

habitat in the New Project Area that was not actively manipulated was of such marginal quality that it would likely be unusable to any species of concern.

Based on observations during Cardno's field delineations of the New Project Area and ¼ mile buffer, the majority of stream features may provide habitat, but the chemistry impacts from a lack of shade and high sedimentation reduce the quality of the waters for both plant and animal species. Further reducing the viability of streams within the Study Area is the constant management of the banks by mowing which will prevent any significant colonization by Federal- or State-listed species. Since most of the streams in the New Project Area were identified as agricultural canals that can suffer from flash flows during rain events, three of the streams were ranked as poor mussel habitat. One stream was identified as moderate for potential mussel habitat due to their well-developed banks, and forested buffer areas that provide locations for the mussels to adhere to; however, no mussels were observed within any reaches of the streams at the time of Cardno's survey. During Cardno's delineation efforts of the New Project Area, no aquatic State- or Federal-listed plant or animal species were observed in any of the streams by the field team, including the Eastern Massasauga or freshwater mussels such as the Rayed Bean or Clubshell.

Likewise, the terrestrial resources identified during the delineation were unlikely to support any of the identified State- or Federal-listed plant or animal species due to poor habitat quality. Plants species observed in the Study Area were typical of disturbed agricultural swales and unlikely to support the State-listed plant species. Where woodlots were encountered, they were highly fragmented or isolated among active agricultural lands. The lack of a buffer area around the woodlots also means higher disturbance to fauna from the adjacent land use during agricultural activity, such as tilling or harvesting. The woodlots encountered in the New Project Area were populated primarily by oaks and maples of intermediate age. The plant communities of the woodlots were relatively common. The herb layers were often dominated by Reed Canary Grass with additional significant populations of the aggressive Virginia Waterleaf (*Hydrophyllum virginianum*). During the field efforts conducted by Cardno, no large fauna (State- or Federal-listed or otherwise) were recorded. Cardno observed no terrestrial State- or Federal-listed plant or animal species within the wetland habitats delineated during the 2014 surveys of the amended Project Corridor and additional ¼ mile buffer.

Avian resources have been the focus of various pre-construction surveys by Stantec, however no State- or Federal-listed species were observed during the field efforts conducted by Cardno in 2014.

Overall, the high degree of manipulation of the landscape and fragmentation of remaining habitat has resulted in the lack of adequate habitat for many of the State- or Federal-listed species. The habitat that does remain is often limited in quality, since it is so highly impacted by the adjacent land use. Several preconstruction surveys have been conducted in support of the Project and their results are outlined in Cardno's 2013 *Ecological Assessment*. The focus of these surveys was to identify the likelihood of occurrence within the Study Area of listed species such as Indiana Bat (*Myotis sodalis*) and various raptor species. Although several avian surveys found species of interest, it was concluded they were not residents of the Study Area and were passing through or hunting only. At no time during the July 2014 field efforts conducted by Cardno, were any State- or Federal-listed plant or animal species observed in the New Project Area or ¼ mile buffer.

### 3 Conclusion

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Discussion of the Project infrastructure and potential impacts for the New Project Areas that were not subject to field surveys in Cardno's 2013 *Ecological Assessment* is included in section 3.1. In Section 3.2 the total impacts and infrastructure of the entire Project are discussed for both the Amended Project Corridor and original Project Corridor. The potential impacts presented in Table 3-2 and Table 3-3 were calculated based on the following parameters:

- Turbine Impact Areas:
  - 200-foot radius buffer for tree clearing
  - 52.7 foot buffer for permanent soil impact (0.2 acres in area)
- Access Road Impact Areas:
  - 27.5 foot buffer off centerline for tree clearing (55 foot wide impact)
  - 10 foot buffer off centerline for permanent soil (20 foot wide impact)
  - 20 foot buffer off centerline for temporary soil (40 foot wide impact)
- Collection Line Impact Areas:
  - 12.5 foot buffer off centerline for temporary soil (25 foot wide impact)
  - 12.5 foot buffer off centerline for tree clearing (25 foot wide impact)

#### 3.1 New Project Area

The permanent infrastructure (turbine foundation, roads and substations) for the New Project Area that would no longer be available for current land use is estimated to be 14.8 acres, or 0.05% of the overall Study Area based on current proposed siting. Collection lines are anticipated to total 2.8 miles, and access roads are estimated to total 1.4 miles within the New Project Area. Table 3-1 provides a summary of the modified Project infrastructure located within the New Project Area.

**Table 3-1 Summary of New Project Area Infrastructure**

Features	Approximate Values
Total New Project Area	197.4 acres
Permanent Constructed Project Infrastructure (turbine foundations, roads and substations)	14.8 acres
Miles of Collection Lines	2.8 miles
Miles of Access Roads	1.4 miles

The total potential impacts to existing environmental features within the New Project Area based on this modified infrastructure are presented in Table 3-2 below.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**9/11/2014 4:24:17 PM**

**in**

**Case No(s). 14-1557-EL-BGA**

Summary: Application to Amend -- Exhibit D (Part 6 of 31) electronically filed by Mrs. Gretchen L. Petrucci on behalf of Hardin Wind LLC