

5.10 Large-Scale Ground-Mounted Solar Photovoltaic Facilities

5.10.1 Purpose

The purpose of this bylaw is to promote the creation of new Large-Scale Ground-Mounted Solar Photovoltaic Facilities by providing standards for the placement, design, construction, operation, monitoring, modification, and removal of such facilities that address public safety, minimize impacts on scenic, natural, and cultural resources and to provide adequate financial assurance for the eventual decommissioning of such facilities.

This bylaw aims to balance the rights of landowners to use their land to develop solar photovoltaic facilities while protecting the health, safety and welfare of the public.

This bylaw encourages the use of solar energy systems and protects solar access consistent with Massachusetts General Laws Chapter 40A Sections 9 and 9B (Solar Access), the 2008 Green Communities Act M.G.L., 2008 Global Warming Solutions Act and the 2021 Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy. This bylaw is also consistent with Sherborn's Master Plan and Open Space and Recreation Plan that provide guidance on the balance of uses within the town's boundaries. It is noted that the Department of Energy Resources (DOER) strongly discourages designating locations that require significant tree cutting, because of the important water management, cooling and climate benefits trees have. DOER encourages designating locations in industrial and commercial districts, or on disturbed land.

The provisions set forth in this section shall apply to the construction, operation, and/or repair of Large-Scale Ground-Mounted Solar Photovoltaic Facilities.

5.10.2 Applicability

A Large-Scale Ground-Mounted Solar Photovoltaic Facilities Overlay District is hereby established, and shall be considered as superimposed over any other districts established by this chapter, and as shown on the map entitled "Large-Scale Ground-Mounted Solar Photovoltaic Facilities Overlay District" dated January 29, 2023, on file in the Planning Board office, and included herein. This Overlay District shall be in addition to the existing Solar Photovoltaic Facilities Overlay District.

This section applies to Large-Scale Ground-Mounted Solar Photovoltaic Facilities proposed to be constructed after the effective date of this section both within (as-of-right) and outside (by special permit) the Overlay District. This section also pertains to physical modifications that materially alter the type, configuration, or size of these facilities or related equipment.

The requirements of this bylaw shall apply to a Large-Scale Ground-Mounted Solar Photovoltaic Facilities regardless of whether it is the primary use of the property or an accessory use.

This bylaw is not intended to regulate systems of less than 250 kilowatt (kW) direct current (DC), roof-mounted systems, or solar parking canopies.

5.10.3 Definitions

As-of-Right Siting: As-of-Right Siting shall mean that development may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. As-of-right development shall be subject to site plan review to determine conformance with local zoning ordinances or bylaws. Projects cannot be prohibited, but can be reasonably regulated where necessary to protect public health, safety or welfare by the Planning Board.

Battery(ies): A single cell or a group of cells connected together electrically in series, in parallel, or a combination of both, which can charge, discharge, and store energy electrochemically. For the purposes of this bylaw, batteries utilized in consumer products are excluded from these requirements.

Battery Energy Storage Management System: An electronic system that protects energy storage systems from operating outside their safe operating parameters and disconnects electrical power to the energy storage system or places it in a safe condition if potentially hazardous temperatures or other conditions are detected.

Battery Energy Storage System: A battery energy storage system (BESS) is an electrochemical device that charges (or collects energy) from the electrical grid or an electricity generating facility, such as a Large-Scale Ground-Mounted Solar Photovoltaic Facilities, and then discharges that energy at a later time to provide electricity or other grid services when needed.

Designated Location: The location[s] designated in accordance with Massachusetts General Laws Chapter 40A, section 5, where Large-Scale Ground-Mounted Solar Photovoltaic Facilities may be sited as-of-right. Said location[s] [is/are] shown on a Zoning Map entitled Solar Photovoltaic Overlay District, pursuant to Massachusetts General Laws Chapter 40A Section 4. This map is hereby made a part of this Zoning Bylaw and is on file in the Office of the Town Clerk.

Large-Scale Ground-Mounted Solar Photovoltaic Facility: A solar photovoltaic system that is structurally mounted on the ground and has a minimum rated nameplate capacity of 250 kW DC.

On-Site Solar Photovoltaic Facility: A solar photovoltaic facility that is constructed at a location where other uses of the underlying property occur.

Off-Grid System: A solar photovoltaic facility where all energy generated on the facility site is consumed on that site and does not send any energy into the electrical grid for distribution.

Rated Nameplate Capacity: The maximum rated output of electric power production of the solar photovoltaic system in Direct Current (DC).

Small-Scale Ground-Mounted Solar Photovoltaic Facility: A solar photovoltaic system that is structurally mounted on the ground and has a minimum rated nameplate capacity of under 250 kW DC and less than one acre in size.

Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar energy system.

Solar Energy System: A device or structural design feature, a substantial purpose of which is to provide daylight for interior lighting or provide for the collection, storage, and distribution of solar energy for space heating or cooling, electricity generation, or water heating.

Solar Photovoltaic Array: An arrangement of solar photovoltaic panels.

Solar Photovoltaic Facility: A solar energy system that converts solar energy directly into electricity through an arrangement of solar photovoltaic panels.

Solar Photovoltaic Facility Site Plan or Special Permit Review: A review by the Planning Board to determine conformance with the town's zoning bylaws.

5.10.4 Dimensional Requirements

Setbacks

For Large-Scale Ground-Mounted Solar Photovoltaic Facilities within the Overlay District, front, side, and rear setbacks shall be the same as required in the zoning district.

For Large-Scale Ground-Mounted Solar Photovoltaic Facilities outside the Overlay District, front, side, and rear setbacks shall be 100 feet, provided however, that if a front lot line abuts a public way or a side or rear lot line abuts one or more residences within 100 feet of that line, the setback for that lot line shall be 200 feet.

The Planning Board may allow a lesser setback along a property line, where, in its judgment, the proposed facility is not likely to negatively affect an existing or allowed land use on the abutting property.

Maximum Lot Coverage

Maximum lot coverage shall be 50% for projects outside the Overlay District. The coverage area includes the entire facility including, but not limited to, all solar panels, fenced area, appurtenances including but not limited to battery energy storage systems, buildings, storage areas, construction staging and lay-down areas, and transformers and poles, site access roads, and parking along with a perimeter area around all the above or all areas of disturbed land, whichever is greater. The remaining area of the parcel shall be preserved in its natural state, and the estimated carbon in the preserved area must exceed the carbon lost in the converted area (See Mitigation section in 5.10.15).

A project may propose to exceed 50% maximum coverage, but in this case must preserve an area off-site in accordance with the provisions of the Mitigation section of 5.10.15.

5.10.5 Appurtenant / Accessory Structures

All appurtenant structures to Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall be subject to reasonable regulations concerning the bulk and height of structures, lot area, setbacks, open space, parking and building coverage requirements. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be screened from view by vegetation or structures using traditional development forms and materials. Whenever reasonable, structures should be joined or clustered to avoid adverse visual impacts.

5.10.6 Battery Energy Storage Systems

Battery Energy Storage Systems may not be in Massachusetts Department of Environmental Protection designated Zone 1 Wellhead Protection Areas or in the Federal Emergency Management Agency designated Flood Hazard Area

The system must be contained within a structure with the following features: a temperature and humidity-maintained environment; an impervious floor with a containment system for potential leaks of hazardous materials, and protection from water penetration; a smoke/fire detection, fire alarm, and fire suppression system; a thermal runaway system; and a local disconnect point or emergency shutdown feature such as an energy storage management system.. The containment area must be designed so that in event of a fire, fire extinguishing chemicals will be completely contained.

The structure and systems must be approved by the Sherborn Fire Chief and must be designed and installed in accordance with all applicable State codes and safety requirements as well as safety measures recommended by the National Fire Protection Association's Standard for the Facility of Stationary Energy Storage Systems. Periodic inspections to ensure the integrity of the batteries, other equipment, and the containment system may be required as conditions of the site plan review or special permit.

Battery energy storage units shall be clearly secondary and incidental as an accessory use to the solar facility. They shall be limited to only those needed to support the solar facility at the site, their total maximum power output may not exceed the nominal rated kW generating capacity of the facility as measured in direct current.

Spent or expired battery units must be immediately removed from the site and disposed of in accordance with applicable local, state, and federal hazardous waste disposal laws and regulations.

5.10.7 Compliance With Laws, Ordinances And Regulations

The construction and operation of all Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall be consistent with all applicable local, state, and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of a Large-Scale Ground-Mounted Solar Photovoltaic Facility shall be constructed in accordance with the State Building Code.

5.10.8 Building Permit

No Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall be constructed, installed, or modified as provided in this section without first obtaining a building permit. No building permit shall be issued and no application for such permits shall be accepted for construction, exterior alteration, relocation, or change in use unless a site plan has been approved or special permit has been granted by the Planning Board, after consultation with other boards, including but not limited to the following: Building Inspector, Board of Health, Select Board, Historical Commission, Historic District Commission, Conservation Commission, Department of Public Works, Fire Department, and Police Department. The Planning Board may waive any or all requirements of site plan review for external enlargements of less than 10% of the existing occupied area.”

5.10.9 Site Plan and Special Permit Review and Performance Standards

Large-Scale Ground-Mounted Solar Photovoltaic Facilities within the Overlay District shall undergo site plan review and those outside the Overlay District shall under special permit review by the Planning Board prior to construction, installation, or modification as provided in this section. The Planning Board shall consider and apply the requirements set forth in this bylaw in reviewing and deciding an application for site plan or special permit approval. If the provisions of site plan review under this bylaw are in conflict with the site plan review of the zoning bylaw, the regulations pertaining to site plan review of the Large-Scale Ground-Mounted Solar Photovoltaic Facility shall apply.

The applicant may participate in a pre-application conference with the Planning Board prior to the submittal of a formal application to discuss required documents, including site-specific analyses.

All plans and maps shall be prepared, stamped, and signed by a Professional Engineer licensed to practice in Massachusetts. All applications and plans shall be filed with the Planning Board, along with the applicable fee (s).

The application packet must contain all the appropriate application fees, forms, and number of copies of all plans and supporting documentation, as well as required abutter information. The application packet shall be submitted to the Town Clerk who shall stamp the application with the date received and shall immediately notify the Chair of the Planning Board of a submitted application packet.

The Planning Board shall, within thirty (30) calendar days of the receipt of the application by the Town Clerk, determine whether the application is complete or incomplete and shall notify the applicant in writing by certified mail. If the Planning Board determines the application to be incomplete, the Board shall provide the applicant with a written explanation as to why the application is incomplete and request the information necessary to complete the application. Any additional information submitted by the applicant starts a new thirty (30) calendar day completeness review.

Upon receipt of an application, the Planning Board may engage, at the applicant's cost, professional and technical consultants, including legal counsel, to assist the Planning Board with its review of the application, in accordance with the requirements of M.G.L. Chapter 44 Section 53G. The Planning Board may direct the applicant to deposit funds with the Planning Board for such review at the time the application is determined to be complete and may direct the applicant to add additional funds as needed upon notice. Failure to comply with this section shall be good grounds for denying the application. Upon approval of the application, any excess amount attributable to the application processing by the Planning Board, including any interest accrued, shall be refunded to the applicant.

The Planning Board may impose reasonable terms and conditions on the construction, installation, or modification of any Large-Scale Ground-Mounted Solar Photovoltaic Facility, but it shall not have discretionary power to deny the use within the Overlay District.

The Planning Board shall include required findings it will consider in its approval or denial of a special permit as consistent with the public health, safety and welfare provisions of the Zoning Act. Such findings or matters may include, but are not limited to:

1. The proposed development's consistency with the Master Plan and/ Open Space and Recreation Plan;
2. The proposed development's consistency with local zoning;
3. The proposed development's consistency with the general purpose and intent of this bylaw;
4. The proposed development's consistency with the character and scale of other developments permitted in the same district and the maintenance of the community's character in the area surrounding the site;
5. The rights of abutting and neighboring landowners to live without undue disturbance or exposure to pollutants from the development;
6. The protection of natural, cultural and scenic resources on and around the site.

5.10.10 Required Documents

Pursuant to the site plan review process, the project proponent of a Large-Scale Ground-Mounted Solar Photovoltaic Facility shall provide the following documents:

1. An existing conditions plan with property lines and physical features, including abutting land uses and location of structures within 100 feet of the site, topography and roads, characteristics of vegetation (mature trees, shrubs, open field, etc.), and wetlands, for the project site;
2. Proposed changes to the landscape of the site including grading, vegetation clearing and planting, exterior lighting including locations, type and wattage, screening vegetation or structures, sign(s) location(s), service vehicle parking and access roads, and storm water management systems. The square footage of each disturbed area shall be identified on a plan, and details of any site alteration, including number, sizes, and species of trees to be removed, shall be provided. A calculation of slopes throughout the site as a percentage over consecutive 100-foot distances;
3. Blueprints or drawings of the solar photovoltaic facility signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system, any potential shading from nearby structures or vegetation, the distance between the system and all property lines, existing on-site buildings and structures, and the tallest finished height of the solar array;
4. One- or three-line electrical diagram detailing the solar photovoltaic facility, associated components, and electrical interconnection methods, with all Massachusetts Electrical Code compliant disconnects and overcurrent devices;
5. Documentation and technical specifications of the major system components to be used, including the photovoltaic panels, mounting system, inverter(s), and any storage batteries;
6. Proposed wattage of the solar photovoltaic facility solar power generation indicated in both direct current (DC) and alternating current (AC) – a notation shall be included explaining the difference, e.g. loss in conversion from DC to AC;
7. Locations and details of all security measures for the site;
8. Name, address, and contact information for proposed system installer;
9. Name, address, phone number, and signature of the project proponent, as well as all co-proponents or property owners, if any;
10. The name, contact information and signature of any agents representing the project proponent;
11. Documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar photovoltaic facility;
12. A plan for the operation and maintenance of the solar photovoltaic facility;
13. Zoning district designation for the parcel(s) of land comprising the project site (submission of a copy of a zoning map with the parcel(s) identified is suitable for this purpose);
14. A utility connection plan, and an acknowledgment of application from the electric utility (not required for off-grid facilities);
15. A list identifying all off-site electrical system improvements necessary to the electrical grid to accommodate the power from the proposed facility and identification of what entity is paying for such improvements.;
16. Proof of liability insurance. The owner or operator of the Large-Scale Ground-Mounted Solar Photovoltaic Facility shall provide the Town Clerk with a certificate of insurance showing that the property has sufficient liability coverage pursuant to industry standards;

17. A public outreach plan, including a project development timeline, which indicates how the project proponent will meet the required site plan review notification procedures and otherwise inform abutters and the community;
18. Description of financial surety;
19. Proof that the project proponent will meet the required site plan review notification procedures;
20. Pre-construction photos from the right-of-way and nearest abutters. These photos should include tree coverage;
21. A visualization (rendering or photo simulation) of post-construction solar development, including perspectives from right-of-way(s), nearest abutting properties or residential structures, and tree coverage. The Planning Board may request additional visualizations and/or visual impact analysis in cases where the project is likely to be visible from significant areas;
22. A glare analysis and proposed mitigation, if any, to minimize the impact on affected properties and roads;
23. Documentation by an acoustical engineer of the noise levels projected to be generated by both the facility and operation of the facilities;
24. Location and approximate height and percent tree cover on the site at the time of application filing. Trees with a diameter at breast height (DBH) of 6" for hardwoods and 12" for softwoods or greater within project parcel(s) shall be identified to determine tree loss, along with an inventory of diseased or hazard trees slated to be removed due to proposed development;
25. Documentation of all soils types, as identified on the United States Natural Resources Conservation Service soils survey, on all land involved with the project;
26. Locations of natural and cultural resources based on reviews of publicly available data or consultation with Town staff and state agencies. Such locations to include:
 - Active farmland, and prime farmland soils; floodplains; wetlands and vernal pools (an Order of Resource Area Delineation may be required); wellhead protection areas; permanently protected open space; Natural Heritage & Endangered Species Program (NHESP) Estimated and Priority Habitats, BioMap Critical Natural Landscape and Core Habitat;
 - Locations of inventoried historic buildings, Local or National Register Historic Districts, and Scenic Roads; and archaeologically sensitive areas.

These locations can be identified using MassGIS¹; the Massachusetts Historical Commission's (MHC) Massachusetts Cultural Resources Information System (MACRIS)² and through filing a Project Notification Form (PNF)³ with MHC; reviewing local plans such as the Master Plan and Open Space and Recreation Plan; and through consultation with Town staff. The Planning Board, at its discretion, may require these locations be

¹ [OLIVER\(state.ma.us\)](http://OLIVER.state.ma.us)

² [Welcome to MACRIS \(mhc-macris.net\)](http://Welcome to MACRIS (mhc-macris.net))

³ [pnf.pdf\(state.ma.us\)](http://pnf.pdf.state.ma.us)

described on a map and/or in a narrative depending on the sensitivity of the resources identified;

27. Stormwater management and erosion and sediment control plans;
28. A complete list of chemicals, fuels, and any other hazardous materials to be used in both the construction and operation phase;
29. A calculation of earthwork operations listing the amount of soil and/or rock to be imported or exported from the site. If any material is to be imported, such material shall be clean and without contamination by hazardous substances or invasive species and must be obtained from a source(s) approved by the DPW.
30. Provision of water including that needed for fire protection;
31. A photometric plan documenting no light spillage on to abutting property.

Upon the applicant's written request submitted as part of the application, the Planning Board may waive any documentary requirements as it deems appropriate.

5.10.11 Site Control

The project proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed Large-Scale Ground-Mounted Solar Photovoltaic Facility.

5.10.12 Operation and Maintenance Plan

The project proponent shall submit a plan for the operation and maintenance of the Large-Scale Ground-Mounted Solar Photovoltaic Facility, which shall include measures for maintaining safe access to the facility, storm water controls, storm preparedness and response, hazardous materials and waste management, as well as general procedures for and frequency of operational maintenance of the facility. A signed agreement with a maintenance company shall be included, as applicable.

The Operation and Maintenance Plan shall include measures for maintaining year-round safe access for emergency vehicles, snow plowing, storm water controls, and general procedures, and a yearly schedule for the operation and maintenance of the facilities including fencing, and maintenance of landscaping. As much as possible, consideration should be given to performing operations and maintenance using electric vehicles and equipment to decrease noise and air pollution.

The Operation and Maintenance Plan should include a training component and schedule for emergency services staff along with any designees the Planning Board deems necessary.

5.10.13 Utility Notification

No Large-Scale Ground-Mounted Solar Photovoltaic Facility shall be constructed until evidence has been given to the Planning Board that the utility company that operates the electrical grid where the facility is to be located (Eversource or successor company) has been informed of the solar photovoltaic facility owner or operator's intent to install an interconnected customer-owned generator as well as documentation from said utility that it will connect the proposed customer-owned generator into its power grid. Off-grid systems shall be exempt from this requirement.

5.10.14 Design Standards

Access Roads

Access roads shall be planned and constructed in consultation with the Department of Public Works and to minimize grading, stormwater runoff, removal of trees, and to minimize impacts to natural or cultural resources. At the Planning Board's discretion, roads should be curved to limit direct views into the project, especially from scenic roads.

Lighting

Lighting of solar photovoltaic facilities shall be consistent with local, state, and federal law. Lighting of other parts of the facility, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar photovoltaic facility shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

Lighting of solar photovoltaic facilities shall be limited to night-time maintenance and inspections by authorized personnel.. There should be no illumination when personnel are not on the site.

Signage

Signs on Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall comply with the sign bylaw. A sign consistent with the sign bylaw shall be required to identify the owner and provide a 24-hour emergency contact phone number of the facility owner or operator. Solar photovoltaic facilities shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar photovoltaic facility.

No-trespassing signs, signs required to warn of danger educational signs providing information about the project may be exempted from this requirement. As much as possible, signs should be grouped together to reduce sign clutter.

Utility Connections

Reasonable efforts shall be made to place all utility connections from the solar photovoltaic facility underground, depending on appropriate soil conditions, shape, and topography of the site and any

requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

Glare

Solar panels, to the maximum extent feasible, shall be positioned and landscaped so as not to create glare and to minimize glare on surrounding occupied structures. The Large-Scale Ground-Mounted Solar Photovoltaic Facility shall be positioned to minimize glare on any residence or public way. The applicant should submit a ratings and technical specifications for the solar panels to ensure minimal reflectivity.

The design of the facility shall prevent reflected solar radiation or glare from becoming a public nuisance or hazard to adjacent buildings, roadways, or properties. Design efforts may include, but not be limited to, deliberate placement and arrangement on the site, anti-reflective materials, solar glare modeling, and screening in addition to required landscaping.

Visual Impact

A visual impact assessment shall be conducted that follows established protocols. Such assessment should include the following:

1. **Design Narrative.** A narrative that describes how the project has been configured or located and how it avoids or minimizes visual impacts, including tree removal. Maps and documentation of the analysis conducted shall accompany the narrative and be used to generally describe the anticipated visibility of the project. The narrative should provide details concerning alternative configurations or sites that were evaluated in the design process and the design/mitigation strategies employed to reduce any visual impact to sensitive resources and tree removal.
2. **Inventory.** An inventory and description of the cultural and scenic resources located within the viewshed of the proposed activity, including historic structures and historic districts; scenic roads, cultural landscapes, and vistas (open areas that are visible from public roads); and recreational areas. Information on these resources may be found by searching MACRIS and by reviewing Sherborn's Master Plan, and Open Space and Recreation Plan
3. **Visualizations and simulations.** The applicant shall utilize tools such as photo-simulations and/or viewshed analyses through renderings, line-of-sight studies, and/or two- or three-dimensional visualizations (i.e., photomontage, video montage, animation produced through Spatial Information Systems (SIS) and Geographic Information Systems (GIS)) to assess the visual impacts and describe the anticipated effect of the proposed project on the region's scenic and cultural resources. The number of simulations required will depend on the anticipated impact and the sensitivity of the resources present. The visual impact assessment should include consideration of all parts of the project, including all associated infrastructure. In the event more than one alternative is being considered, the visual impact of all alternatives should be evaluated by the applicant. The assessment should map locations along local public ways

where the solar facility is visible above visual horizon and anticipate locations, such as high elevation points or across waterbodies, where distant views are possible.

4. Mitigation. Proposed mitigation measures, as applicable. Mitigation may include careful siting, siting away from scenic resources and key viewsheds, curvilinear access roads, and screening.

Fencing

Appropriate measures shall be taken to prevent the solar arrays from being damaged or tampered with by individuals trying to access the area of the facility. The method of securing the site shall be subject to the approval of the Planning Board.

The need for fencing shall be determined by the applicant unless such fencing is needed to comply with town bylaws and/or as required per the Massachusetts Electrical Code. If installed, such fencing shall be no more than 10 feet tall, shall be placed at least 6 inches off the ground to allow migration of wildlife, and shall have an Emergency Access System padlock or box at each gate. The fence shall be consistent with the character of surrounding properties, set back from roadway frontage and public areas, and screened by vegetation.

Screening

The Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall be designed to minimize its visibility, including preserving natural vegetation to the maximum extent possible, blending in equipment with the surroundings, adding vegetative buffers and/or fencing to provide an effective visual barrier from adjacent roads and driveways, and from abutting dwellings.

The facility shall be effectively screened year-round from all public and private ways and from adjacent residential lots. The Planning Board may alter or waive this requirement if such screening would have a detrimental impact on the operation and performance of the array.

Where existing vegetation in the setbacks is insufficient to achieve year-round screening, additional screening shall be provided including, but not limited to, planting of dense vegetative screening, fencing, berms, use of natural ground elevations, and/or land contouring, all depending on site specific conditions. Tree cutting within the required setback area shall not be permitted if it would reduce to any degree the effectiveness of the year-round screening.

If additional plantings are required for screening, a planting plan shall be submitted showing the types, sizes, and locations of material to be used, using a diversity of plant species native to New England and shall be subject to the approval of the Planning Board. Plantings shall include a variety of native trees and shrubs of varying heights, staggered to effectively screen the facility from view during construction and operations. The depth of the vegetative screen shall be a minimum of 100 feet. At least 75% of the plantings shall consist of evergreens and shall be evenly spaced throughout the setback area.

Plantings should include native plants that provide food, pollen, and/or shelter for native wildlife and follow a “food forest” model, integrating trees, shrubs, perennial plants and groundcovers to mimic a native woodland that creates habitat and food for local wildlife. Unless an alternative is approved by the Planning Board, the wildlife habitat establishment and maintenance plan shall create a pollinator friendly wildflower meadow immediately around the facility.

Use of invasive plants, as identified by the most recent version of the “Massachusetts Prohibited Plant List” maintained by the Massachusetts Department of Agricultural Resources, is prohibited. Cultivars of native plants may be acceptable if sourcing of native species is not possible.

Planting of the vegetative screening shall be completed prior to connection of the facility. Plants shall be maintained and replaced if unhealthy by the owner/operator of the facility for the life of the facility. If vegetative screening cannot be planted due to the season, a performance bond to cover the cost of, and ensure implementation of, the vegetation plan may be accepted by the Planning Board, but the screening must be planted as soon as weather conditions are appropriate.

Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall not be approved unless the system design provides screening and buffers to protect scenic vistas and view sheds from residential uses, public streets and any waterways or water bodies.

5.10.15 Safety and Environmental Standards

Emergency Services

The Large-Scale Ground-Mounted Solar Photovoltaic Facility owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the local Fire Chief. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan, which may include ensuring that emergency personnel have immediate, 24-hour access to the facility. All means of shutting down the solar photovoltaic facility shall be clearly marked on the plan. The owner or operator shall identify a responsible person for public inquiries throughout the life of the facility, whether or not operational. These components shall be included in the Operation and Maintenance Plan.

The Operation and Maintenance Plan shall periodically be jointly reviewed and updated as necessary by the operator of the facility and the Fire and Police Departments at a frequency to be determined by the Fire Department. Safety personnel may request at any time that the operator provide onsite training in accessing and shutting down the operation of the facility.

The operator shall identify a qualified contact person who will provide assistance to local officials during an emergency. The operator shall update the contact information whenever there is a change in the contact person.

Storm Preparedness

Large-Scale Ground-Mounted Solar Photovoltaic Facilities shall include racking, foundations, and module connection systems designed to withstand sustained hurricane-force winds or damage from wind-blown debris. Storm preparedness and response considerations shall be included in the Operation and Maintenance Plan.

Land Clearing

Archaeological Impacts

Any work on undeveloped properties, or on land that has not been disturbed in recent history, requires consideration of archaeological resources to determine whether significant resources are present. All archaeological investigations and site work requires a permit from the State Archaeologist at MHC. MHC maintains an inventory of known archaeological sites and uses that information to build a predictive model to estimate where other archaeological sites are likely to be found. Depending on the amount of ground disturbance proposed, if a property is archaeologically sensitive, or likely to contain archaeological resources, an archaeological survey may be required – tree removal and re-grading would require an archaeological survey, whereas projects with minimal ground disturbance and using minimal soil impact methods may not.

Natural Resources Impacts

The applicant shall be required to provide a natural resources inventory describing the soils, vegetation, wildlife, and wetlands on and around the site that may be adversely impacted by the development and to help inform project design and mitigations.

Clearing of natural vegetation and soils shall be limited to what is necessary for the construction, operation, and maintenance of the proposed facility or otherwise prescribed by applicable laws, regulations, and bylaws.

Existing vegetative cover, root structures, flat field or gravel areas, and topsoil shall be maintained to the maximum extent practicable to prevent soil erosion. Any displaced soils shall be returned to the areas affected, if feasible, except soils likely to be infested with invasive plants seeds which should be disposed of in a manner that does not allow seeds or vegetative material contained within the soil to regrow. Ground surface areas beneath solar arrays and setback areas shall be pervious to maximize on-site infiltration of stormwater. Where removal of naturally occurring vegetation such as trees and shrubs is planned, the owner of the facility must demonstrate that the removal of this vegetation is necessary, and its presence adversely affects the performance and operation of the facility.

To avoid or minimize greenhouse gas emissions from cleared trees and shrubs and the need to transport these to landfills or other distant disposal sites, as practicable and depending on site conditions and in accordance with local, state, and federal waste disposal regulations, consideration should be given to the reuse on site of tree and shrub debris as wildlife habitat

features, landscaping mulch, and/or for erosion and sediment control. To decrease the rate of carbon emissions from cleared trees, the chipping of logs should be minimized and unmarketed whole logs should be left to decay.

Applicants are encouraged to explore opportunities to repurpose downed trees into durable wood products to retain stored carbon. As an alternative to transporting tree and shrub debris to be burned at a waste-to-energy facility, applicants should endeavor to make suitable firewood available to residents of the local community who heat their homes with wood.

Ballasts, screw-type, or post driven pilings and other acceptable minimal soil impact methods that do not require footings or other permanent penetration of soils for mounting are required, unless the need for alternatives can be demonstrated. Any soil penetrations that may be required for providing system foundations necessary for additional structural loading or for providing system trenching necessary for electrical routing shall be done with minimal soils disturbance, with any displaced soils to be temporary and recovered and returned after penetration and trenching work is completed. No concrete or asphalt shall be allowed in the mounting area other than ballasts or other code required surfaces, such as transformer or electric gear pads. The use of geotextile fabrics shall be limited.

A Large-Scale Ground-Mounted Solar Photovoltaic Facility shall, to the greatest extent practicable, be clustered and located in or adjacent to areas of the site where the land has already been cleared of vegetation to avoid habitat fragmentation.

Vegetation Plantings and Plant and Animal Management

The open areas within the solar array and between the array and any vegetated buffers, including stormwater management areas, shall be seeded with a native seed mix, with a preference for native groundcovers and deep-rooted native grasses suitable for site stabilization and erosion control and adapted to Sherborn's soils, and that are low-maintenance (i.e., requiring no fertilizers, pesticides, or herbicides; no irrigation except as may be necessary for initial plant establishment; drought-tolerant, and attractive to native pollinators and other wildlife, and maintained as plant, bird and insect habitat. A diversity of plant species native to New England shall be used. Use of invasive plants, as identified by the most recent version of the "Massachusetts Prohibited Plant List" maintained by the Massachusetts Department of Agricultural Resources, is prohibited.

Alternative vegetation or cover options may be proposed by the applicant in consideration of soil type and quality, subject to the approval of the Planning Board. Such alternatives may include agricultural crops, for example on sites with Prime Farmland Soils.

Existing gravel areas that are well drained and stable do not require the addition of topsoil. To avoid the introduction of invasive plant seeds, topsoil shall not be imported into any project sites unless there is a demonstrated engineering need and must be approved by the Planning Board prior to any introduction.

A continuous herbaceous ground cover layer will be maintained and any bare or partially bare areas should be replanted on an annual basis. Any signs of erosion, soil rutting or soil compaction should be remediated within 30 days. There will be annual inspection and report documenting vegetation coverage and avoidance of erosion or soil disturbance as well as noting any areas of persistent water-saturated soils. Inspection by a PB representative will be allowed to assess vegetative conditions.

The introduction of invasive species shall be prevented to the greatest extent practicable during any construction, maintenance, or removal of a solar photovoltaic facility, through the use of current best practices.

To protect the water supply, planting of low growing groundcovers or grasses and/or regular mowing of other types of grasses to ensure minimal fuel for wildfires in areas around panel shall be included in plant management plans.

Stormwater Management

A Large-Scale Ground-Mounted Solar Photovoltaic Facility shall comply with the Town's Comprehensive Stormwater Management Bylaw. Review for compliance with that bylaw shall be concurrent with the review of the Site Plan or Special Permit for the Large-Scale Ground-Mounted Solar Photovoltaic Facility. No separate permit is necessary.

Wetlands

No Large-Scale Ground-Mounted Solar Photovoltaic Facility shall be located within resource areas protected by the Massachusetts Wetlands Protection Act of the Sherborn Wetlands Bylaw. Any work proposed within 100 feet of such areas shall be subject to the jurisdiction of the Sherborn Conservation Commission.

Hazardous Waste

No hazardous waste shall be discharged on the site. Hazardous materials stored, used, or generated on site shall not exceed the amount for a Very Small Quantity Generator of Hazardous Waste as defined by the Massachusetts Department of Environmental Protection pursuant to 310 CMR 30.000 and shall meet all requirements of the Department of Environmental Protection including storage of hazardous materials in a building with an impervious floor that is not adjacent to any floor drains to prevent discharge to the outdoor environment.

If any hazardous materials, including, but not limited to, lithium-ion storage batteries, are used within the solar electric equipment, then impervious containment areas capable of controlling and containing any release of hazardous materials to the environment and to prevent potential contamination of groundwater are required.

To mitigate the potential for hazardous materials release from any proposed transformers, only non-toxic biodegradable transformer fluid or dry cooled transformers are to be used.

A list of any hazardous materials proposed to be located on the site and a plan to prevent their release shall be provided to the Planning Board and Fire Chief.

Mitigation

Mitigation for Loss of Wildlife Habitat within the Facility

If undeveloped forested land is proposed to be converted to a Large-Scale Ground-Mounted Solar Photovoltaic Facility, the plans shall show mitigation measures that create a native wildlife habitat within and immediately around the facility and a successional forest in the surrounding areas managed to prevent shading until the facility is decommissioned and the site restored to forest.

Mitigation for Loss of Carbon Sequestration and Forest

If undeveloped forested land is proposed to be converted to a Large-Scale Ground-Mounted Solar Photovoltaic Facility, the plans shall designate an area of unprotected land (i.e., land that could otherwise be developed under current zoning) either on the same parcel, on a contiguous parcel(s) or a location within Sherborn approved by the Planning Board following consultation with the Conservation Commission, to be preserved.. Such designated land shall remain in substantially its natural condition without alteration except for routine natural resources management practices until such time as the facility is decommissioned . The special permit shall be conditioned to effect and make enforceable this requirement.

The plans shall estimate both the carbon lost in the converted area and the carbon stored in the forest area to be protected. The estimated carbon in the protected area must be greater than the estimated carbon in the trees to be removed. The calculation of carbon stored will be done using a widely accepted forestry approach approved by the Planning Board.

Up to one-half of the above-required area of forest protection mitigation can be alternatively met by the option of protected reforestation of a separate designated area. The reforestation plan shall be designed such that the stored carbon per acre by year 10 will be at least equal to the stored carbon per acre of the converted forest. Such a reforested area can substitute on a one for one basis with protected forest area.

Sound

Noise generated by ground-mounted solar photovoltaic facilities, cooling fans, inverters, associated equipment, and machinery shall conform at a minimum to applicable state and local noise regulations, including the Department of Environmental Protection's Division of Air Quality noise regulations (310 CMR 7.10)⁴.

⁴ [310 CMR 7.00: Air Pollution Control | Mass.gov](http://www.mass.gov/dep/air-pollution-control)

The sound levels under normal operating conditions, measured at the boundary of the lot on which the facility is sited, shall not be more than 10 decibels greater than would otherwise exist in the absence of such a facility.

Noise reduction shall be considered and incorporated as needed during the design phase of the facility including the location of the noise generator, shielding, noise cancellation, filtering, and noise suppression.

5.10.16 Monitoring and Maintenance

Construction Monitoring

The Planning Board may require a third-party inspector, selected by and acting under the direction of the Building Inspector, to be employed to monitor compliance with all approvals and conditions during the Large-Scale Ground-Mounted Solar Photovoltaic Facility's construction at the applicant's expense.

Maintenance

The Large-Scale Ground-Mounted Solar Photovoltaic Facility owner or operator shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the solar photovoltaic facility and any access road(s), unless accepted as a public way. As much as possible, consideration should be given to performing operations and maintenance using electric vehicles and equipment to decrease noise and air pollution.

Reporting

The owner or operator of a Large-Scale Ground-Mounted Solar Photovoltaic Facility shall submit an annual report demonstrating and certifying compliance with the Operation and Maintenance Plan, the requirements of this bylaw and approvals granted hereunder, including but not limited to continued management and maintenance of vegetation, compliance with the approved plans and any permit conditions, continuation of liability insurance, adequacy of road access, and functionality of stormwater management systems. The annual report shall also provide information on the maintenance completed during the year and the amount of electricity generated by the facility. The report shall be submitted to the Select Board, Planning Board, Fire Chief, Building Commissioner, DPW Director, Board of Health, and Conservation Commission (if a wetlands permit was issued) no later than 45 days after the end of the calendar year.

5.10.17 Special Permit Criteria for Facilities Outside the Overlay District

The Planning Board may grant a special permit for a Large Scale Ground-Mounted Solar Photovoltaic Facility outside the Overlay District where it makes the following findings:

1. The proponent has demonstrated the project reflects every reasonable effort to minimize the volume of cut and fill; the disturbance of soil profile, structure and soil compaction; the number of removed trees 6-inch caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution;
2. The proposed project promotes pedestrian and vehicular safety both on the site and egressing from it;
3. The proposed project does not create adverse visual impacts from publicly accessible locations;
4. Visual intrusions have been satisfactorily mitigated by controlling the visibility of the area viewed from public ways or premises residentially used or zoned;
5. Noise from operation shall conform with the provisions of the Massachusetts Department of Environmental Protection (DEP) Division of Air Quality Noise Regulations (310CMR 7.10) as most recently amended.
6. The proponent has demonstrated that proposed land clearing, disturbance of natural vegetation, and loss of habitat is limited only to what is necessary for the construction, operation and maintenance of the large scale ground-mounted solar photovoltaic facility;
7. The proposed project will comply with all relevant provisions of this Zoning Bylaw;
8. The project, taken as a whole and with all mitigation efforts accounted for, will not have an unreasonably detrimental effect on the surrounding area.

5.10.18 Modifications

All material modifications to a Large-Scale Ground-Mounted Solar Photovoltaic Facility made after site plan review or special permit approval or issuance of the required building permit shall require approval by the Planning Board.

5.10.19 Transfer of Ownership

If the Large-Scale Ground-Mounted Solar Photovoltaic Facility is sold, all municipal permits, conditions, and associated documentation shall remain in effect, provided that the successor owner or operator assumes in writing all the obligations of the site plan approval or special permit, and shall be provided in both digital and hard copy format to the new owner. A new owner or operator of the facility shall notify the Planning Board and the Building Inspector of such change in ownership or operator within 30 days of the ownership change. Failure to notify the Planning Board and Building Inspector within 30 days of the transfer of ownership shall be considered abandonment in accordance with the Abandonment section of this bylaw.

The site plan or special permit and all other local approvals for the facility would be void if a new owner or operator fails to provide written notification to the Planning Board and the Building Inspector in the required timeframe. Reinstatement of a site plan approval or void special permit and any other local approvals will be subject to the same review and approval processes for new applications under the Town's bylaws and regulations.

The Planning Board must be provided with updated contact information for the new owner, including name, address, telephone number, and e-mail address. Authorities having jurisdiction, including local emergency personnel, must be provided with updated emergency contact information, including an emergency contact number that is staffed 24 hours a day. The new owner must abide by all conditions as detailed in the final permit. Any proposed changes to the project shall require approval as described in the Modifications section of this zoning bylaw.

5.10.20 Abandonment or Decommissioning

Removal Requirements

Any Large-Scale Ground-Mounted Solar Photovoltaic Facility, or any substantial part thereof, not used in the production of electricity for a period of one continuous year or more without written permission from the Planning Board, or is operating at less than 25% of its nameplate capacity, or that has reached the end of its useful life, or has been abandoned consistent with the Abandonment section of this bylaw, shall be considered discontinued and shall be removed.

Upon written request from the Building Inspector, addressed to the contact address provided and maintained by the owner or operator as required above, the owner or operator shall provide evidence to the Building Inspector demonstrating continued use of the facility. Failure to provide such evidence within 30 days of such written request shall be conclusive evidence that the facility has been discontinued.

The owner or operator or landowner shall physically remove the facility no more than 150 days after the date of discontinued operations. The owner or operator or landowner shall notify the Town Clerk, Planning Board, DPW Director, Conservation Commission and/or Building Inspector by certified mail of the proposed date of discontinued operations and plans for removal. Removal shall consist of:

- a) Physical removal of all Large-Scale Ground-Mounted Solar Photovoltaic Facility structures, equipment, security barriers, and transmission lines from the site.
- b) Recycling of all possible materials and removal of all remaining solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- c) Stabilization or revegetation of the site as necessary to minimize erosion and prevent impacts to wetlands or water bodies. The Planning Board may allow the owner or operator to leave landscaping or designated below-grade foundations (provided they are filled in) to minimize

erosion and disruption to vegetation. This requirement may be waived if the landowner submits a plan for re-use of the site.

Abandonment

Absent notice to the Planning Board of a proposed date of decommissioning or written notice of extenuating circumstances, the Large-Scale Ground-Mounted Solar Photovoltaic Facility shall be considered abandoned when it fails to operate for more than one year without the written consent of the Planning Board. If the owner or operator of the solar energy system fails to remove the facility in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the town retains the right, after the receipt of an appropriate court order, to enter and remove an abandoned, hazardous, or decommissioned large-scale ground-mounted solar energy system. As a condition of Site Plan Approval, the applicant and landowner shall agree to allow entry to remove an abandoned or decommissioned facility. The town may use the financial surety as stipulated in Financial Surety section for this purpose.

5.10.21 Financial Surety

Proponents of Large-Scale Ground-Mounted Solar Photovoltaic Facility projects shall provide a form of surety, either through cash, certified bank check, escrow account, bond, or otherwise held by and for the Town, to cover the cost of facility removal and stabilization of the site in the event the town must remove the facility and remediate the landscape, in an amount and form determined to be reasonable by the Planning Board, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent. Such surety will not be required for town- or state-owned facilities.

The project proponent shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. Such estimate shall be reviewed by the Town and adjusted as needed to reflect the opinion of the Town as to fair costs. The amount shall also include a mechanism for updating removal costs every 5 years as costs may be affected by inflation and/or changes to disposal regulations. Salvage for solar panels and/or for other components of the facility may be included at the discretion of the Planning Board.

This surety will be due and payable prior to the issuance of the building permit, Proof of payment in the form of a receipt from the Town Treasurer will be shown to and prior to the clearing of the land and the start of any work on the site. the Building Inspector before the permits are issued. The financial surety shall be maintained by the proponent for the lifespan of the facility, with annual certification notices from the surety company or bank for surety bonds submitted to the Planning Board. As a condition of approval, an applicant shall bind itself to grant the necessary license or easement to the town to allow entry to remove the structures and stabilize the site. The town shall have the right but not the obligation to remove the facility.

5.10.22 Severability

If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby.

5.10.23 Appeals

Any person aggrieved by a decision of the Planning Board may appeal to the Board of Appeals as provided under M.G.L. c. 40A of the Commonwealth of Massachusetts. Any appeal from the decision of the Board must be filed within twenty (20) days of filing of the decision with the Town Clerk.