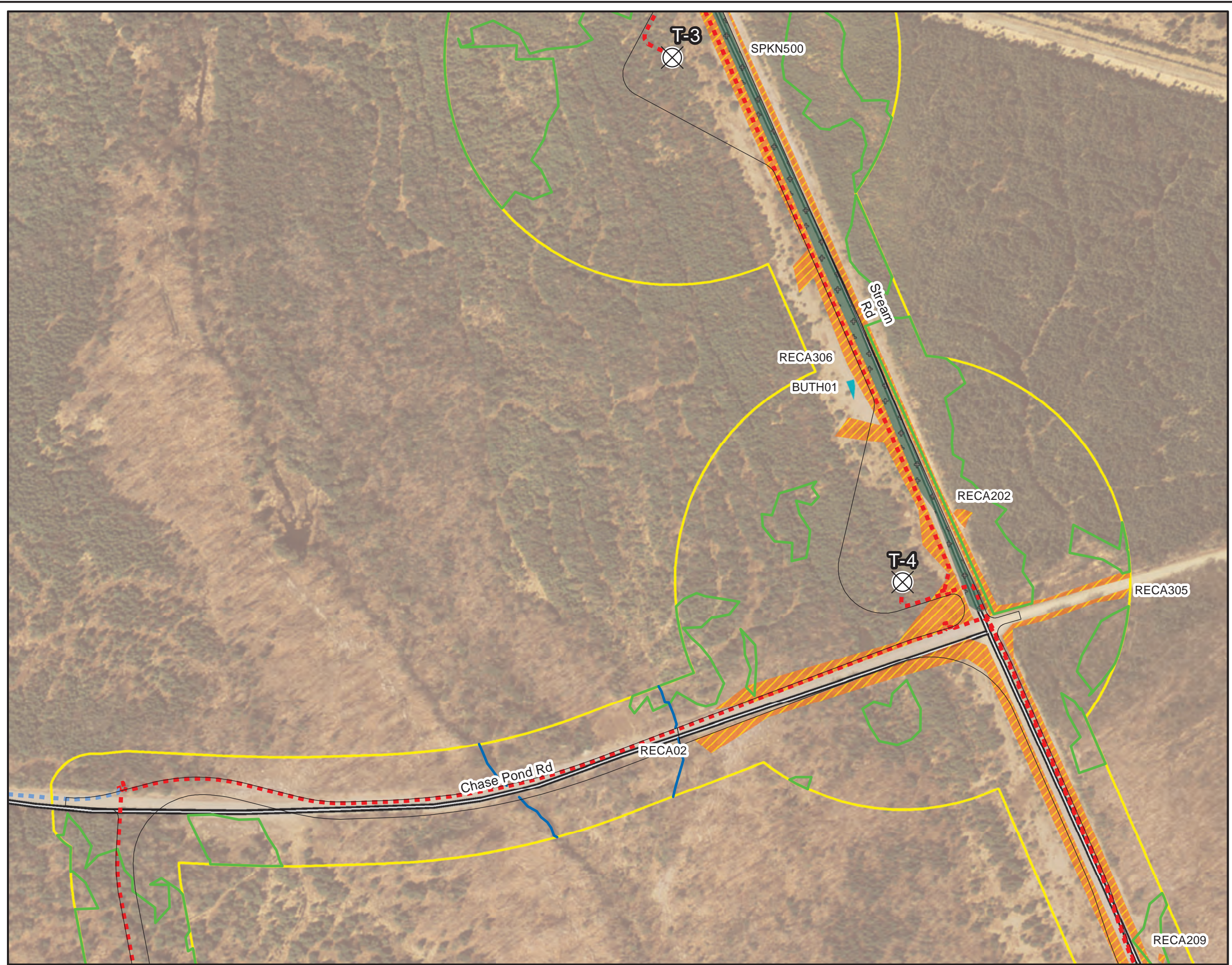
Prepared For:

Prepared By:	Date: <b>05/2021</b>
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Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





**Legend**

- Project Area
- Access Roads and Pads
- ⊗ Turbine Location
- Delineated Wetland
- Delineated Stream

**Invasive Plant Group**

- Bull Thistle
- Reed Canary Grass
- Spotted Knapweed

**Connection System**

- 12.7kV Underground
- 34.5kV Underground

Chase Pond Rd  
Bassett Brook

0 250 500 Feet

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 5 of 14  
 Western Maine Renewable Energy Project

Prepared For:

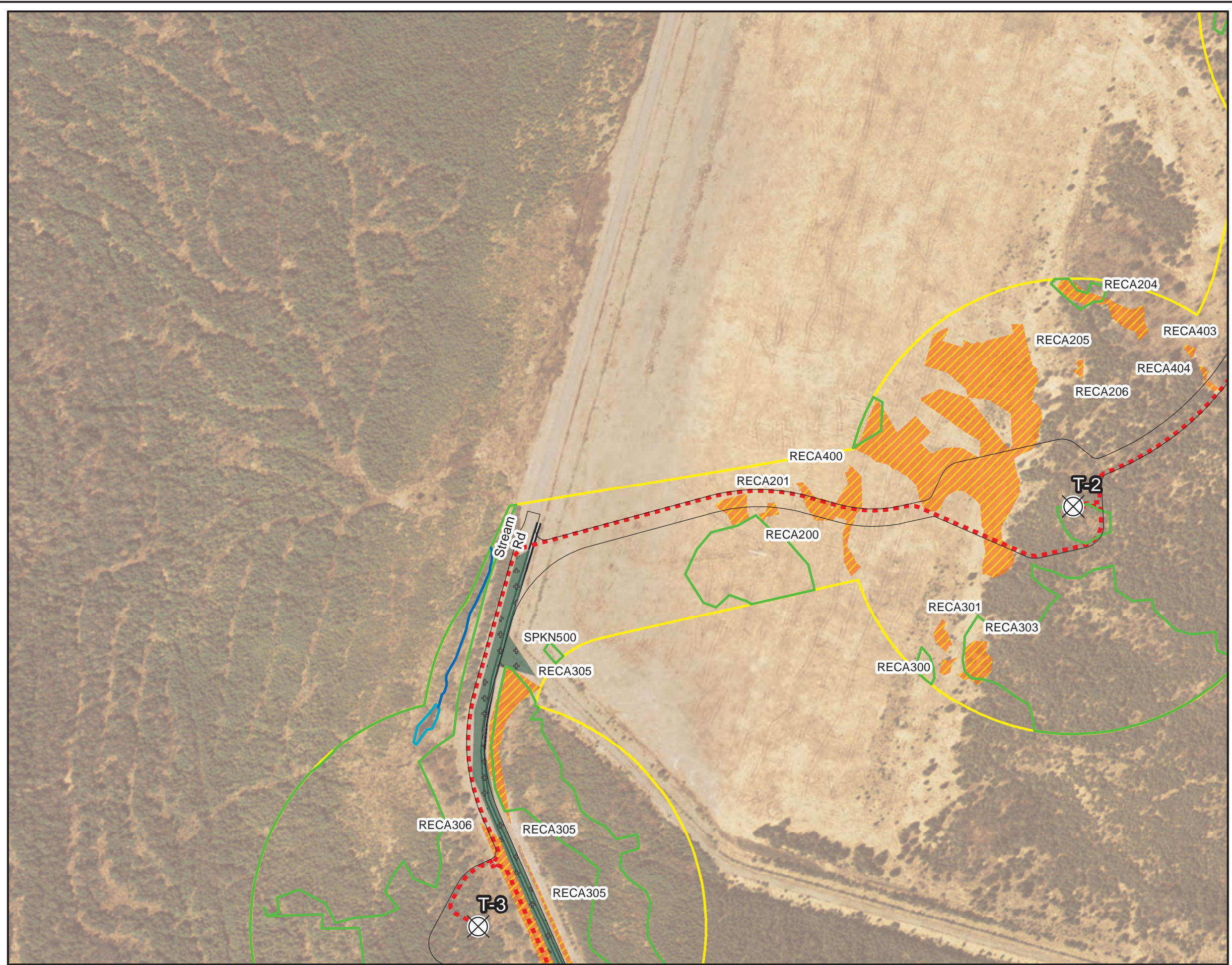
Prepared By: **TETRA TECH** Date: **05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

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**Legend**

- Project Area
- Access Roads and Pads
- X Turbine Location
- Delineated Wetland
- Delineated Vernal Pool
- Delineated Stream

**Invasive Plant Group**

- Reed Canary Grass
- Spotted Knapweed

**Connection System**

- 34.5kV Underground

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 6 of 14  
 Western Maine Renewable Energy Project

Prepared For:

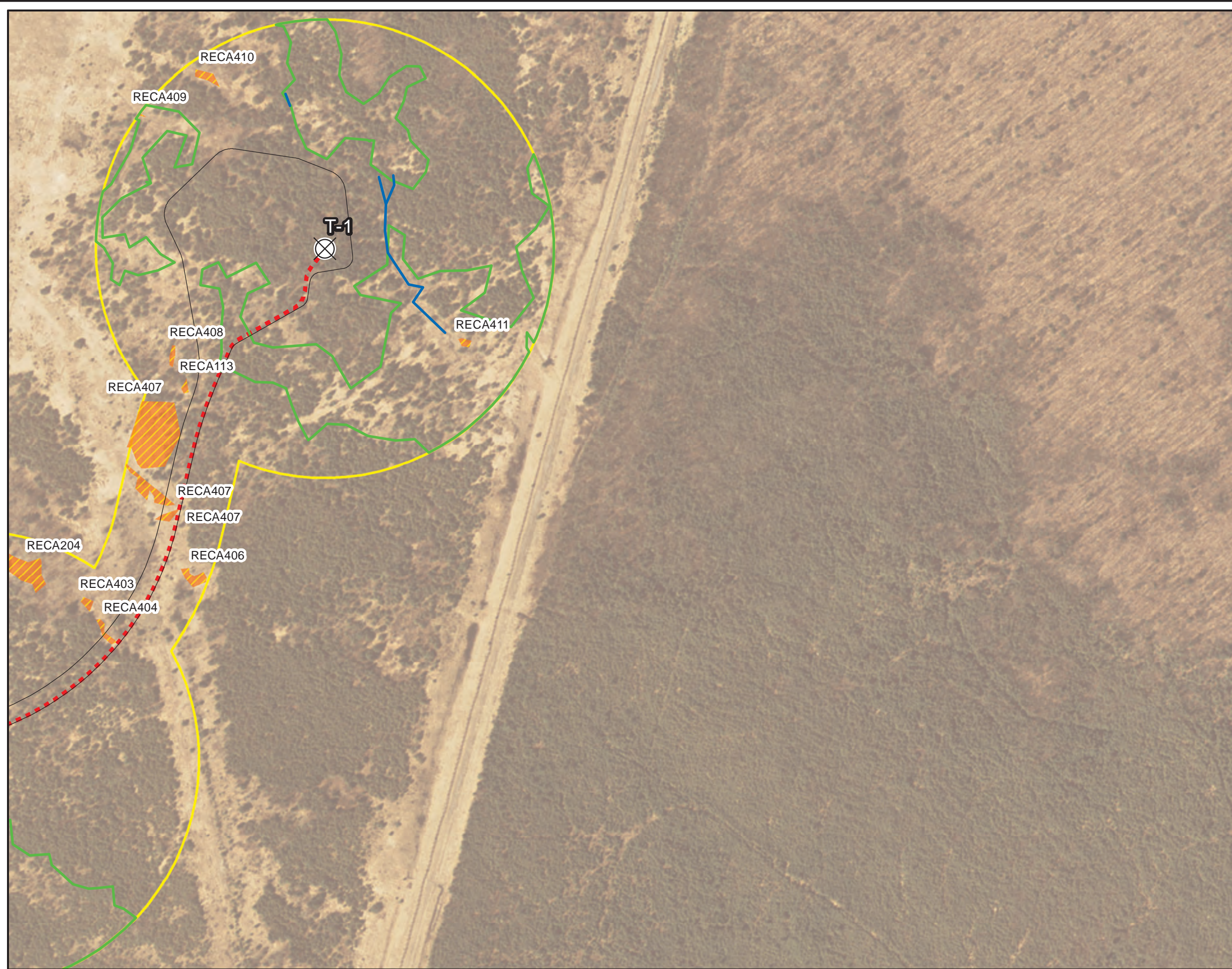
Prepared By:	Date: <b>05/2021</b>
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Source: Esri, et. al., 2020; Tetra Tech, 2020

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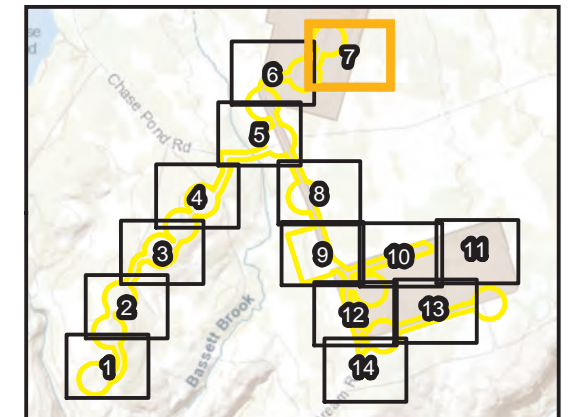
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**Legend**

- Project Area
- Access Roads and Pads
- Turbine Location
- Delineated Wetland
- Delineated Stream
- Invasive Plant Group**
- Reed Canary Grass
- Connection System**
- 34.5kV Underground



**Figure 2**  
**Invasive Species Survey Results**  
**Plate 7 of 14**  
**Western Maine Renewable Energy Project**

Prepared For:

Prepared By:

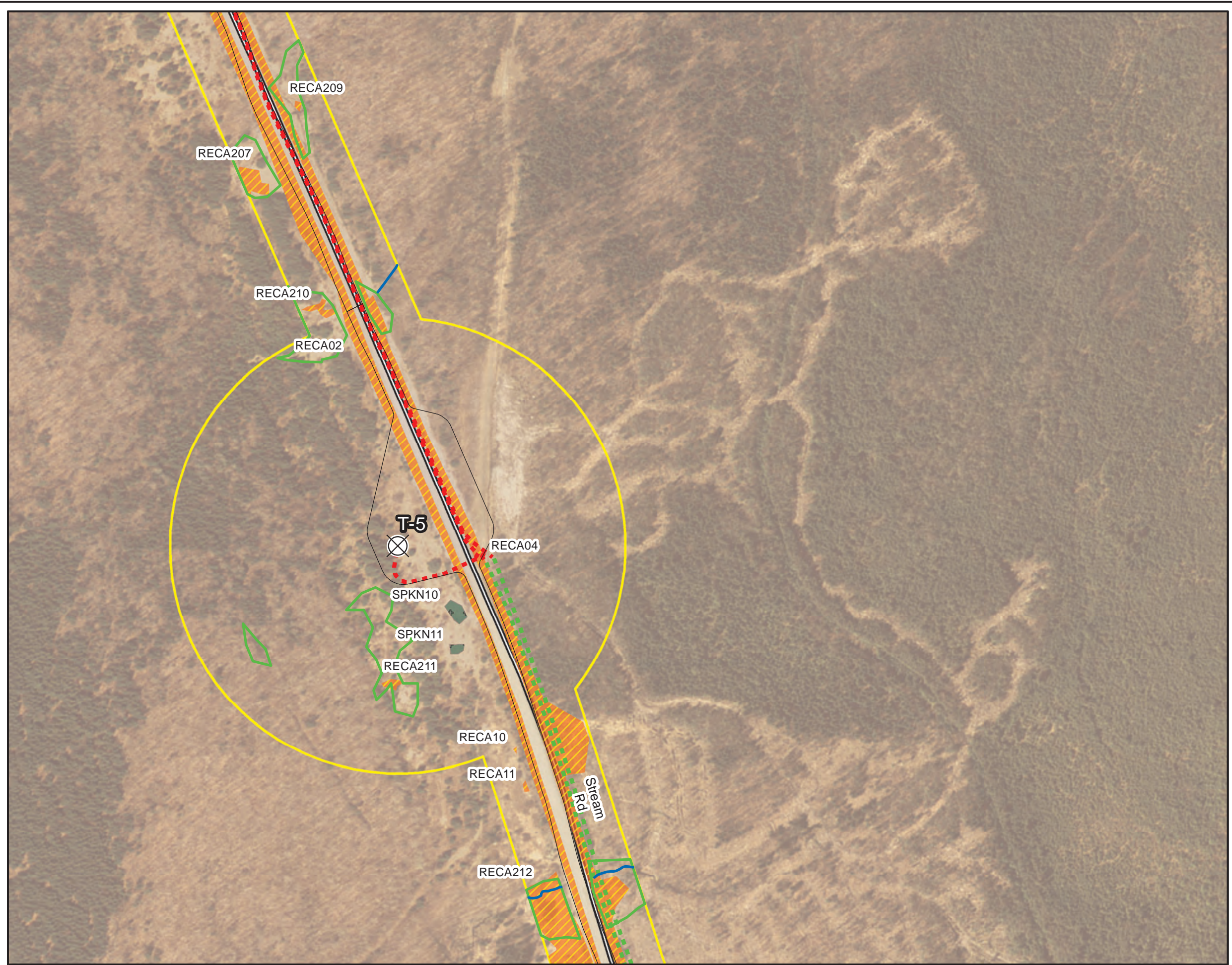
Date:  
**05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
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**Legend**

- Project Area
- Access Roads and Pads
- Turbine Location
- Delineated Wetland
- Delineated Stream

**Invasive Plant Group**

- Reed Canary Grass
- Spotted Knapweed

**Connection System**

- 34.5kV Overhead
- 34.5kV Underground

N

0      250      500 Feet

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 8 of 14  
 Western Maine Renewable Energy Project

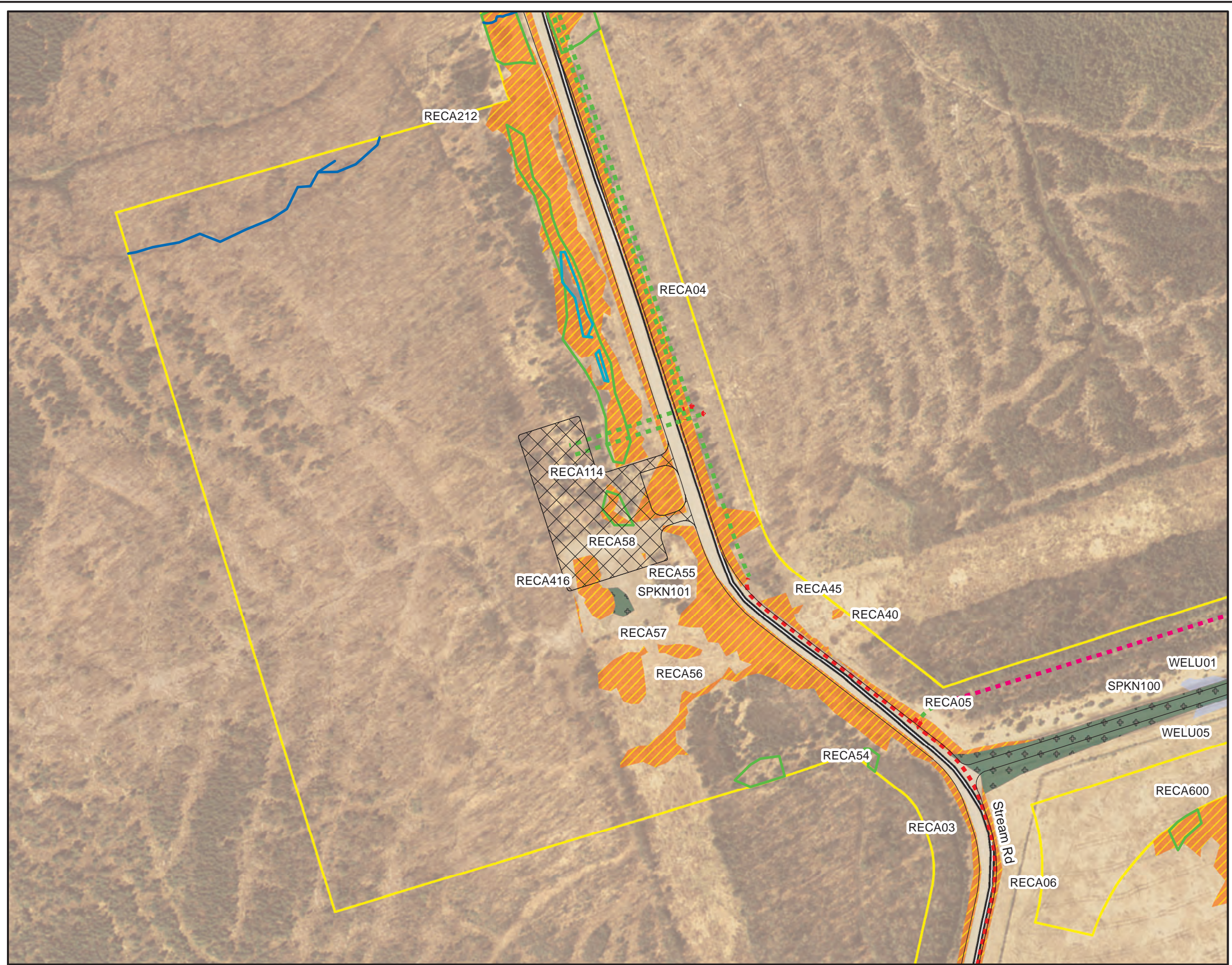
Prepared For:

Prepared By: **TETRA TECH**      Date: **05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





**Legend**

- Project Area
- Access Roads and Pads
- Proposed Substation Area
- Delineated Wetland
- Delineated Vernal Pool
- Delineated Stream

**Invasive Plant Group**

- Reed Canary Grass
- Spotted Knapweed
- Western Lupine

**Connection System**

- 12.7kV Overhead
- 34.5kV Overhead
- 34.5kV Underground

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 9 of 14  
 Western Maine Renewable Energy Project

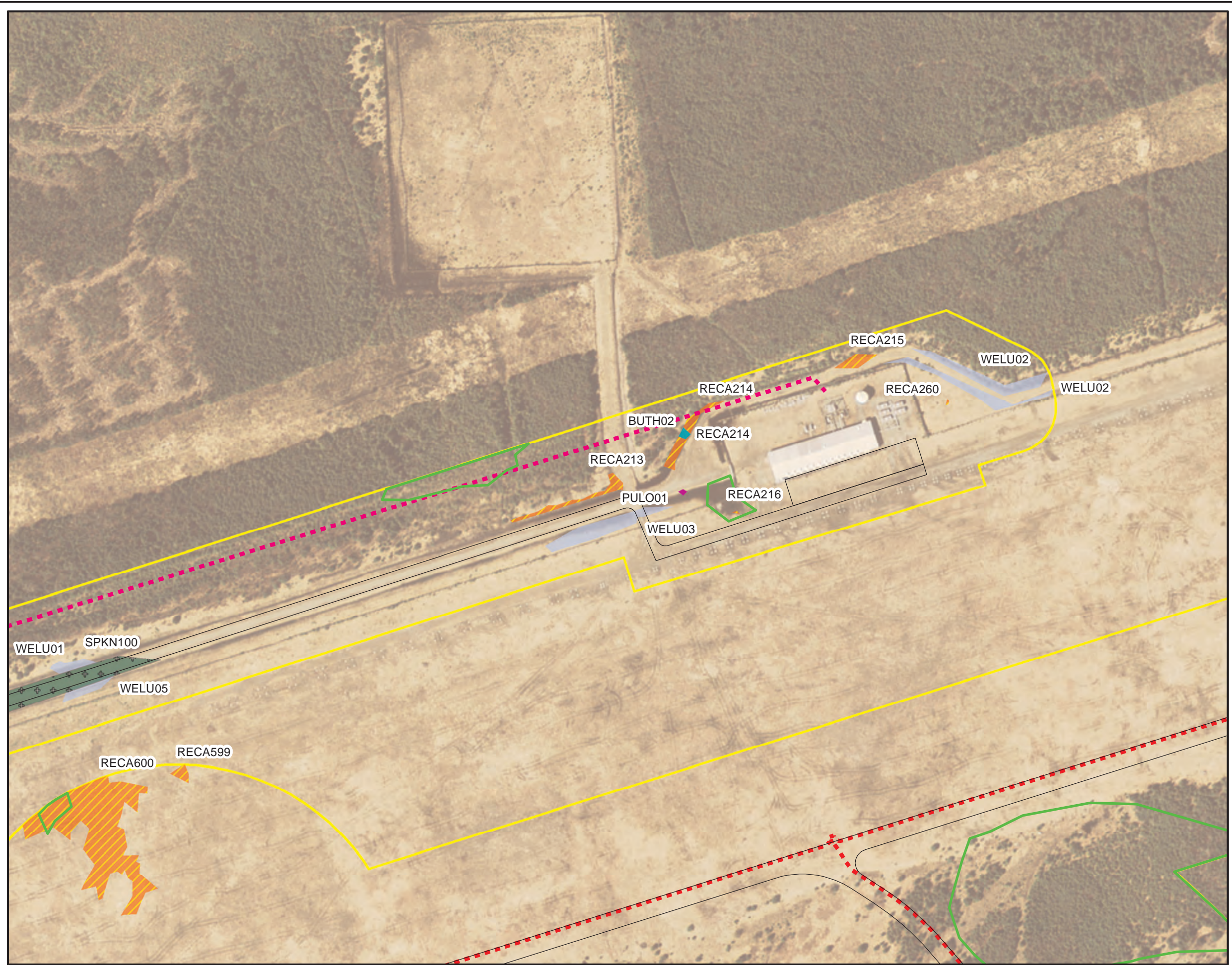
Prepared For:

Prepared By: **TETRA TECH** Date: **05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





**Legend**

- Project Area
- Access Roads and Pads
- Delineated Wetland

**Invasive Plant Group**

- Bull Thistle
- Purple Loosestrife
- Reed Canary Grass
- Spotted Knapweed
- Western Lupine

**Connection System**

- 12.7kV Overhead
- 34.5kV Underground

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 10 of 14  
 Western Maine Renewable Energy Project

Prepared For:

Prepared By: **TETRA TECH** Date: **05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

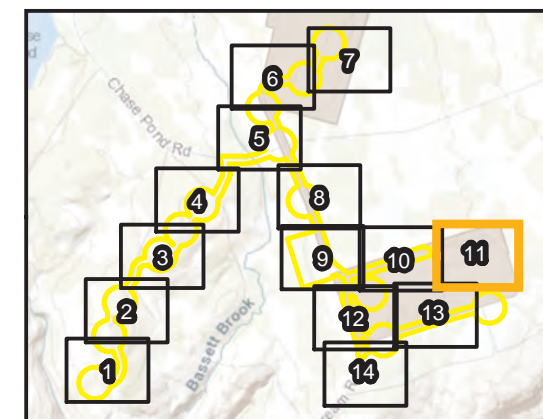
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 Universal Transverse Mercator, Zone 19 North





**Legend**

- Project Area
- Access Roads and Pads
- X Turbine Location
- Delineated Wetland
- Connection System**
- 34.5kV Underground



**Figure 2**  
**Invasive Species Survey Results**  
 Plate 11 of 14  
 Western Maine Renewable Energy Project

Prepared For:

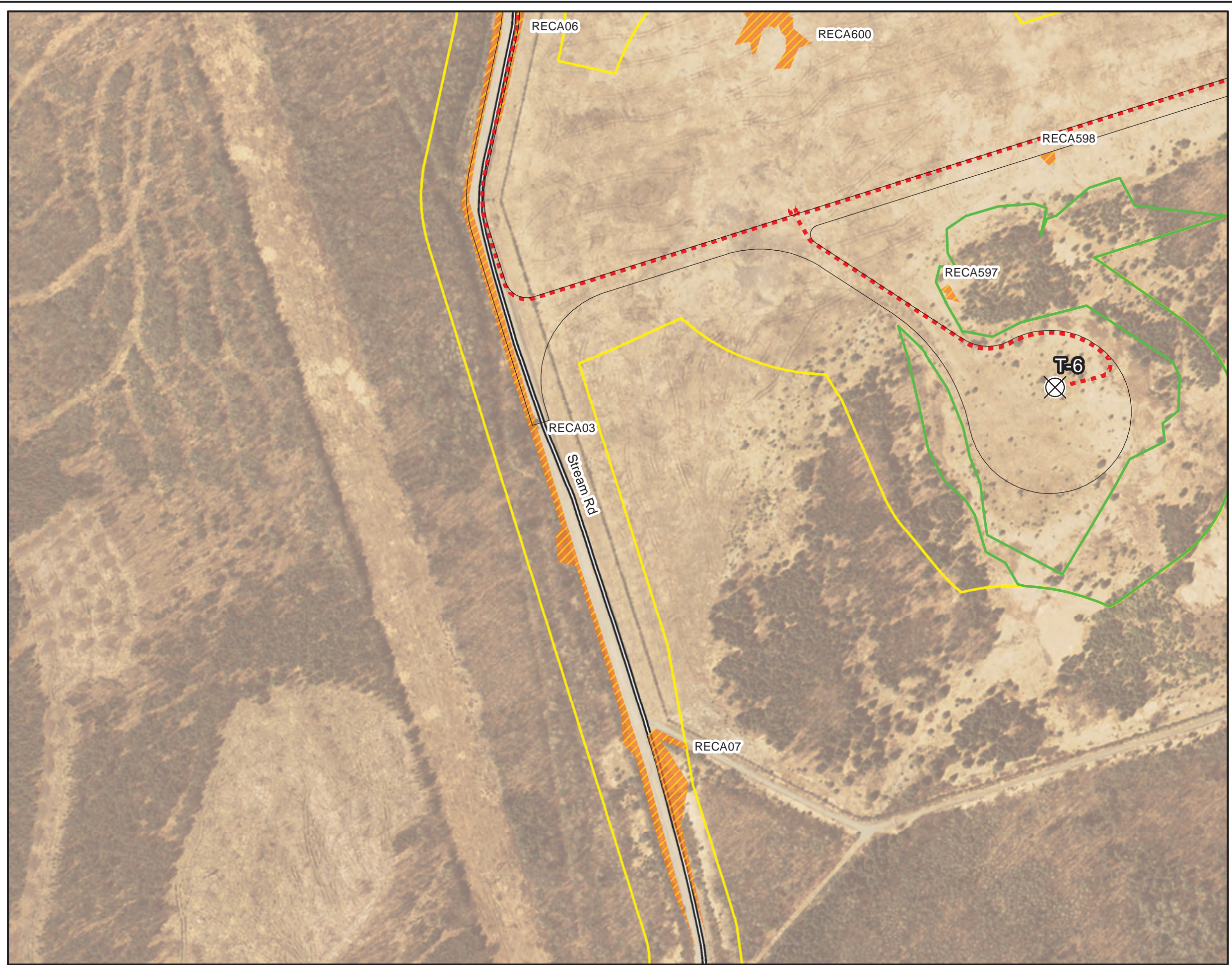
Prepared By: TETRA TECH

Date:  
 05/2021

Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





**Legend**

- Project Area
- Access Roads and Pads
- X Turbine Location
- Delineated Wetland

**Invasive Plant Group**

- Reed Canary Grass

**Connection System**

- 34.5kV Underground

N

0      250      500 Feet

**Figure 2**  
**Invasive Species Survey Results**  
 Plate 12 of 14  
**Western Maine Renewable Energy Project**

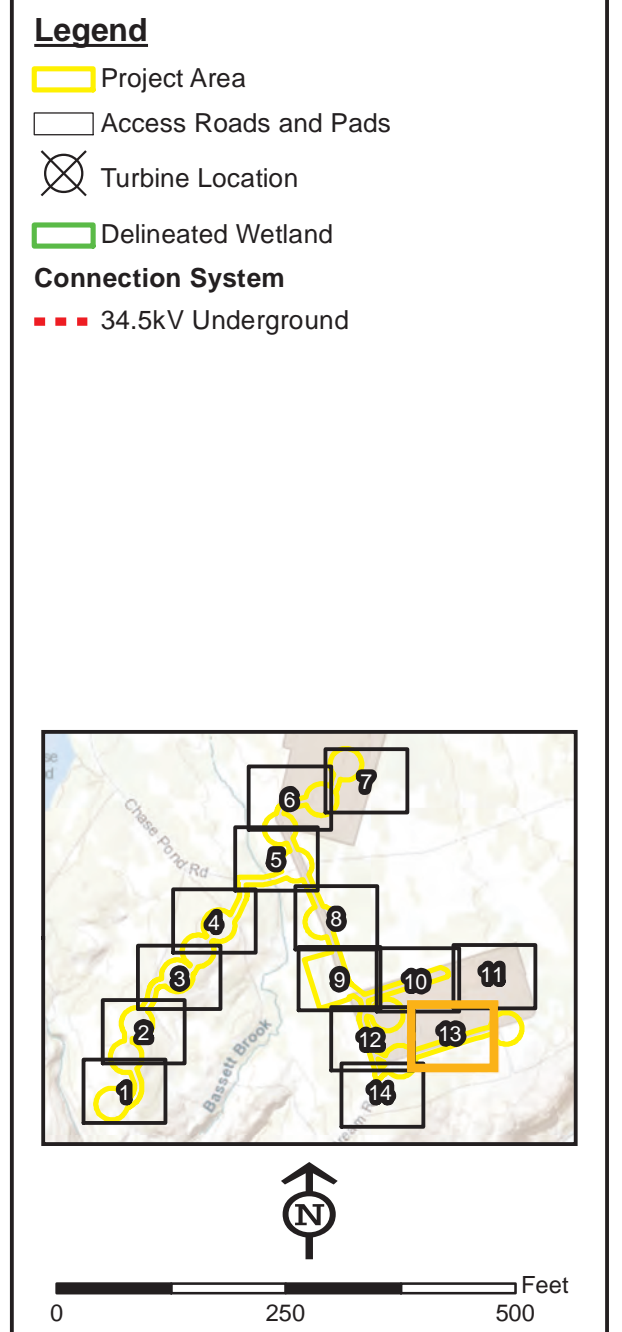
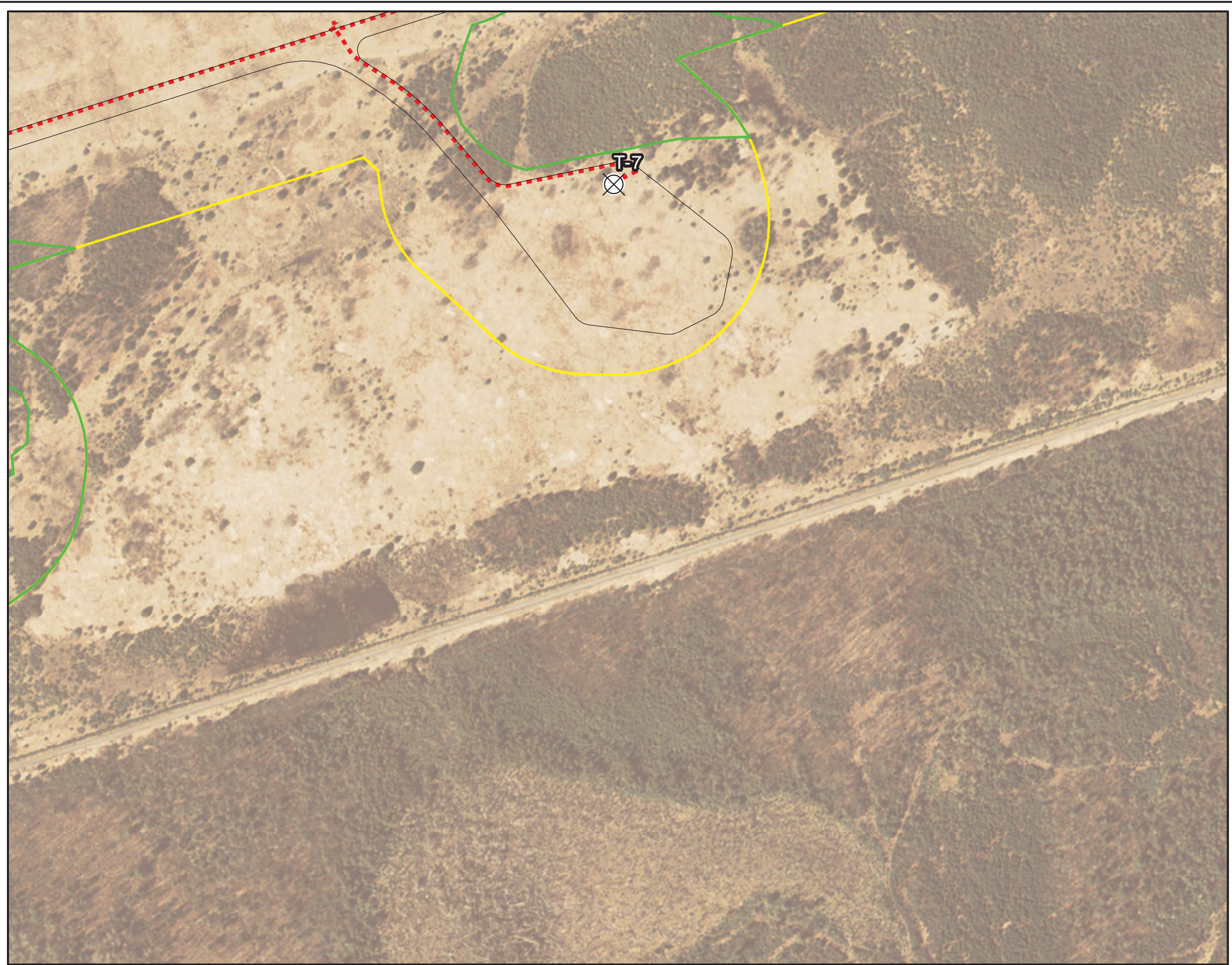
Prepared For:

Prepared By:	Date: <b>05/2021</b>
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Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
 Universal Transverse Mercator, Zone 19 North





**Figure 2**  
**Invasive Species Survey Results**  
 Plate 13 of 14  
 Western Maine Renewable Energy Project

Prepared For:

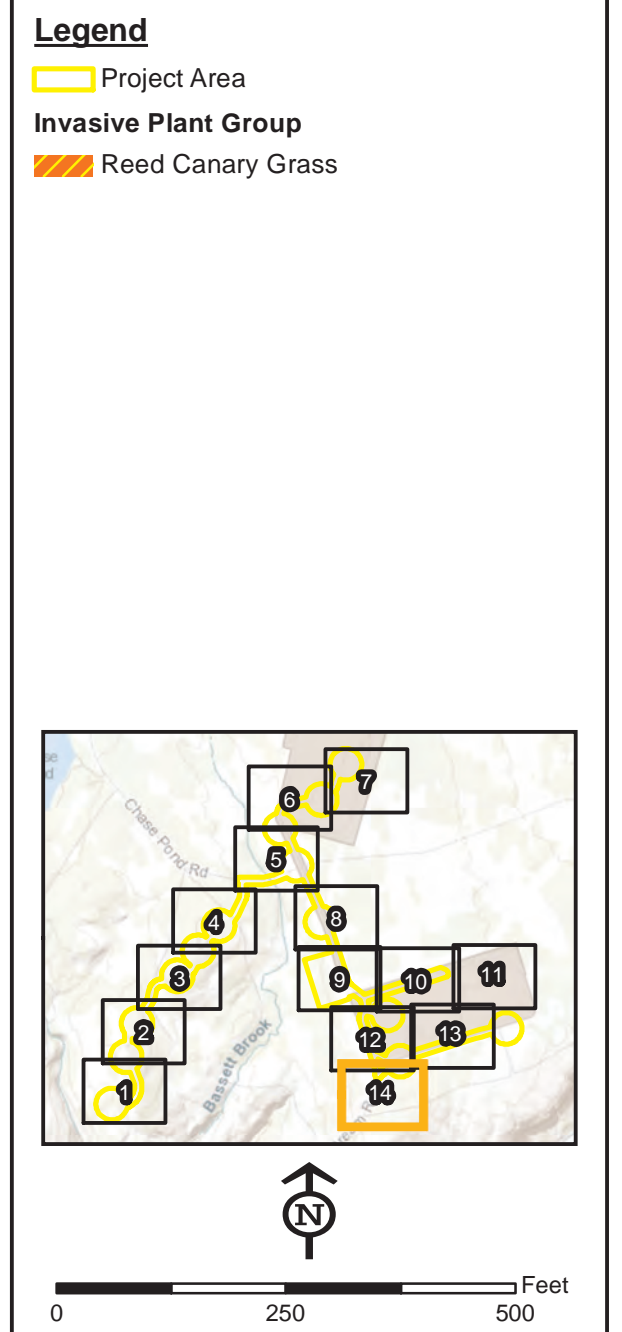
Prepared By:	Date: <b>05/2021</b>
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Source: Esri, et. al., 2020; Tetra Tech, 2020

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**Figure 2**  
**Invasive Species Survey Results**  
 Plate 14 of 14  
 Western Maine Renewable Energy Project

Prepared For:

Prepared By: **TETRA TECH** Date: **05/2021**

Source: Esri, et. al., 2020; Tetra Tech, 2020

Coordinate System: World Geodetic System, 1984  
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## APPENDIX B. INVASIVE PLANT TABLE

Plant Species (Status)	Location	Summary
<b>Canada Thistle (1-Severely Invasive)</b>		
CATH220AR	North of access road along south side of southern radar field	This is a small population, consisting of 40–60 plants; about 1/3 of plants were flowering during the survey, the rest were in a vegetative stage.
<b>Reed Canary Grass (1-Severely Invasive)</b>		
RECA02	West of Stream Road, north of substation area and west along access road to western pad	Reed canary grass is ubiquitous along roadways and generally extends down into the ditch. This population is adjacent to additional populations within wetlands and upland areas.
RECA03	West side of Stream Road, south of substation area	Reed canary grass is located along a roadway and in a ditch, as well as within the opposite side of the ditch in some areas; adjacent to larger clumps.
RECA04	East of Stream Road, north of large transmission line crossing	Reed canary grass is located along roadway and in ditch; includes some areas upslope and adjacent to denser populations in wetlands.
RECA05	East of Stream Road, south of right-of-way (ROW) crossing	Reed canary grass is located along road and ditch, and extends east along the north side of access road to the north side of the southern radar field.
RECA06	East of Stream Road, along southern radar field	Reed canary grass is located along road and in ditch, along the western side of the southern radar field; becomes patchy at south end of field.
RECA07	Along access roads at southeast corner of southern radar field	Reed canary grass is located along the road edge and in the ditch along Stream Road and the northern section of the access road that provides access to the southern end of the south radar field.
RECA10	West of Stream Road, just north of substation area	This small patch of reed canary grass is located on higher ground, separate from ditch population.
RECA11	West of Stream Road, just north of substation area	This small patch of reed canary grass is located on higher ground, separate from ditch population; south of invasive species population RECA10 (and slightly larger).
RECA40	Central Maine Power (CMP) ROW, east side of Stream Road	This small dense patch of reed canary grass is east of Stream Road and ditch population.
RECA45	CMP ROW east side of Stream Road	This medium-sized patch of reed canary grass has moderate to dense growth.
RECA54	CMP ROW in southeast corner of substation survey area	This approximately 1.0 acre sized population of reed canary grass dominates the meadow surrounding the area where the CMP ROW turns east-northeast and out of the Project Area.
RECA55	West of Stream Road, within substation area	This reed canary grass population is growing on a spoil pile within the compacted area of the substation. Dense patches are interspersed with blackberry.

Plant Species (Status)	Location	Summary
RECA56	West of Stream Road, within substation area	This small patch of reed canary grass is near the road entrance that provides access to the cleared area for the substation.
RECA57	CMP ROW, in southeast corner of substation area	This large patch of dense growth is located near and around the corner tower of the CMP powerline ROW.
RECA58	Gravel area within substation area	This small patch of reed canary grass, diffuses into a forested area located between this population and invasive species population RECA54.
RECA113	Northern-most pad area	This small patch is located within the forested area, between invasive species populations RECA407 and RECA408.
RECA114	Just north of gravel area, within substation area	These dense patches of reed canary grass are located around a water feature, feathering into the woods. It connects to invasive species population RECA115.
RECA200	Southwest corner of middle radar field, near end of access road that connects to 2 <sup>nd</sup> turbine pad from north	These patches of reed canary grass are interspersed with other wetland vegetation, and population extends into the radar field.
RECA201	Southwest corner of middle radar field, near end of access road that connects to 2 <sup>nd</sup> turbine pad from north	These patches of reed canary grass are interspersed with other wetland vegetation, and population extends into the radar field.
RECA204	North edge of 2 <sup>nd</sup> turbine pad from north	This patch of reed canary grass has dense cover, and is located within an open and more dispersed area under tree cover.
RECA205	Southwest corner of middle radar field	This large area of reed canary grass forms dense and disperse patches along the cleared section of the turbine pad area, and is very dense along the tree line.
RECA206	East of invasive species location RECA205	This small patch of reed canary grass is within a forested area.
RECA207	West side of Stream Road, within a wetland	This population has dense cover, that is sometimes mixed with other herbaceous plants. Population covers about 50 percent of the wetland.
RECA209	East of Stream Road, within a wetland	This small patch is moderately dense, and populated with other wetland vegetation.
RECA210	North section of a wetland, west of Stream Road	This population has dense coverage within a depression that connects to a wetland on the east side of the road.
RECA211	East side of Stream Road, within a wetland	This population has dense cover within a band located along a stream and near Stream Road. Wetland coverage is dominated by patches of reed canary grass and bluejoint.
RECA212	Along small transmission line ROW, east of substation area	This population is sometimes dense in distribution, filling up most of the open area around and within a wetland. It has very sparse coverage in open water areas where rush and sedges dominate, with population extending north into a wetland, with full late summer coverage observed.

Plant Species (Status)	Location	Summary
RECA213AR	Just west of building located at the north end of the southern radar field and access road running north	This small grouping of reed canary grass is within the ditch and alongside slopes.
RECA214AR	Road and ditch around the building located at the north end of the southern radar field	These patches of reed canary grass are connected by sparser areas within and along sides of a ditch.
RECA215	Road ditch located north of building on north end of southern radar field	This moderate-sized patch size of reed canary grass is within a road side ditch and along both side slopes.
RECA216	Just east of building located at north end of southern radar field	This small patch of reed canary grass is in a disturbed area.
RECA217	South access road to southern radar field	This population is located on the north side of an access road, along the ditch and road verge, and intermixed with other vegetation in some areas.
RECA218	West end of southern access road to southern field	This moderate-sized patch has moderate density intermingled with blackberry and Canada thistle, and is located north of an access road.
RECA222	West end of southern access road to southern field	This dense monoculture patch covers much of the southwestern end of a wetland located north of an access road.
RECA223	West end of southern access road to southern field	This moderate density patch of reed canary grass is within a wetland. Patches are interspersed with other wetland vegetation.
RECA224	West end of southern access road to southern field	This moderate density patch of reed canary grass is within a wetland. Patches are interspersed with other wetland vegetation.
RECA226	South access road to southern field	This population has dense vegetation coverage over much of the non-forested or lightly forested area in the western portion of a wetland located north of a road.
RECA230	South access road to southern field	This dense patch of reed canary grass is not located in a wetland.
RECA231	South access road to southern field	This small patch is dense in the middle, and surrounded by other vegetation on the north side of a road.
RECA232	South access road to southern field	This small dense patch of reed canary grass is located just east of the larger invasive species population RECA233.
RECA233	South access road to southern field	This large dense population covers the majority of the southern half of a wetland on the north side of an access road.
RECA234	South access road to southern field	This small population is located within an upland area located north of an access road.
RECA235	Western end of south access road to southern field	This population is within a wetland located around a pond. This is an extensive population with some very dense cover.
RECA236	Eastern end of south access road to southern field	This dense population of reed canary grass is located along a connecting waterway and within a wetland north of an access road.

Plant Species (Status)	Location	Summary
RECA260	North side of southern radar field	This small patch of reed canary grass is east of the buildings located at the northern end of a radar field.
RECA300	Southwest corner of second pad from north	These patches of dense growth are interspersed with sparse growth, and are located next to a forested area.
RECA301	Southwest corner of second pad from north	These patches of dense growth are interspersed with sparse growth, and are located next to a forested area.
RECA303	Southwest corner of second pad from north	These patches of dense growth are interspersed with sparse growth, and are located next to a forested area.
RECA305	East side of road, located north of Stream Road intersection with forest road	This reed canary grass population is along a road edge and ditch, and includes some denser patches.
RECA306	West side of road, located north of Stream Road intersection with forest road	This reed canary grass population is along a road edge and ditch, and includes some denser patches.
RECA404/403	North edge of 2 <sup>nd</sup> turbine pad, extending from north and adjacent to beginning of the access road	This population has moderately dense/patchy coverage located in partial canopy cover and is intermixed with brambles.
RECA406	Southeast end of access road to north turbine pad	This smaller clump is located along the southeast end of an access road that connects to the northern-most turbine pad area.
RECA407	Southwest corner of northernmost turbine pad	Generally, this population is very dense, and is mostly monoculture, feathering into a forested area where it becomes less dense.
RECA408	Southwest corner of northernmost turbine pad	This small patch of reed canary grass is located north of invasive species population RECA407.
RECA409	West side of northern turbine pad	This small area of reed canary grass is connected to a much larger population located outside the Project Area to the west.
RECA410	Northwest side of northern turbine pad	This small area of reed canary grass is connected to a much larger population located outside the Project Area to the west.
RECA411	East area of northern turbine pad	This small clump of reed canary grass is located within a wetland, with abundant bluejoint and other vegetation present.
RECA416	Southeast corner of substation area	This approximately 0.3-acre patch is located on a spoil pile within the southeast corner of the substation area.
RECA420	Western end of south access road connecting to southern radar field	This large area of monoculture is adjacent to and within the wetland located north of an access road.
RECA421	Western end of south access road connecting to southern radar field	This monoculture stand of reed canary grass is located between the southern edge of an access road and the tree line.
RECA422	South of southern access road connecting to southern radar field	This monoculture stand of reed canary grass is located between the southern edge of an access road and the tree line.



Plant Species (Status)	Location	Summary
RECA450	Along southern access road connecting to south radar field	This population is located along a road and embankment, extending out into wetlands and the forest edges south of an access road.
RECA597	Southern radar field, western side	This small patch is located on the southeastern edge of the Project Area, near wetlands.
RECA598	Southern radar field, western side	This small patch is located at the eastern edge of a turbine pad area.
RECA599	Southern radar field, western side	This small patch extends outside of the Project Area to the north.
RECA600	Southern radar field, western side	This population is located within the north section of a turbine pad area, and extends south towards the middle of the turbine pad area.
<b>Purple Loosestrife (2-Very Invasive)</b>		
PULO01AR	Project Road.	This population is located on the north side of the southern radar field, and consists of a single plant that was observed to be large and healthy.
<b>Spotted Knapweed (3-Invasive, habitat-specific threats)</b>		
SPKN10	North of substation survey area	This moderate-sized population is located in a turbine pad area located north of the substation area.
SPKN11	North of substation survey area	This moderate-sized population is within a turbine pad area located north of the substation area.
SPKN100	North access road connecting to south radar field	These plants are located along the edge of a roadway and extend into the road, but are less vigorous within the travel lane of the road.
SPKN101	Substation area, north of ROW	This dense population is near a spoil pile with plants dispersed throughout the compacted area.
SPKN500	Road connecting to northern radar fields	This large population of over 500 individuals is scattered along road edges and within the road itself.
<b>Bull Thistle (4-Potential to be Invasive, monitor)</b>		
BUTH01	West side of road located north of gate connecting to northern radar fields	This moderate sized population (40-60 plants) is located along a raised berm extending west of a road.
BUTH02	North end of southern radar field	This small population (3-7 plants) is located along a ditch located just north of a building and near a road that connects to the CMP ROW.
<b>Western Lupine (4-Potential to be Invasive, monitor)</b>		
WELU01AR	Along north side of access road connecting to southern radar field	This is a disperse population with 75-100 individuals, with some areas having denser clumps. It is located along a road side ditch and embankment.

Plant Species (Status)	Location	Summary
WELU02AR	East of building located at north end of radar field	This dense population is located in and around a ditch, located south of an access road.
WELU03AR	West of building located at north end of radar field	This disperse population is dense in this location, but plants also observed along a road and field edge.
WELU05AR	East side of road connecting to middle radar field	This disperse population is located within a road side ditch.

## APPENDIX C. INVASIVE PLANT PHOTOGRAPHS



Canada Thistle CATH220



Canada Thistle CATH220



Reed Canary Grass RECA422/217



Reed Canary Grass RECA04





Reed Canary Grass RECA45



Reed Canary Grass RECA45



Reed Canary Grass RECA54



Reed Canary Grass RECA54





Reed Canary Grass

RECA212



Reed Canary Grass

RECA212



Reed Canary Grass

RECA207



Reed Canary Grass

RECA209





Reed Canary Grass RECA205



Reed Canary Grass RECA205



Reed Canary Grass RECA205



Reed Canary Grass RECA205





Reed Canary Grass RECA407



Reed Canary Grass RECA407



Purple Loosestrife PULO01



Purple Loosestrife PULO01





Spotted Knapweed

SPKN10



Spotted Knapweed

SPKN11



Spotted Knapweed

SPKN101



Spotted Knapweed

SPKN500





Western Lupine WELU01



Western Lupine WELU02



Bull Thistle BUTH01



Bull Thistle BUTH02