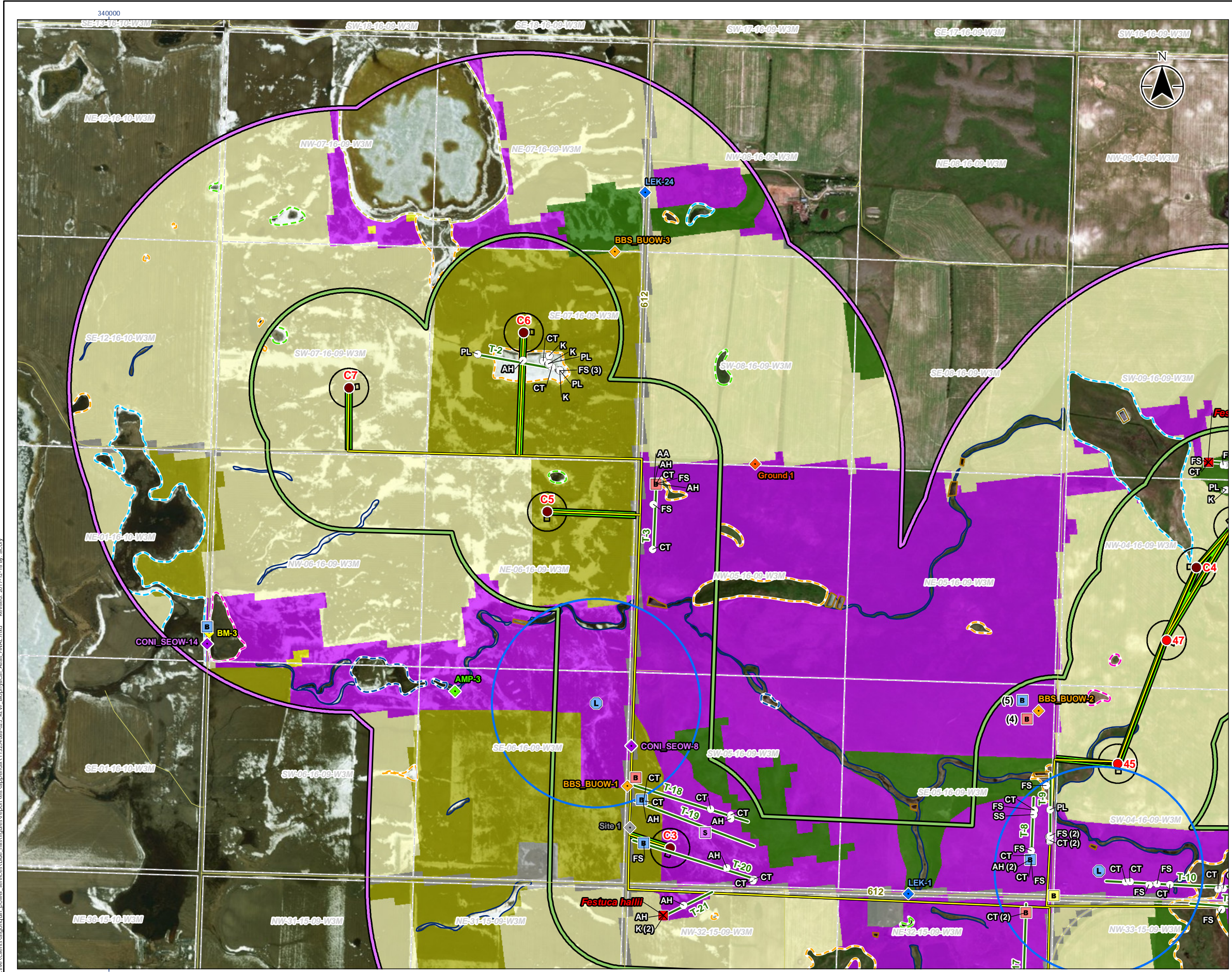


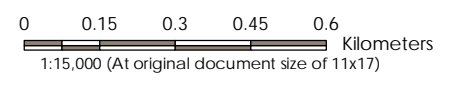
**APPENDIX F
BIOPHYSICAL MAP ATLAS**



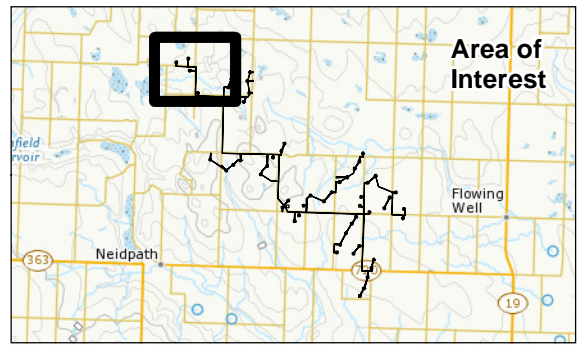
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
 - New Build Permanent Access Road
 - New Electrical Collector Line
- Spatial Boundaries**
- Project Development Area
 - Vegetation Local Assessment Area
 - Wildlife Local Assessment Area
 - Major Road
 - Minor Road
 - Quarter Section

* See extended legend on the back of the page

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 4. Imagery: ESRI World Imagery, June 2013.



Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
- Chestnut-collared Longspur
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

- Sharp-tailed Grouse Lek Setback (400 m, March 15 to May 15)
- Northern Leopard Frog Breeding Pond Setback (500 m, Year round)
- Rare Plant Setback (30 m)

* Locations of *Festuca hallii* and *Paronychia sessiliflora* represent the start of the transect on which these species were recorded, not the specific location of a species occurrence. These species were not considered species of management concern at the time of the rare plant surveys; therefore, detailed location information was not collected.

Biophysical Surveys

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- Sharp-tailed Grouse Lek Survey Site
- Nocturnal Radar Survey Site
- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

- Class 1 - Ephemeral Wetland
- Class 2 - Temporary Wetland
- Class 3 - Seasonal Wetland
- Class 4 - Semi-Permanent Wetland
- Class 5 - Permanent Wetland
- Class 6 - Alkaline Wetland
- Dugout
- Drainage
- Cultivated
- Developed
- Exposed Land/Barren
- Hayland
- Native Prairie
- Shrubland
- Tame Pasture

Species Observation Label: (4)

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Weed Labels:

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- AH - Annual Hawksbeard (*Creptis tectorum*)
- CT - Canadian Thistle (*Cirsium arvense*)
- DR - Dame's Rocket (*Hesperis matronalis*)
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- FS - Field Sow-thistle (*Sonchus arvensis*ssp. *arvensis*)
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- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

Figure No.: Appendix F

Title: Biophysical Map Atlas

Proposed Project Layout

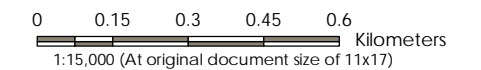
- Wind Turbine Generator
- Contingency Wind Turbine Generator
- ▲ Substation
- ▲ Contingency Substation
- New Build Permanent Access Road
- New Electrical Collector Line

Spatial Boundaries

- Project Development Area
- Vegetation Local Assessment Area
- Wildlife Local Assessment Area
- Major Road
- Minor Road
- Quarter Section

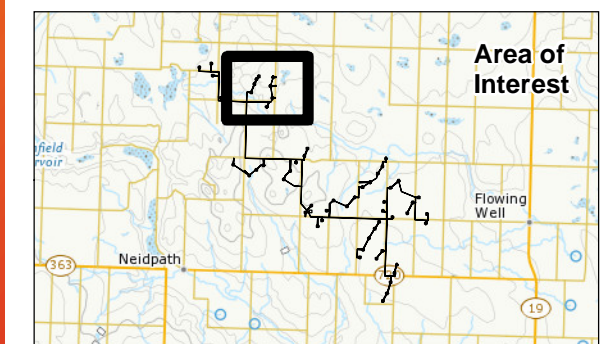
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Notes

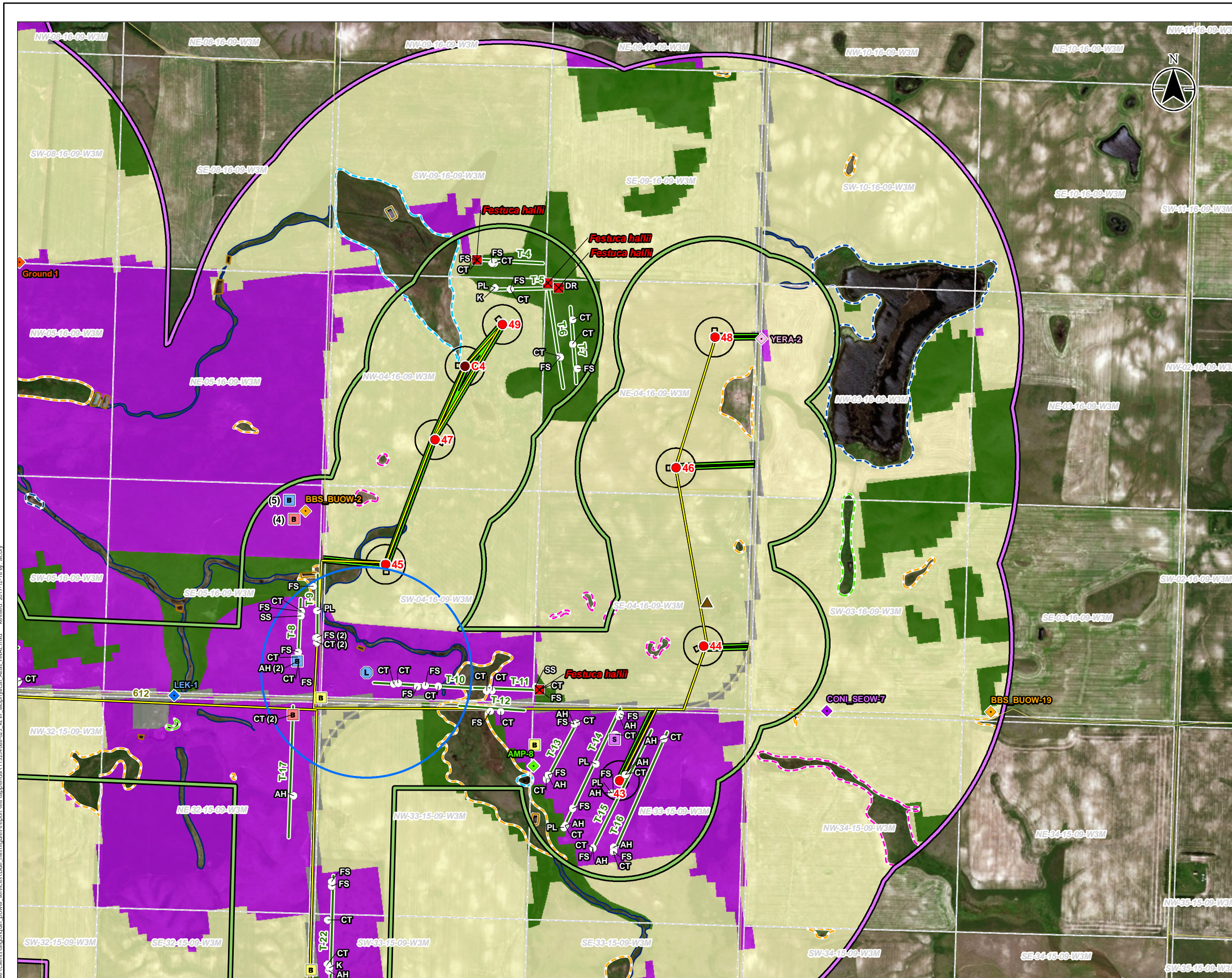
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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

Figure No.: Appendix F
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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
- Chestnut-collared Longspur
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

- Sharp-tailed Grouse Lek Setback (400 m, March 15 to May 15)
- Northern Leopard Frog Breeding Pond Setback (500 m, Year round)
- Rare Plant Setback (30 m)

* Locations of *Festuca hallii* and *Paronychia sessiliflora* represent the start of the transect on which these species were recorded, not the specific location of a species occurrence. These species were not considered species of management concern at the time of the rare plant surveys; therefore, detailed location information was not collected.

Biophysical Surveys

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- Bird Movement Survey Site
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- Sharp-tailed Grouse Lek Survey Site
- Nocturnal Radar Survey Site
- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

- Class 1 - Ephemeral Wetland
- Class 2 - Temporary Wetland
- Class 3 - Seasonal Wetland
- Class 4 - Semi-Permanent Wetland
- Class 5 - Permanent Wetland
- Class 6 - Alkaline Wetland
- Dugout
- Drainage
- Cultivated
- Developed
- Exposed Land/Barren
- Hayland
- Native Prairie
- Shrubland
- Tame Pasture

Species Observation Label: (4)

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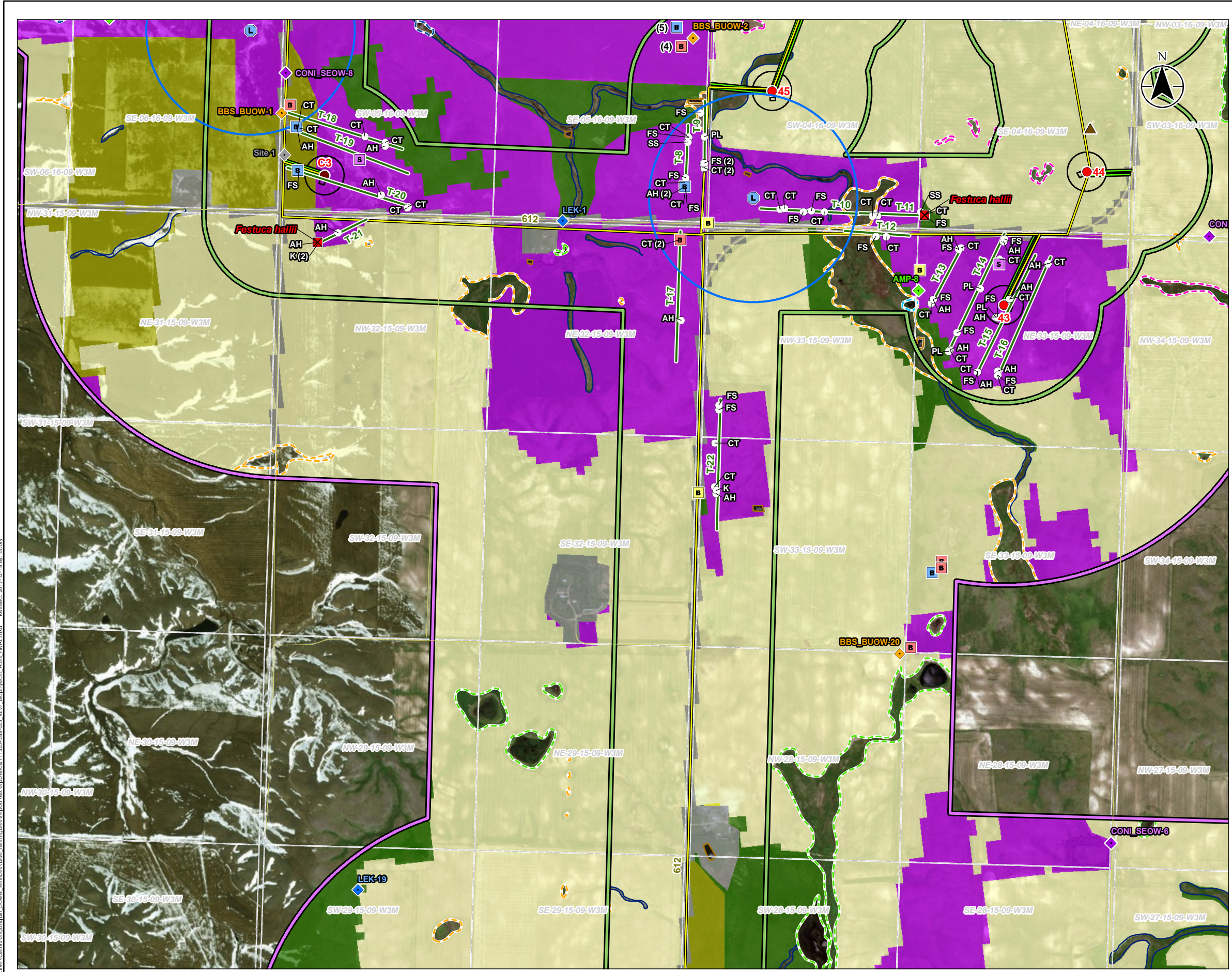
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- PL - Prickly Lettuce (*Lactuca serriola*)
- RT - Russian-thistle (*Salsola kal*)
- SS - Spiny-leaved Annual Sowthistle (*Sonchus aspers*ssp. *asper*)
- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

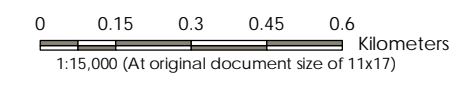
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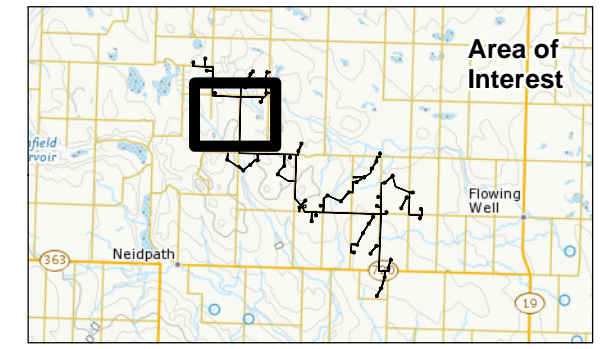
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
 - New Build Permanent Access Road
 - New Electrical Collector Line
- Spatial Boundaries**
- Project Development Area
 - Vegetation Local Assessment Area
 - Wildlife Local Assessment Area
 - Major Road
 - Minor Road
 - Quarter Section

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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by celdem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
- Chestnut-collared Longspur
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

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- Sharp-tailed Grouse Lek Survey Site
- Nocturnal Radar Survey Site
- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

- Class 1 - Ephemeral Wetland
- Class 2 - Temporary Wetland
- Class 3 - Seasonal Wetland
- Class 4 - Semi-Permanent Wetland
- Class 5 - Permanent Wetland
- Class 6 - Alkaline Wetland
- Dugout
- Drainage
- Cultivated
- Developed
- Exposed Land/Barren
- Hayland
- Native Prairie
- Shrubland
- Tame Pasture

Species Observation Label: (4)

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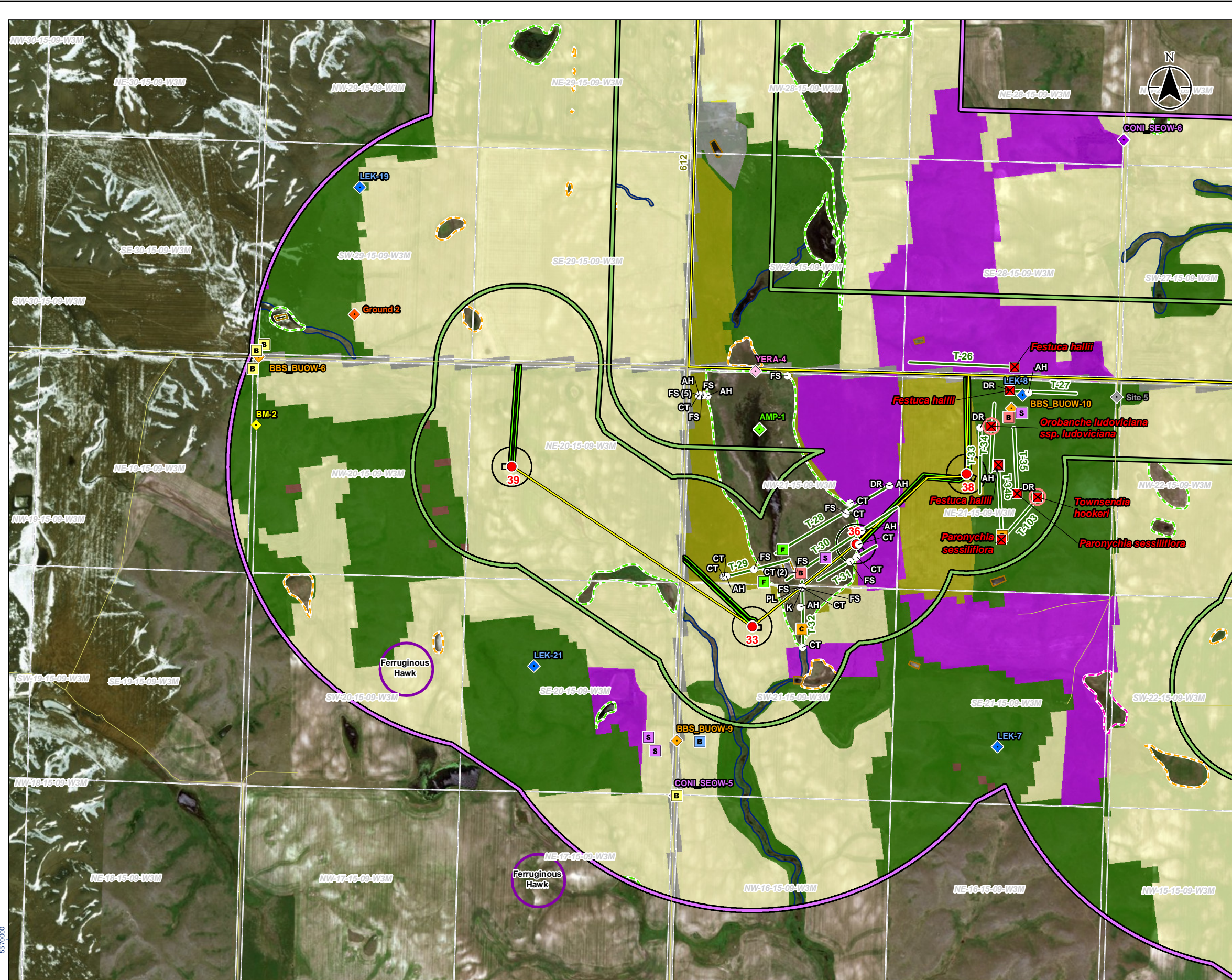
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- SS - Spiny-leaved Annual Sowthistle (*Sonchus asper*ssp. *asper*)
- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

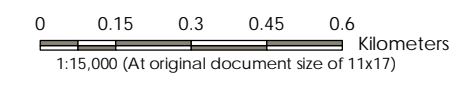
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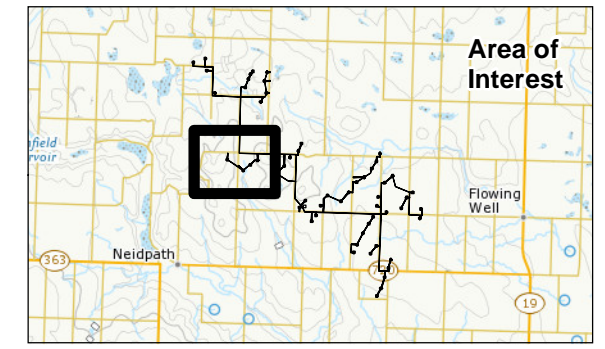
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
 - New Build Permanent Access Road
 - New Electrical Collector Line
- Spatial Boundaries**
- Project Development Area
 - Vegetation Local Assessment Area
 - Wildlife Local Assessment Area
 - Major Road
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 - Quarter Section

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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by celdem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

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Species of Management Concern Observations

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- Barn Swallow
- Bobolink
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- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

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- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

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- Dugout
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- Tame Pasture

Species Observation Label: (4)

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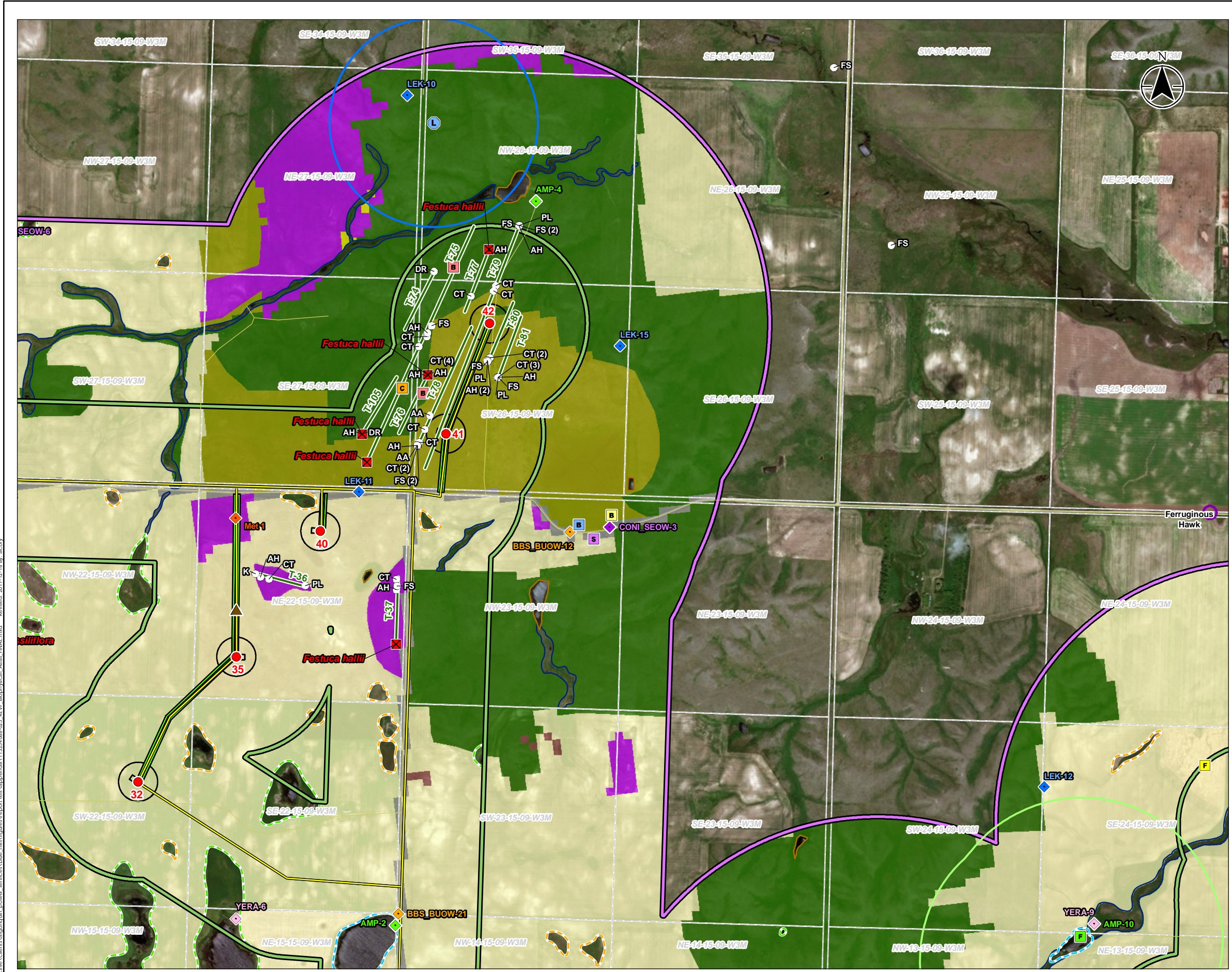
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- PL - Prickly Lettuce (*Lactuca serriola*)
- RT - Russian-thistle (*Salsola kali*)
- SS - Spiny-leaved Annual Sowthistle (*Sonchus asper*ssp. *asper*)
- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

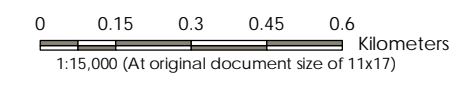
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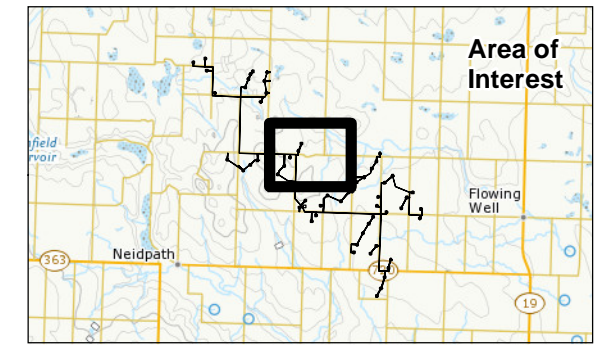
- Proposed Project Layout**
- Wind Turbine Generator
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 - ▲ Substation
 - ▲ Contingency Substation
 - New Build Permanent Access Road
 - New Electrical Collector Line
- Spatial Boundaries**
- Project Development Area
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 - ▭ Wildlife Local Assessment Area
 - Major Road
 - Minor Road
 - Quarter Section

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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
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- Northern Leopard Frog
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- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

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Weed Labels:

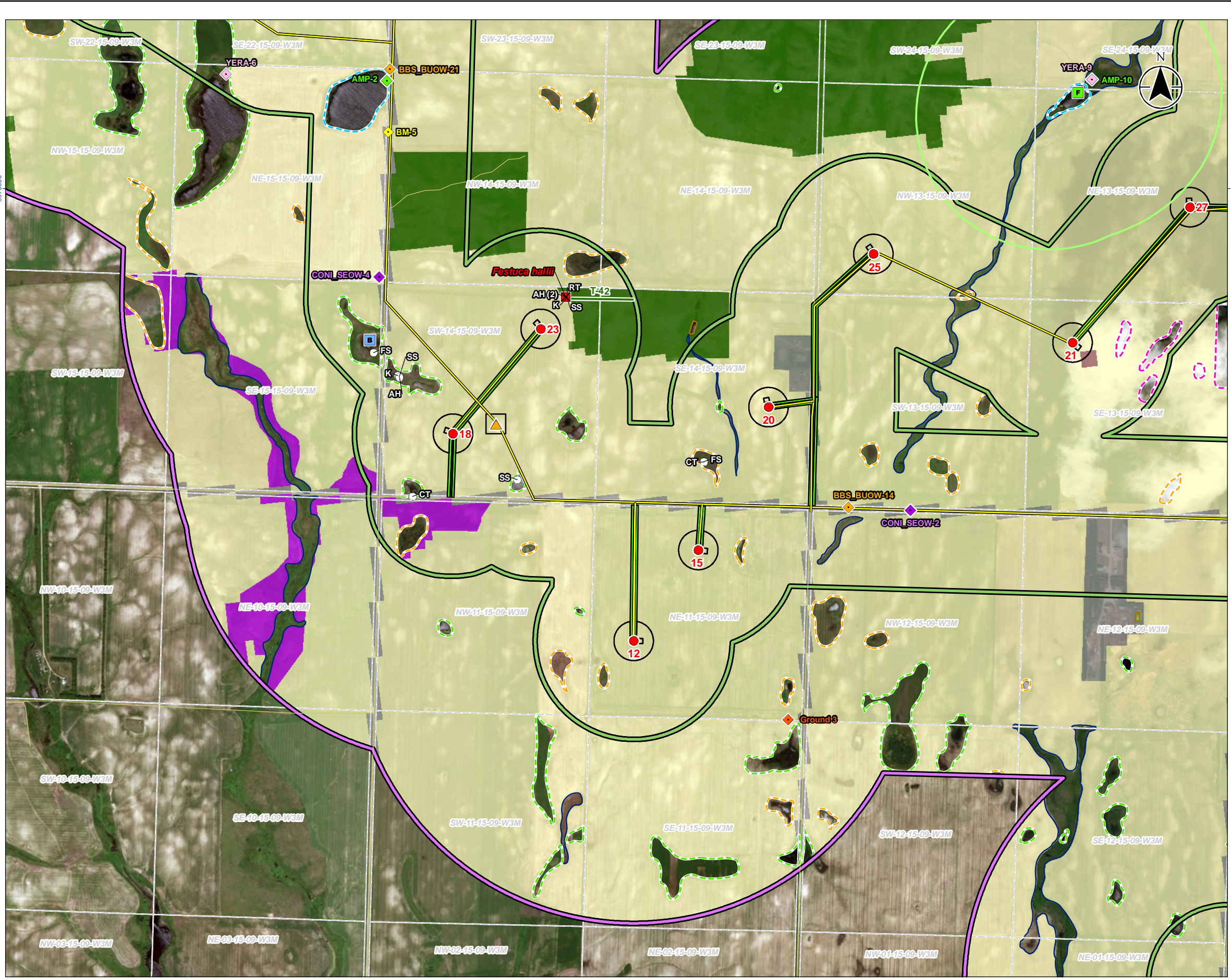
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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

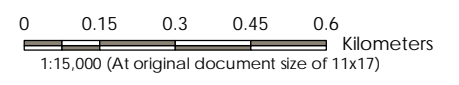
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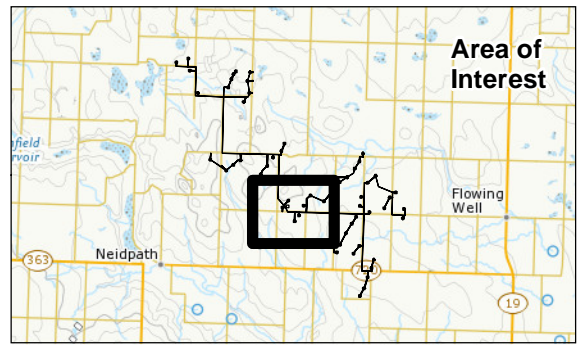
- Proposed Project Layout**
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Project Location: Near Herbert, SK
 113254088-025 REV12
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project
 Algonquin Power Co.
 Blue Hill Wind Energy Project

Figure No.
Appendix F
 Title
 Biophysical Map Atlas

Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
- Chestnut-collared Longspur
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

- Sharp-tailed Grouse Lek Setback (400 m, March 15 to May 15)
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- Nocturnal Radar Survey Site
- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

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- Developed
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- Hayland
- Native Prairie
- Shrubland
- Tame Pasture

Species Observation Label: (4)

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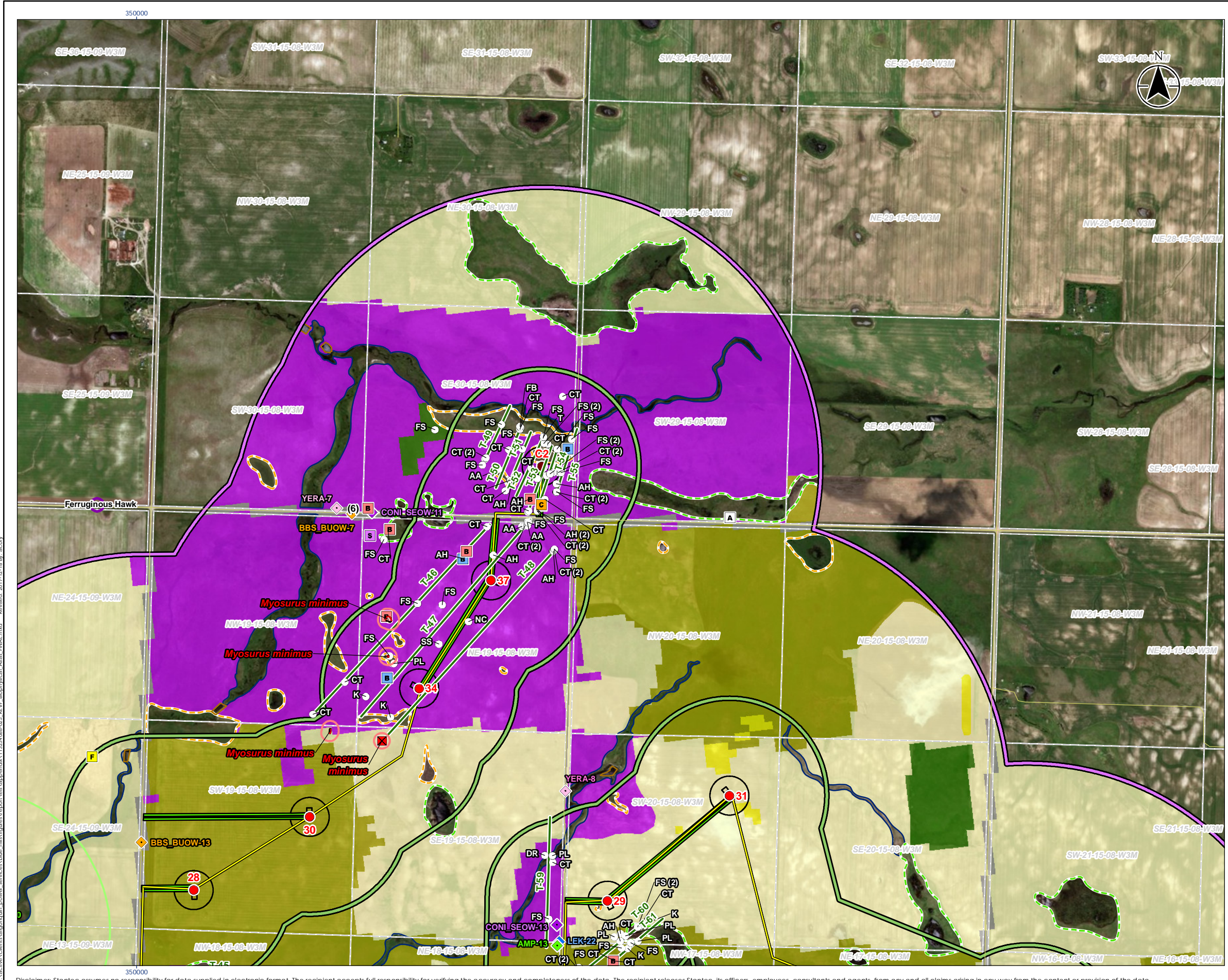
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- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

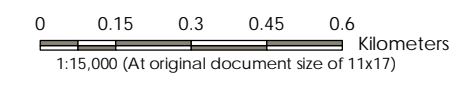
Figure No.: Appendix F
 Title: Biophysical Map Atlas



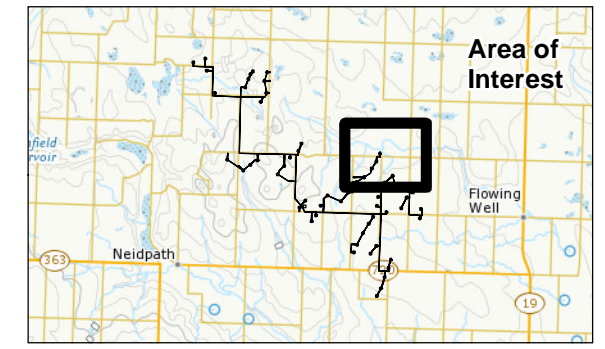
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
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 - New Electrical Collector Line
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- Project Development Area
 - Vegetation Local Assessment Area
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 - Major Road
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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by celdem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
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- Bobolink
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- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

Species of Management Concern Setbacks

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- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

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- Class 2 - Temporary Wetland
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- Dugout
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Species Observation Label: (4)

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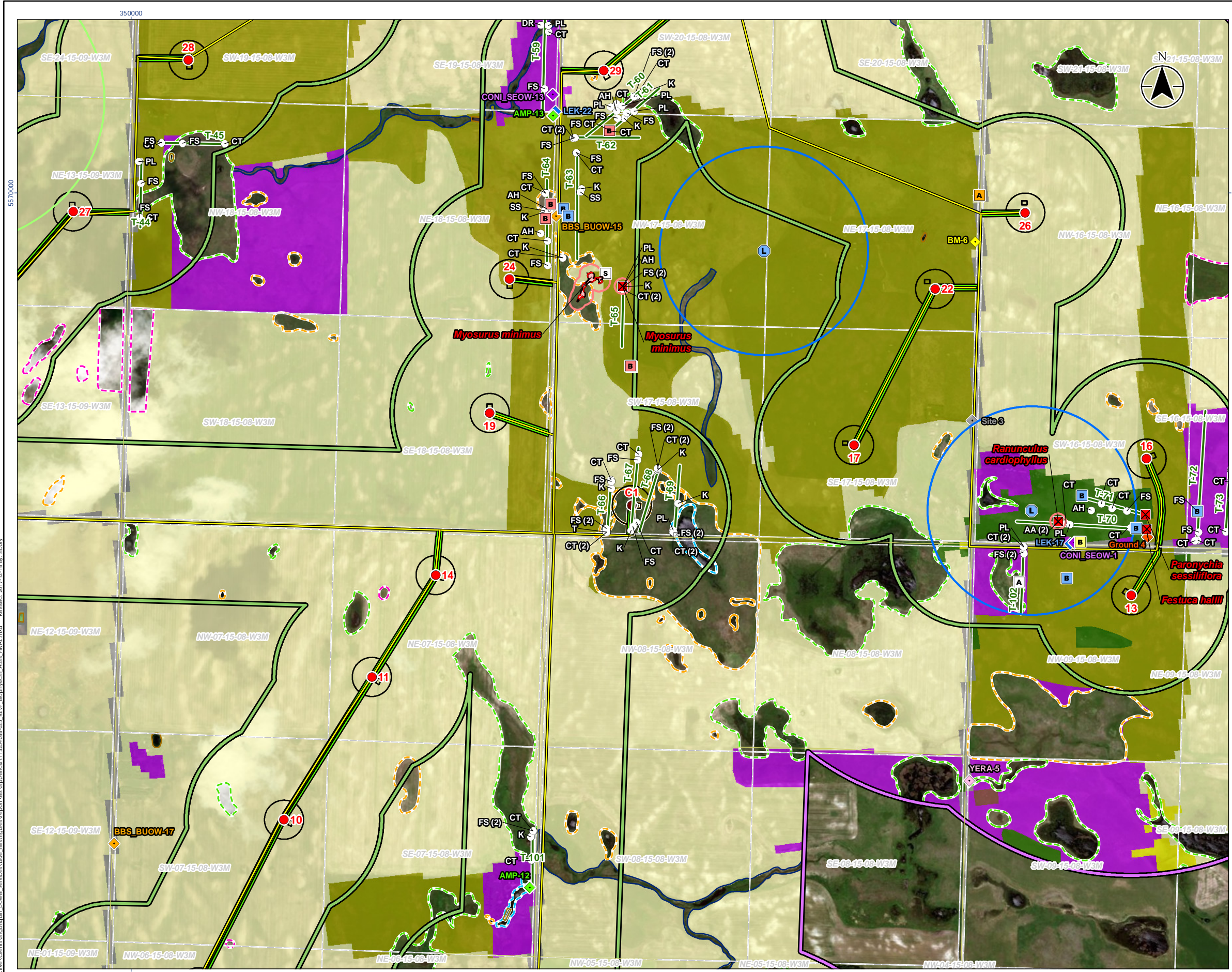
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- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

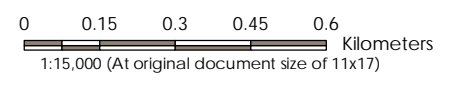
Figure No.: Appendix F
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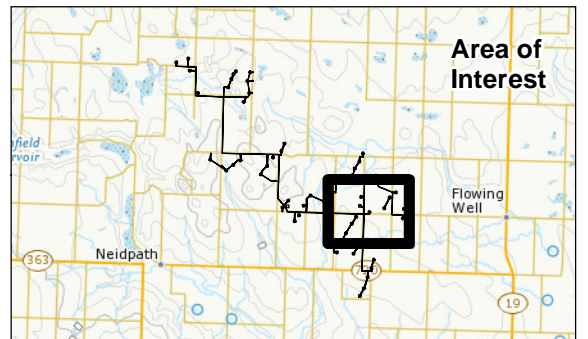
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
 - New Build Permanent Access Road
 - New Electrical Collector Line
- Spatial Boundaries**
- Project Development Area
 - Vegetation Local Assessment Area
 - Wildlife Local Assessment Area
 - Major Road
 - Minor Road
 - Quarter Section

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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acroy on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
 Title: Biophysical Map Atlas

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Species of Management Concern Observations

- Sharp-tailed Grouse Lek
- American Badger
- American Bittern
- Baird's Sparrow
- Barn Swallow
- Bobolink
- Chestnut-collared Longspur
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Leopard Frog
- Short-eared Owl
- Sprague's Pipit
- Rare Plant*
- Rare Plant Area
- Noxious Weed

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- Nocturnal Radar Survey Site
- Yellow Rail Survey Site
- Vegetation Survey Transect

Historical Records (SKCDC)

- Wildlife

Land Cover

- Class 1 - Ephemeral Wetland
- Class 2 - Temporary Wetland
- Class 3 - Seasonal Wetland
- Class 4 - Semi-Permanent Wetland
- Class 5 - Permanent Wetland
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- Dugout
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Species Observation Label: (4)

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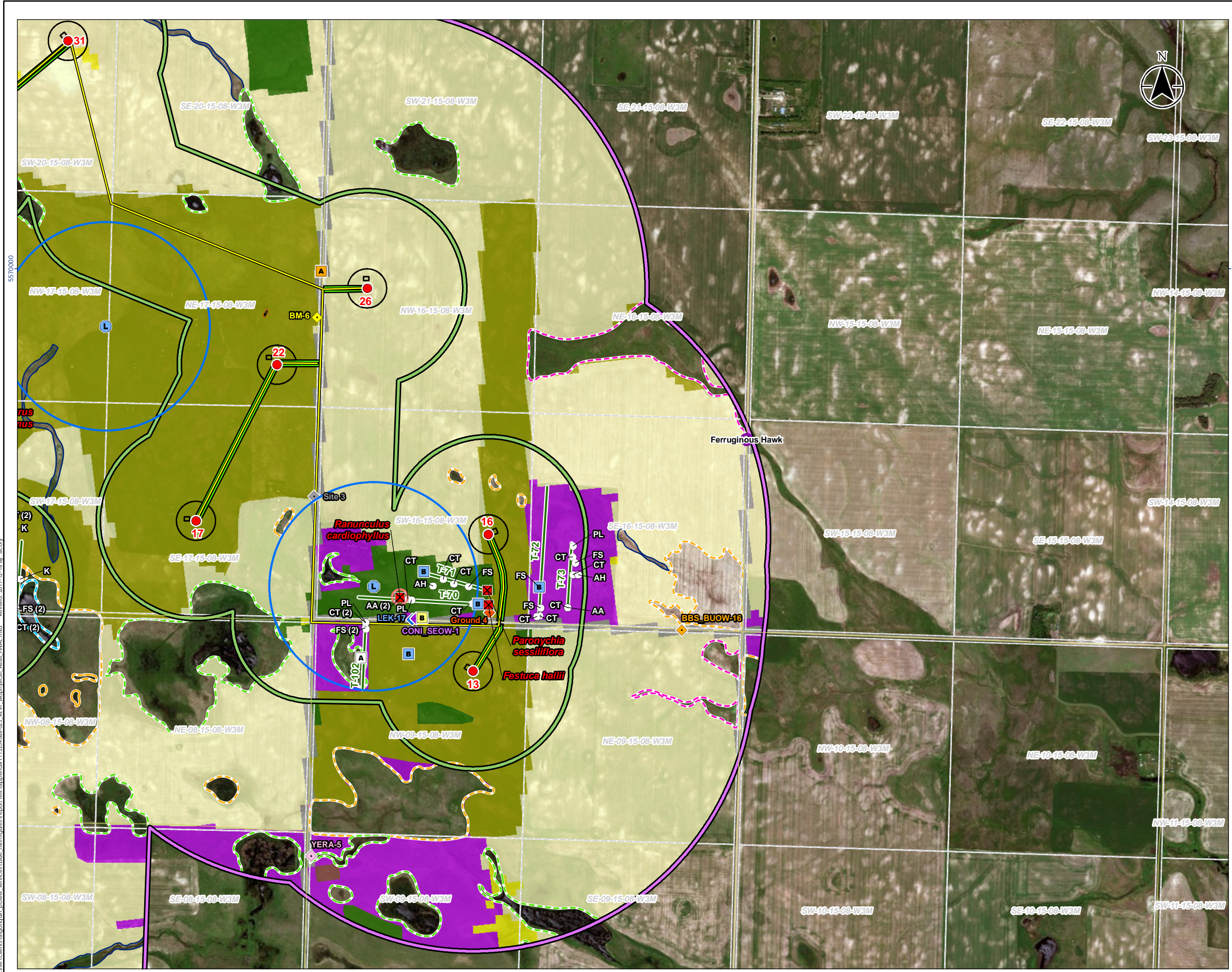
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- T - Tansy (*Tanacetum vulgare*)

Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

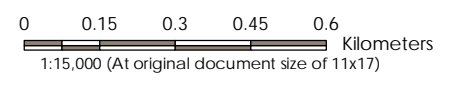
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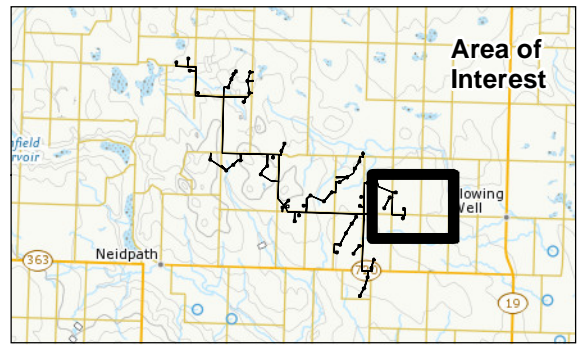
- Proposed Project Layout**
- Wind Turbine Generator
 - Contingency Wind Turbine Generator
 - ▲ Substation
 - ▲ Contingency Substation
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- Project Development Area
 - Vegetation Local Assessment Area
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 - Major Road
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Project Location: Near Herbert, SK
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Species of Management Concern Observations

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Historical Records (SKCDC)

- Wildlife

Land Cover

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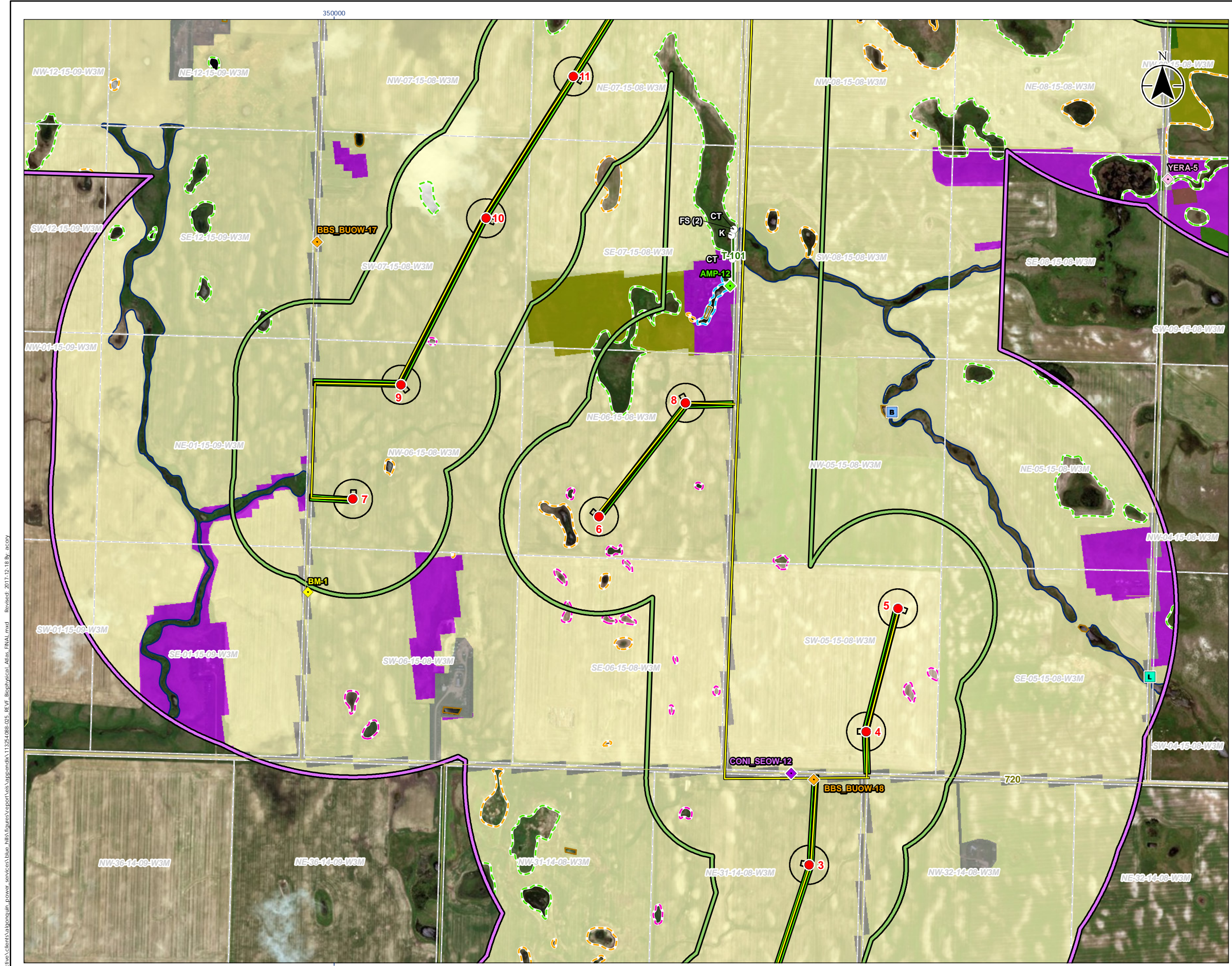
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Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

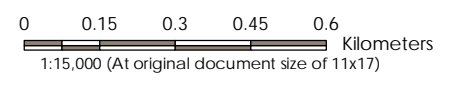
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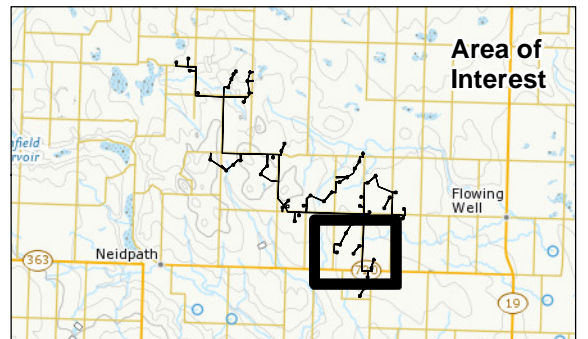
- Proposed Project Layout**
- Wind Turbine Generator
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 - ▲ Substation
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 - Quarter Section

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Project Location: Near Herbert, SK
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Client/Project: Algonquin Power Co. Blue Hill Wind Energy Project

Figure No.: Appendix F
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Species of Management Concern Observations

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Historical Records (SKCDC)

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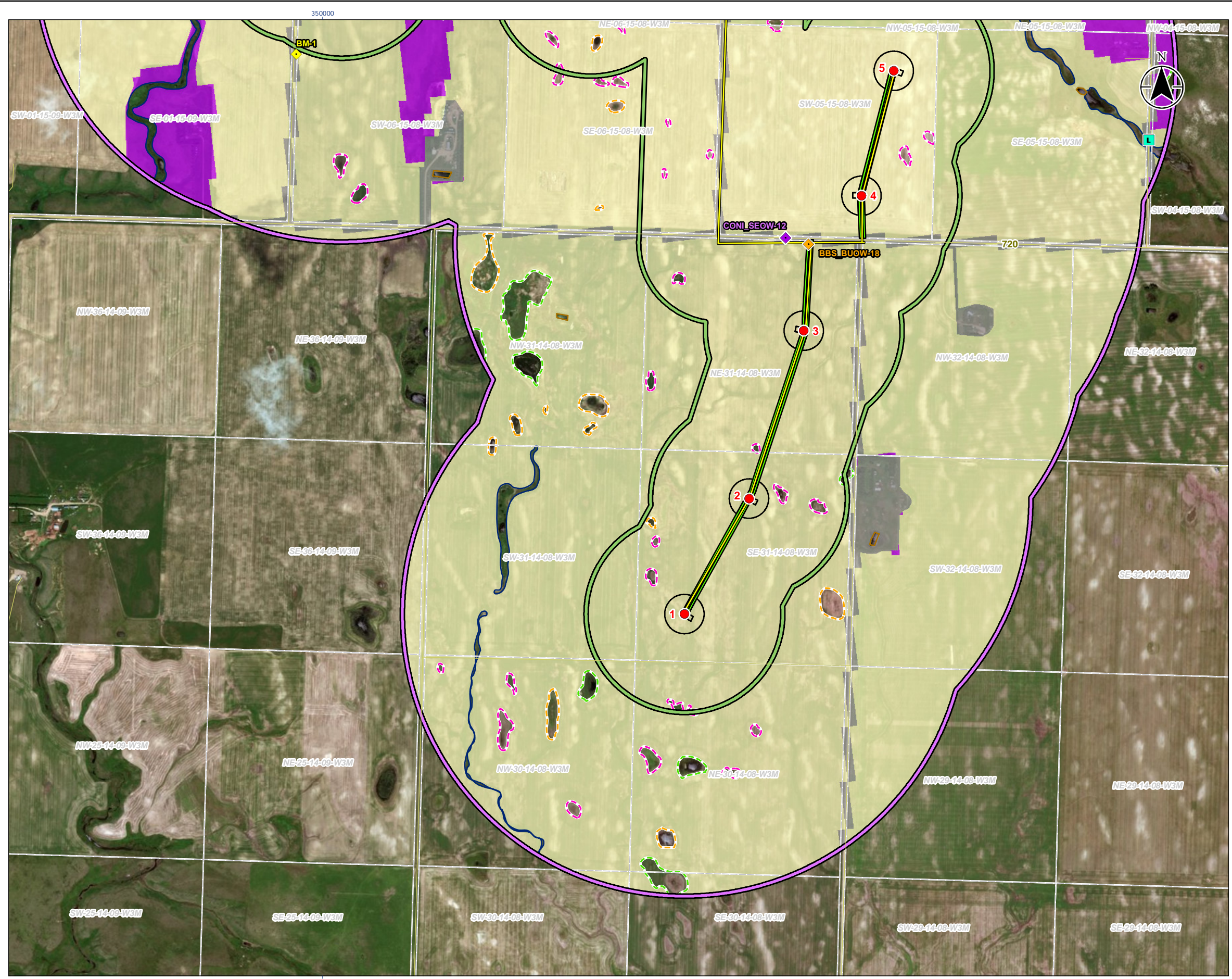
Project Location: Near Herbert, SK
 113254088-025 REV F
 Prepared by acory on 2017-12-18
 Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co.
 Blue Hill Wind Energy Project

Figure No.: Appendix F

Title: Biophysical Map Atlas

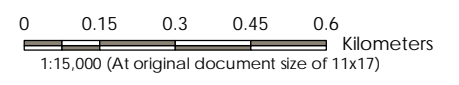
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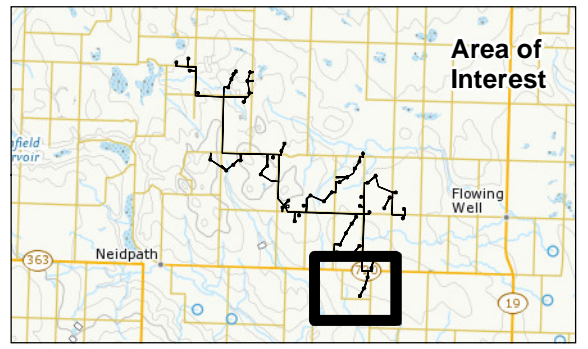
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Project Location: Near Herbert, SK
113254088-025 REV12
Prepared by acory on 2017-12-18
Technical Review by ceidem on 2017-12-18

Client/Project: Algonquin Power Co., Blue Hill Wind Energy Project

Figure No.: Appendix F
Title: Biophysical Map Atlas

