Landscape Mitigation Plan

South Ripley Solar Project

Town of Ripley, Chautauqua County, New York

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1.0 INTRODUCTION

The South Ripley Solar Project (the Facility) will include the installation of a variety of visual screening treatments at appropriate locations throughout the Facility Site. The following Conceptual Visual Mitigation Plan, developed with the goal of minimizing and mitigating the Facility's visual effects on the surrounding landscape, consists of a master plant list and modular planting designs appropriate for varied circumstances. The plan avoids the use of non-natural forms and materials such as berms and privacy fences which, while common in some landscape settings, would contrast inappropriately with the largely agricultural landscape surrounding the Facility Site.

The area surrounding the Facility Site consists of a mosaic of landscape types, including open fields with active agriculture or early successional (i.e. old field) communities, mixed forest or hedgerows dominated by deciduous trees, and formal or intentionally designed landscapes around residential properties. The conceptual planting modules developed for the Facility intentionally mimic the character of the existing roadside vegetation, hedgerows and forest stands in an effort to visually integrate of the Facility into the surrounding landscape by reducing visual contrast between the existing and newly introduced elements. Plant material choices, grouping, and spacing are intentionally naturalistic with the goal that visual screening should appear to belong, and integrate seamlessly over time with existing vegetation that will remain.

While these planting modules are not designed to completely screen all views of the proposed Facility, the introduction of native tree and shrub mixes at appropriate adjacent locations is intended to soften the visual effect of the Facility. The natural forms and colors of the planted vegetation will partially screen views and divert viewer attention from the modern materials and inorganic forms of the photovoltaic (PV) panel arrays. Over time, it is expected that the vegetation will continue to fill in, become more naturalistic, and provide substantially more screening of the Facility.

2.0 DESIGN METHODOLOGY

The strategy outlined in Section 1.0 is predicated on a design methodology focusing on vegetation as the means, with the goal of reducing contrast between the existing landscape and proposed Facility. Four planting module types have been created to soften, screen or obscure project components. These modules have been developed utilizing the following strategies to address the unique site conditions at the South Ripley Solar Project:

- Analysis of the existing landscape and climate through on-site documentation
- Research of regional plant material, both native and traditionally cultivated species
- Retention of existing vegetation, where practical
- Retention of existing viewshed and corridors, where possible.
- Reduction in the contrast between Facility components and the surrounding agrarian and wooded landscape

Berms, Fencing And Physical Barriers

Selection of the appropriate physical barrier is dependent on the unique surroundings of the proposed Facility. In more urban areas where tall opaque fencing is a common vernacular, this type of intervention would be appropriate. However, in the agrarian and wooded landscape of the Facility location, this type of fencing would increase rather than lessen the contrast and visual presence of the Facility, as the introduction of a new type of material would be noticeable in an otherwise limited palette present around the Facility location. Similarly, the use of berms would increase the contrast and visibility of the Facility by introducing a new landform not common locally.

Native & Traditionally Cultivated Plant Material

On-site observation played a key role in developing the plant material palette for the Facility. Landscape Architects identified not only an abundance of native plant material, but also identified traditional cultivated plant material as significant in the existing landscape of the Facility Site. Taking cues from existing native plant material will provide greater likelihood of sustained healthy vegetation as these species are biologically adapted to the conditions likely to occur in the proposed planting locations. Incorporating traditionally cultivated plant material can, in some cases, also provide ecological benefit; however, the primary goal of including such material is to blend more convincingly with the existing plant material found in the Facility area. Both the native and traditionally cultivated plant material will serve as an ever-changing buffer between the project and the surrounding context while requiring minimal maintenance.

Herbaceous Plantings

The use of seed mixes containing native wildflowers and other native herbaceous material can provide significant biodiversity to the Facility and its surroundings. These seed mixes include multiple species that will be selected based on the location within the Facility Site and specific vegetation management objectives. Additionally, existing herbaceous material will be retained to the extent practicable. The herbaceous material and wildflowers are in keeping with the aesthetic of the agrarian landscape where field edges are left uncultivated. The proposed herbaceous plantings will provide foraging and nesting habitat for a number of species, while providing aesthetic color and texture throughout the year. These plantings will contribute to blending the project with the existing uncultivated edges, and help to soften and break up the inorganic forms of the photovoltaic (PV) panels and other Facility components.

3.0 PLANT MATERIAL SELECTION & MAINTENANCE

Plant Selection

Review of the existing combination of agricultural hedgerows and forested areas played a key role in the plant selection process. The plant material selected was further refined using a number of different resources, including but not limited to: site observation, the United States Department of Agriculture (USDA) PLANTS Database, the USDA Forest Atlas, the Pollinator Partnership, and the New York State Department of Environmental Conservation (NYSDEC) 2015 Prohibited and Regulated Plant List. The selection included in the following sections provides a balance between form, color and texture while meeting the visual mitigation goals of the Facility.

The Facility will identify perimeter screen planting sites, where tall ironweed populations do not currently exist, for inclusion in Tall Ironweed Target Management Areas. As a component of the post-construction reclamation and screen planting efforts, the Facility may seed or transplant tall ironweed seed in these areas and will manage under the Vegetation Management Plan.

Plant Material Categories

Based upon site observation, the vegetation surrounding the Facility area can be described using the following categories, which were taken into consideration when selecting plant material for the Facility Site:

- Large Deciduous Trees: Large deciduous trees serve as hedgerows throughout the Facility area and provide vertical contrast to the large masses of shrubs along the roadside.
- Evergreen Plant Material: Along with naturally forested areas, evergreen plant material is commonly planted intentionally, with rows of evergreens being used to shield views from residences as well as provide windbreaks between agricultural fields.
- Small Deciduous Trees & Larger Shrubs: A unique landscape character in the project area is the presence of smaller deciduous trees and larger shrubs that form an almost completely opaque wall of vegetation between agricultural fields and the road right of way.
- Small Shrubs: Commonly found on the edges of hedgerows or forested areas, small shrubs provide a visual transition between open agricultural fields and larger stands of deciduous and evergreen trees throughout the Facility area.
- Herbaceous Plant Material: This plant material appears most commonly in fallow areas, along the roadside, and surrounding farm fields that have been left uncultivated. This plays a key role in the character of many agricultural areas of the region both aesthetically and ecologically.

Plant Material Maintenance

While the plant material outlined in this report has been selected for its ability to blend into the existing landscape and eliminate the need for prolonged maintenance, the Owner has developed a strategy to review the plant material after initial installation to ensure the functions outlined in this report are met.

For woody plant material, the Owner will retain a qualified landscape architect to inspect visual mitigation planting after one year from completed installation to identify plant material that did not survive, appears unhealthy and/or otherwise needs to be replaced. The Owner will remove and replace plantings that fail in materials, workmanship or growth within one-year following the completed installation of plantings. Following the first year of inspections, the Owner will retain a qualified landscape architect to review the planting on an annual basis for the next four years to identify necessary restoration measures and schedule implementation if necessary.

If dieback occurs after the five-year period outlined above, a qualified landscape architect or representative of the Owner will evaluate and determine if the mitigation planting is still accomplishing the goals outlined in this report. If the remaining vegetation accomplishes these goals, no further action will be taken. If vegetation is deemed insufficient, new planting or other means of screening will be recommended for installation.

For herbaceous plant material, the Owner will conduct periodic mowing to assist in the establishment of said material and promote re-propagation. Areas of dieback will be reviewed by a qualified landscape architect or representative of the Owner to evaluate if further action will be needed to meet the visual impact goals outlined in this report.

3.0 PLANT MATERIAL SELECTION & MAINTENANCE (CONTINUED)

Potential Plant Material Selection for The South Ripley Solar Project

Large Deciduous Trees

Install size: 4'-6'
5-7 Year size: 12'-15'
Mature size: 35'-80'

Acer x freemani
Freeman Maple

Tillia americana
American Linden

Evergreen Trees

Install size: 4'-6'
5-7 Year size: 11'-14'
Mature size: 30'-80'

Picea abies
Norway Spruce

Pinus strobus
Eastern White Pine

Juniperus virginiana
Eastern Red Cedar

Small Deciduous Trees + Large Shrubs

Install size: 3'-6'
5-7 Year size: 10'-14'
Mature Size: 15'-50'

Betula papyrifera
Paper Birch

Populus tremuloides
Quaking Aspen

Rhus typhina
Staghorn Sumac

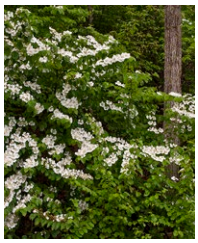
Amelanchier canadensis
Shadblow Serviceberry

Small Shrubs

Install size: 3'
5-7 Year size: 6'-13'
Mature Size: 8'-15'

Salix discolor
Pussy Willow

Viburnum lantanoides
Hobblebush



Sambucus racemosa
Red Elderberry

Aronia arbutifolia
Red Chokeberry

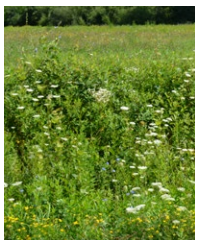
Herbaceous Planting

Install size: seed
5-7 Year size: 3'
Mature size: 3'

Meadow Seed Mix

Low Grow Seed Mix

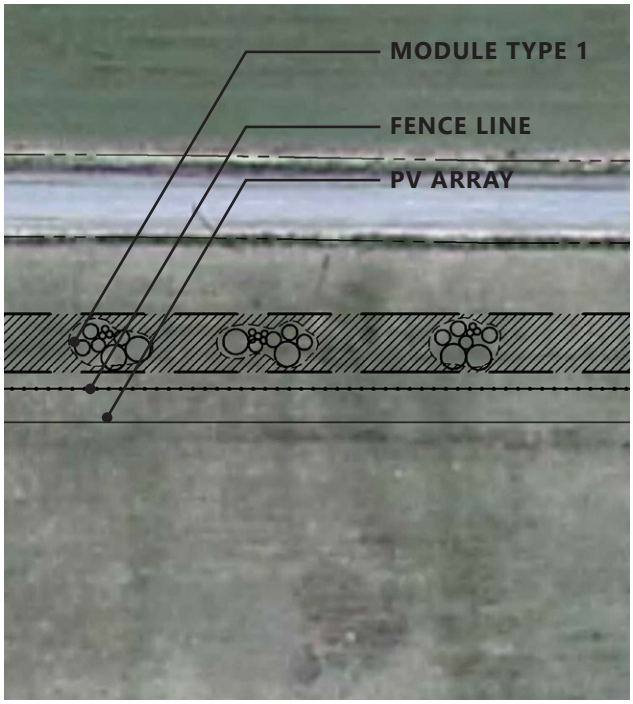
Existing Herbaceous Plant Material



4.0 PLANT MODULES

Module Type 1: Roadside Softening

Utilized in low to medium visibility areas or in areas with brief viewership, Module Type 1 is intended break up the horizontal nature of project components using smaller groupings of deciduous and evergreen plant material while retaining existing vistas.



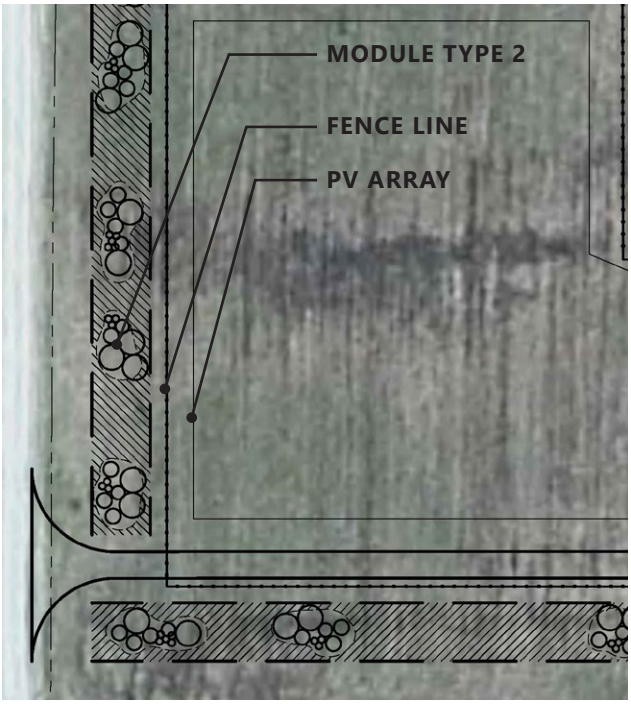
Sample Location | Module Type 1

Sample Simulation | Module Type 1

4.0 PLANT MODULES

Module Type 2: Intermittent Hedgerow

Consisting of groupings of deciduous and evergreen plant material, this module is used to partially screen the project components and provide views through the project to the surrounding landscape. Native plant material is used to provide an ecological benefit and to help incorporate the project into the surrounding landscape. This technique will be used primarily along roadside locations where prolonged viewership is uncommon.



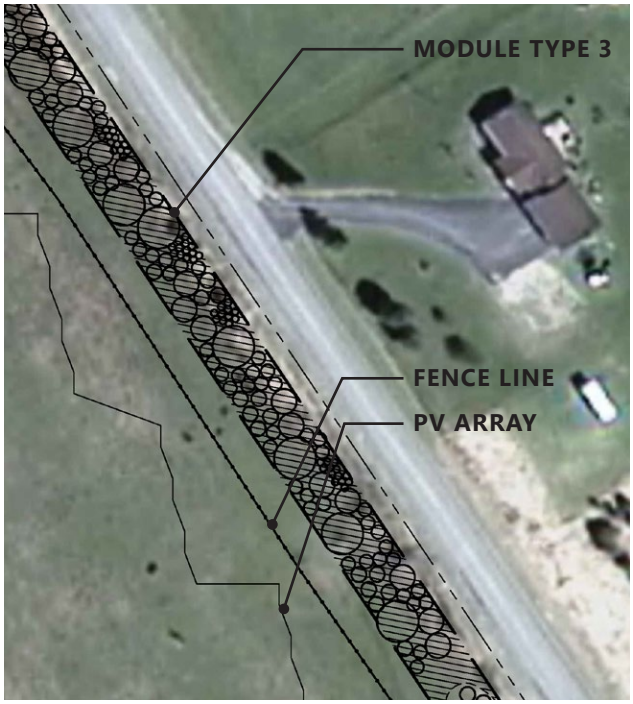
Sample Location | Module Type 2

Sample Simulation | Module Type 2

4.0 PLANT MODULES

Module Type 3: Hedgerow Planting Type ‘A’

This module provides a high level of screening and is used in areas of high visibility with prolonged views, typically experienced by adjacent recreational use or permanent residences. This Hedgerow planting module consists of evergreen and deciduous species planted densely; however, the goal is not to create a 100% opaque screen, but to provide significant screening compatible with the vernacular of existing hedgerows found around the Facility site.



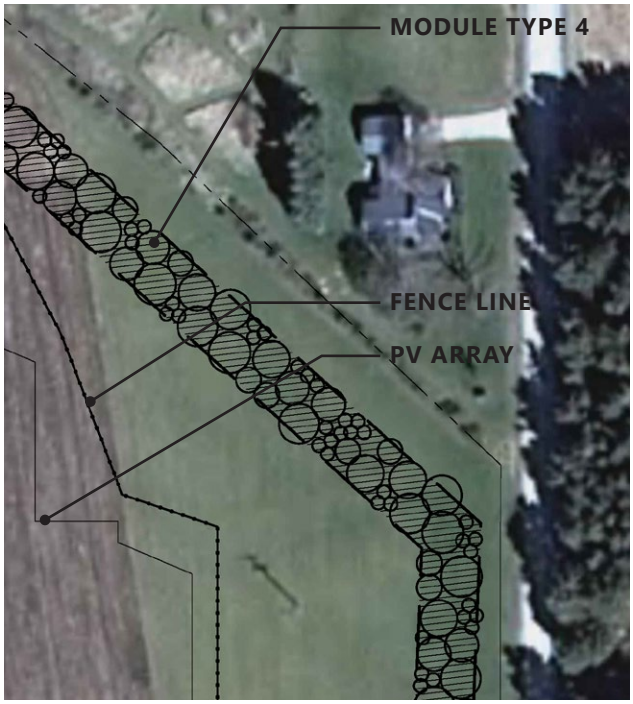
Sample Location | Module Type 3

Sample Simulation | Module Type 3

4.0 PLANT MODULES

Module Type 4: Hedgerow Planting Type 'B'

Similarly to Module 3, Module 4 provides a high level of screening and will be utilized in the most sensitive areas of the project. While similar in planting density, Module 4 includes a higher proportion of large evergreen trees than Module 3. Providing two hedgerow planting types affords the opportunity to more successfully integrate the proposed and existing vegetation by providing alternatives within the densely planted module.

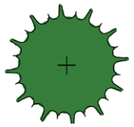


Sample Location | Module Type 4

Sample Simulation | Module Type 4

Module Type 1: Roadside Softening

Plant Material Legend

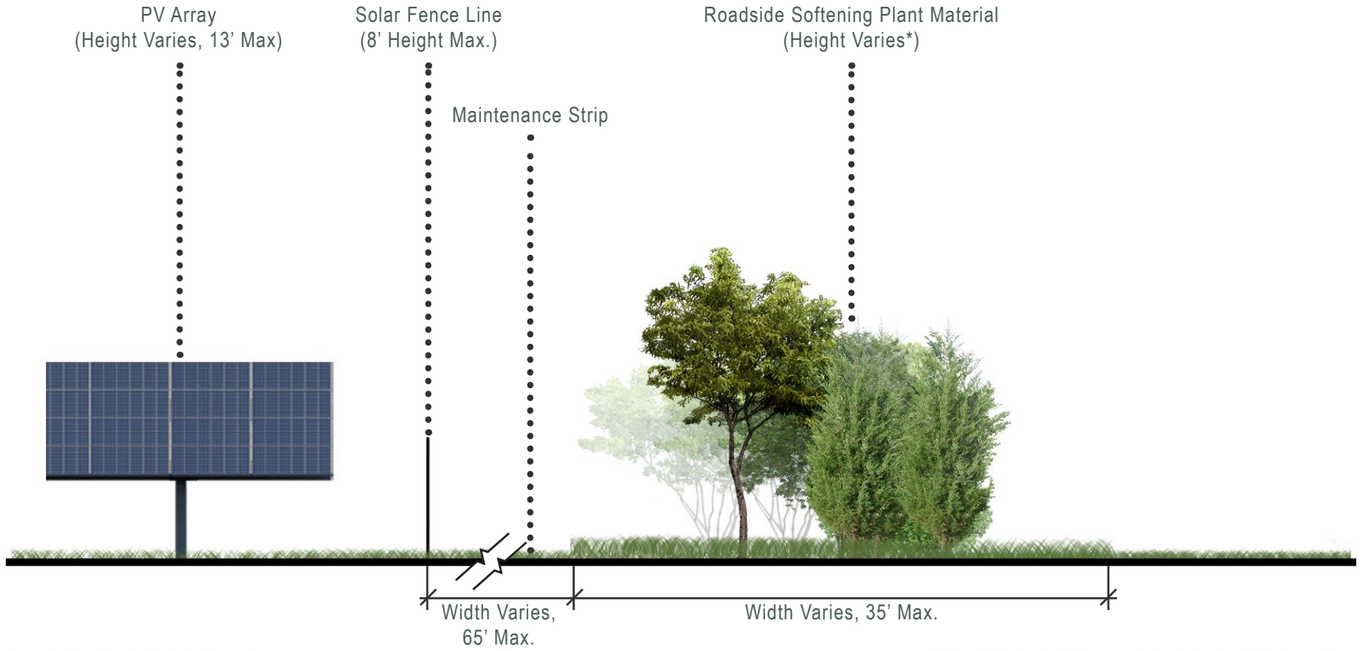


Evergreen Trees

Small Deciduous Trees
+ Large Shrubs

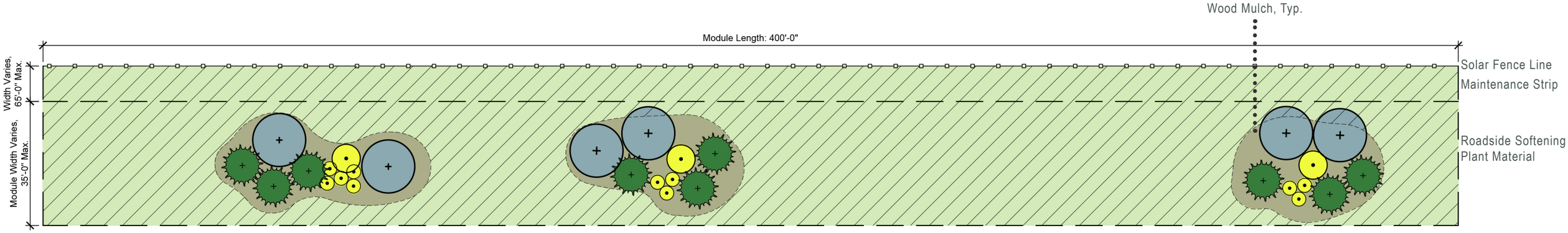
Small Shrubs

Herbaceous Planting



Sample Section | Module Type 1

* Plant Material Shown at Anticipated Mature Size



Sample Layout | Module Type 1

Module Type 2: Intermittent Hedgerow

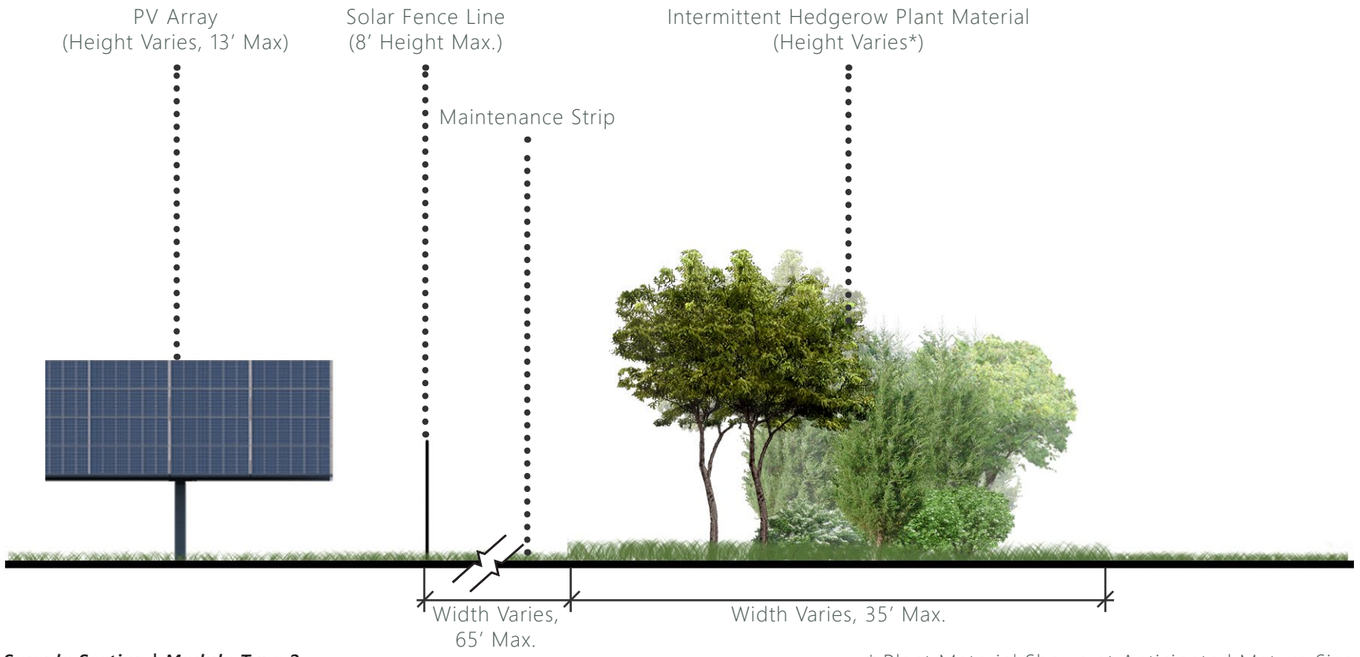
Plant Material Legend

Evergreen Trees

Small Deciduous Trees
+ Large Shrubs

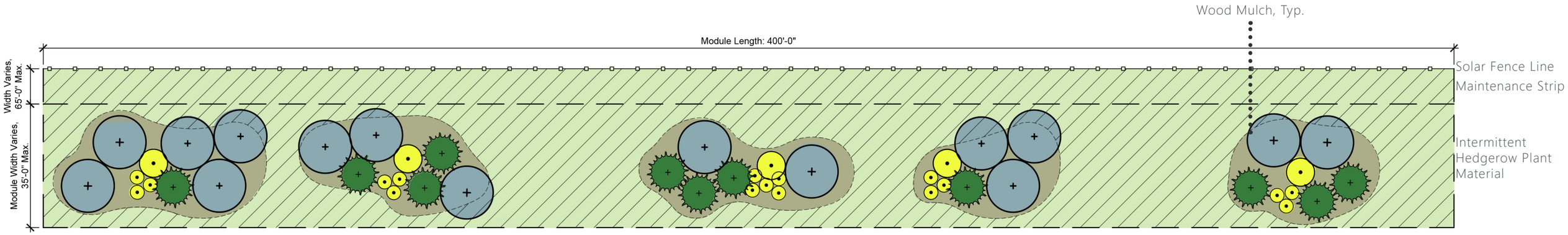
Small Shrubs

Herbaceous Planting



Sample Section | Module Type 2

* Plant Material Shown at Anticipated Mature Size



Sample Layout | Module Type 2

Module Type 3: Hedgerow Planting Type ‘A’

Plant Material Legend

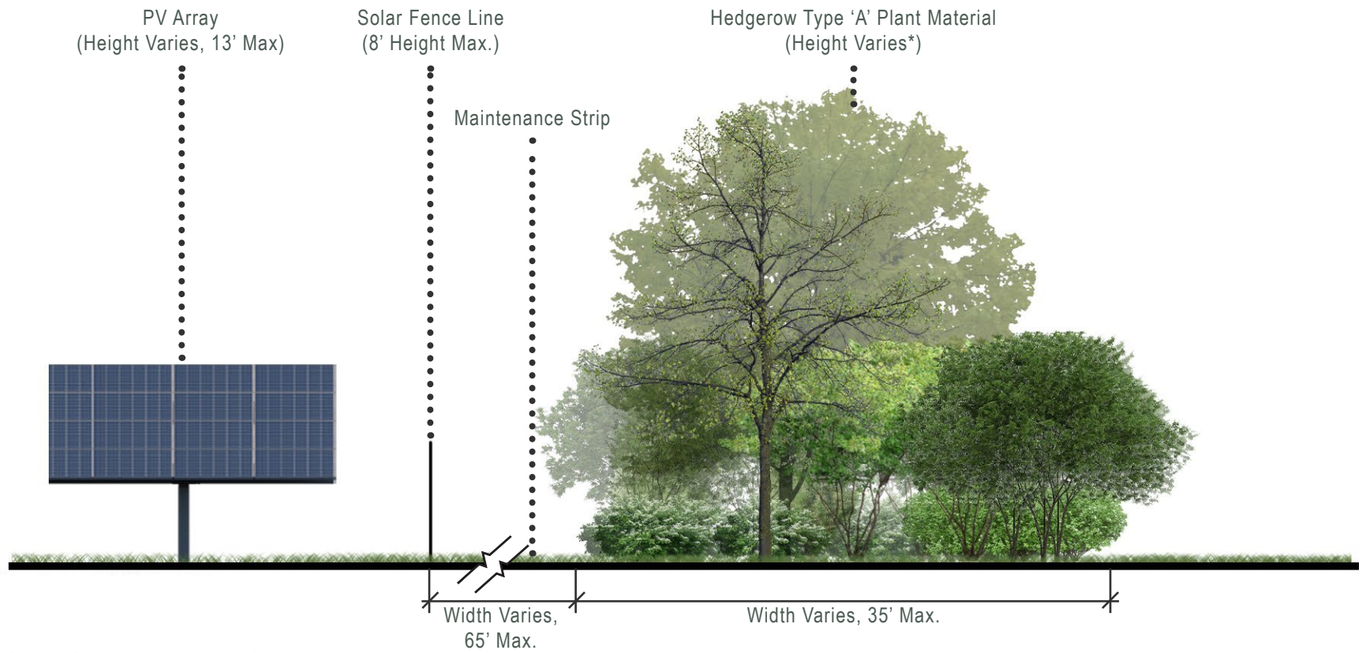
Large Deciduous Trees

Evergreen Trees

Small Deciduous Trees
+ Large Shrubs

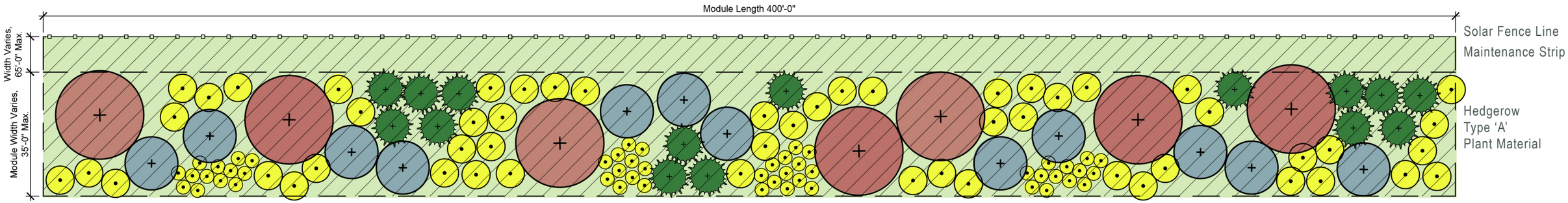
Small Shrubs

Herbaceous Planting



Sample Section | Module Type 3

* Plant Material Shown at Anticipated Mature Size



Sample Layout | Module Type 3

Module Type 4: Hedgerow Planting Type ‘B’

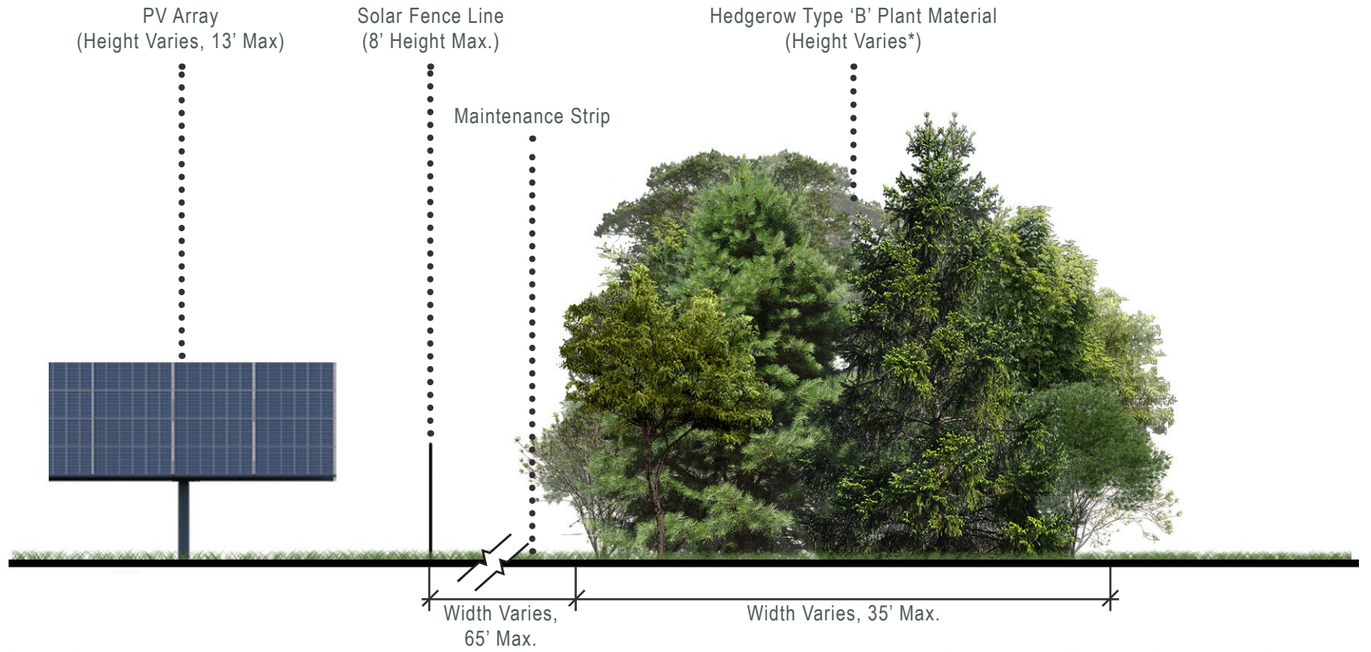
Plant Material Legend

Evergreen Trees

Small Deciduous Trees
+ Large Shrubs

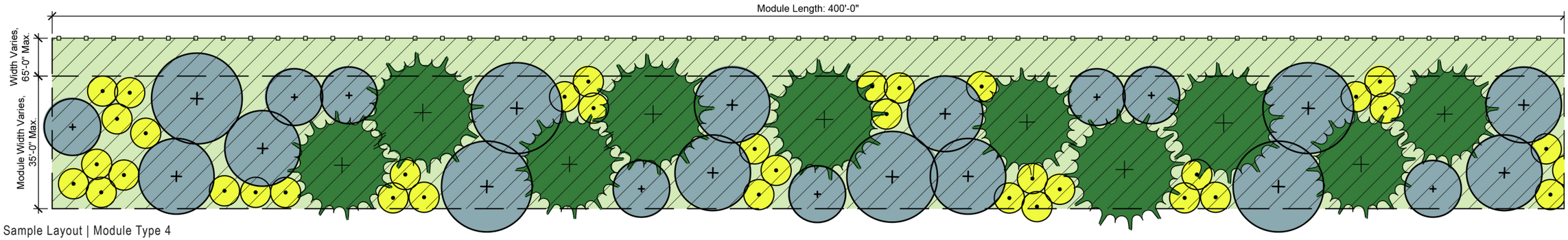
Small Shrubs

Herbaceous Planting



Sample Section | Module Type 4

* Plant Material Shown at Anticipated Mature Size



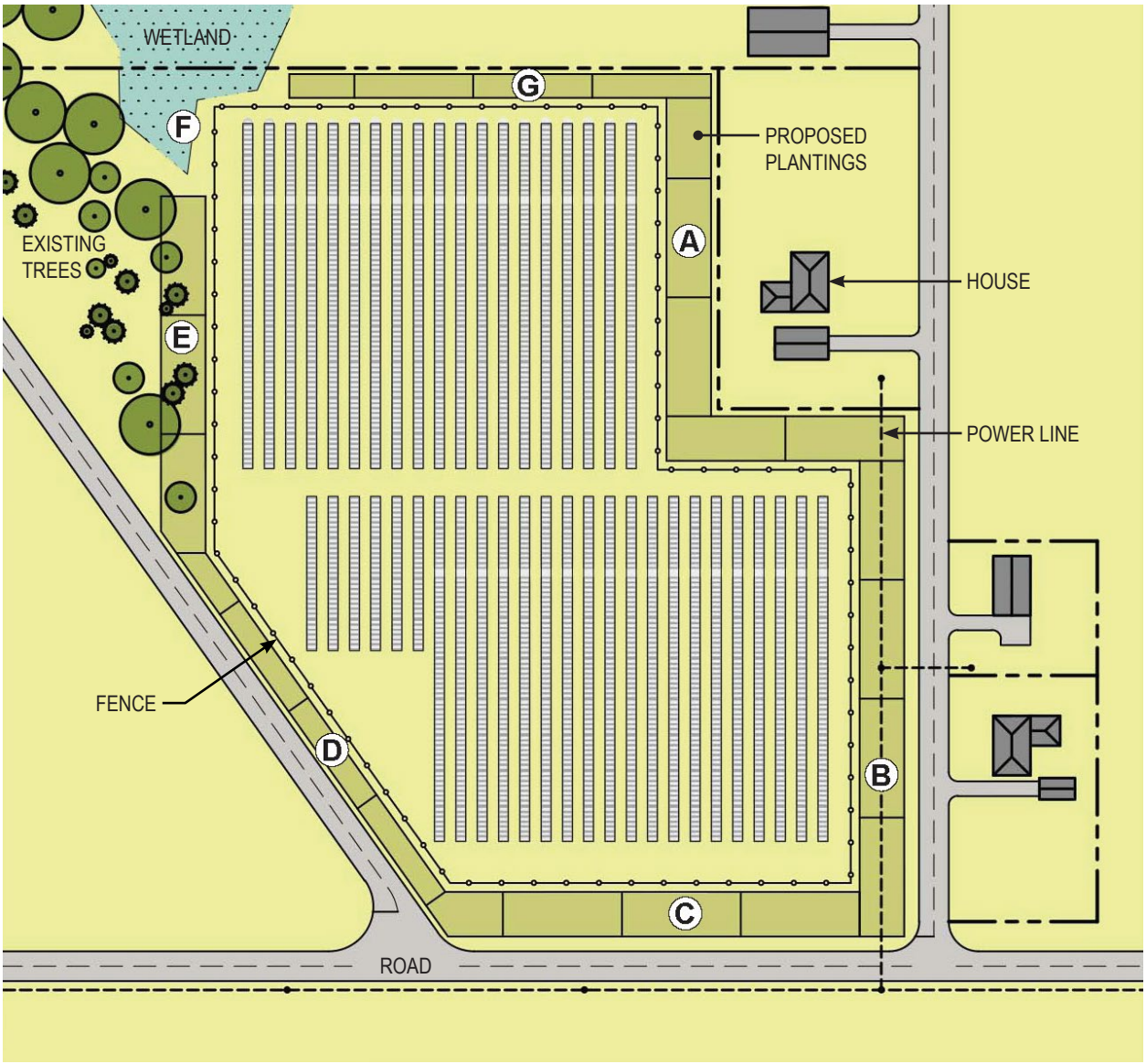
Sample Layout | Module Type 4

5.0 LOCATION OF PLANTING MODULES

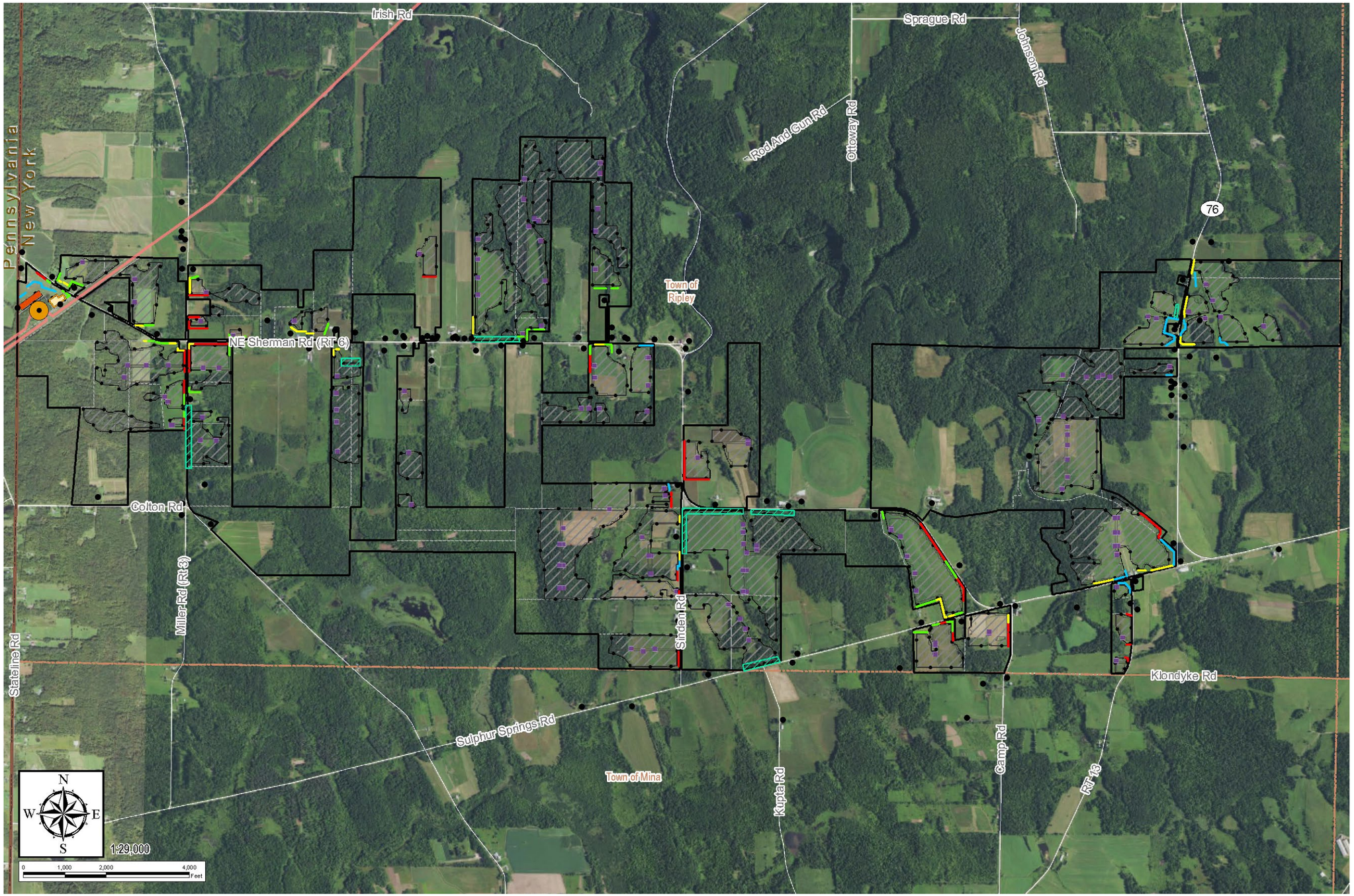
Every project site requires a careful and measured approach to the selection of where planting modules will be placed. Landscape Architects at EDR considered site specific factors such as PV array location, presence of utilities (both above and below ground), existing vegetation, available area to install mitigation, sensitivity of context, and the location and duration of viewership in developing the conceptual visual mitigation layout shown on page 17 (see Typical Planting Constraints Diagram below). This layout takes into account varying levels of screening desired for each unique site condition. Areas with prolonged static viewership will receive the highest consideration and are typically buffered using Module Type 3 or 4. Module 2 focuses on intermittent views and Module Type 1 is used along the backs of fields or where a scenic vista is to be maintained. Modules are distributed throughout the project site with the intent to preserve and enhance the existing character.

5.0 LOCATION OF PLANTING MODULES (CONTINUED)

- (A) typical planting module
- (B) proximity to overhead utilities requires low height planting module
- (C) southern exposure shadowcast requires low height planting module
- (D) proximity to road requires narrow planting module
- (E) existing vegetation allows for infill planting module
- (F) avoiding impacts to existing wetlands limits planting extents
- (G) proximity to property line requires narrow planting module



Typical Planting Constraints Diagram | Location of Planting Modules



Module Location Map | Landscape Mitigation Plan

6.0 CONCLUSION

The recommended mitigation strategies in this plan are designed to provide a regionally and locally appropriate visual buffer and are intended to enhance habitat and foraging opportunities for local fauna. In agrarian landscapes such as that surrounding the South Ripley Solar Project, it is important to maintain the character of the visual setting while providing mitigation that responds to the potential visual impacts of the Facility. While factors such as appropriate planting medium, the presence of utilities, and input from the local municipality and stakeholders may result in alterations or substitutions to the proposed materials, this plan is designed to be flexible enough that such changes could be made while still meeting the design intent. It is anticipated that the concepts included in this plan will result in the successful mitigation of the potential visual effects resulting from the Facility.

7.0 REFERENCES

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