

Denslow Hill Solar

410 Denslow Hill Road Hamden, Connecticut 06514 Map 2626 Lot 33



LOCATION MAP 1"=1000'

Applicant LSE Libra LLC 40 Tower Lane, Suite 201 Avon, CT 06001

Owner Clover Ridge Hamden LLC 40 Tower Lane, Suite 201 Avon, CT 06001

Prepared By



J.R. Russo & Associates, LLC P.O. Box 938, 1 Shoham Rd East Windsor, CT 06088 www.jrrusso.com • CT 860.623.0569 • MA 413.785.1158

DRAWI

SHEET

<u>CIVIL</u> COVER EXISTI OVERA ARRAY EROSIC DETAILS

NG INDEX		
TITLE	SHEET NO.	LATEST REVISION
SHEET · · · · · · · · · · · · · · · · · ·	 1 of 6 2 of 6 3 of 6 4 of 6 5 of 6 6 of 6 	4-03-24 4-03-24 4-03-24 4-03-24 4-03-24 4-03-24 4-03-24





	ZUNE R-I	<u>ZUNE R-J</u>
IIN. LOT WIDTH:	200'	100'
IIN. AREA:	80,000 S.F.	20,000 S.F.
RONT YARD:	50'	40'
IDE YARD:	30'	15'
EAR YARD:	50'	40'
IAX. BLDG COVERAGE:	15%	20%
IAX. IMPERV. COVERAGE:	20%	25 %

PERMANENT SEEDING (PS)

SPECIFICATIONS

Time Of Year Seeding dates in Connecticut are normally April 1 through June 15 and August 15 through October 1. Spring seedings give the best results and spring seedings of all mixes with legumes is recommended. There are two exceptions to the above dates. The first exception is when seedings will be made in the areas of Connecticut known as the Coastal Slope and the Connecticut River Valley. The Coastal Slope includes the coastal towns of New London, Middlesex, New Haven, and Fairfield counties. In these areas, with the exception of crown vetch (when crown vetch is seeded in late summer, at least 35% of the seed should be hard seed (unscarified), the final fall seeding dates can be extended and additional 15 days. The second exception is frost crack or dormant seeding, the seed is applied during the time of year when no germination can be expected, normally November through February. Germination will take place when weather conditions improve, mulching is extremely important to protect the seed from wind and surface erosion and to provide erosion protection until the seeding becomes established.

Site Preparation

Grade in accordance with the Land Grading measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Install all necessary surface water controls.

For areas to be mowed remove all surface stones 2 inches or larger. Remove all other debris such as wire, cable tree roots, pieces of concrete, clods, lumps, or other unsuitable material.

Seed Selection

<u>Basins & Disturbed Areas outside of fenced array:</u> New England Erosion Control/Restoration Mix by New England Wetland Plants Inc. or Approved Equal.

<u>Disturbed Areas within fenced area:</u> Northeast Solar Pollinator Buffer Mix – ERNMX–610 by Ernst Conservation Seeds or approved eaua

Seedbed Preparation

Apply topsoil, if necessary, in accordance with the Topsoilina measure which is in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

Where soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent and limestone at 4 tons per acre or 200 pounds per 1,000 square feet.

Work lime and fertilizer into the soil to a depth of 3 to 4 inches with a disc or other suitable equipment.

Inspect seedbed just before seeding. If the soil is compacted, crusted or hardened, scarify the area prior to seeding.

Seed Application

Apply selected seed at rates per manufacturer's recommendations uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed, fertilizer). Normal seeding depth is from 0.25 to 0.5 inch. Increase seeding rates by 10% when hydroseeding or frost crack seeding. Seed warm season grasses during the spring period only.

See guidelines in the Mulch For Seed measures.

MAINTENANCE

Inspect temporary soil protection area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater during the first growing season.

Where seed has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

TEMPORARY SEEDING (TS)

SPECIFICATIONS

Site Preparation Install needed erosion control measures such as diversions, grade stabilization structures, sedimentation basins and arassed waterways in accordance with the approved plan.

Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Seedbed Preparation

Loosen the soil to a depth of 3–4 inches with a slightly roughened surface. If the area has been recently loosened or disturbed, no further roughening is required. Soil preparation can be accomplished by tracking with a bulldozer, discing harrowing, raking or dragging with a section of chain link fence.

Apply ground limestone and fertilizer according to soil test recommendations (such as those offered by the University of Connecticut Soil Testing Laboratory or other reliable source).

If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 300 pounds per acre or 7.5 pounds per 1,000 square feet of 10-10-10 or equivalent.

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder. The temporary seed shall be Rye (grain) applied at a rate of 120 pounds per acre. Increase seeding rates by 10% when hydroseeding.

Mulching See quidelines in the Mulch For Seed measures.

MAINTENANCE

Inspect temporary seeding area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater for seed and mulch movement and rill erosion.

Where seed has been moved or where soil erosion has occurred. determine the cause of the failure and repair as needed.

MULCH FOR SEED (MS)

SPECIFICATIONS

Materials

Types of Mulches within this specification include, but are not limited to:

1. Hay: The dried stems and leafy parts of plants cut and harvested, such as alfalfa, clovers, other forage legumes and the finer stemmed, leafy grasses. The average stem length should not be less than 4 inches. Hay that can be windblown should be anchored to hold it in place.

2. Straw: Cut and dried stems of herbaceous plants, such as wheat, barley, cereal rye, or brome. The average stem length should not be less than 4 inches. Straw that can be windblown should be anchored to hold it in place.

3. Cellulose Fiber: Fiber origin is either virgin wood,

post—industrial/pre—consumer wood or post consumer wood complying with materials specification (collectively referred to as "wood fiber"), newspaper, kraft paper, cardboard (collectively referred to as "paper fiber") or a combination of wood and paper fiber. Paper fiber, in particular, shall not contain boron, which inhibits seed germination. The cellulose fiber must be manufactured in such a manner that after the addition to and agitation in slurry tanks with water, the fibers in the slurry become uniformly suspended to form a homogeneous product. Subsequent to hydraulic spraying on the ground, the mulch shall allow for the absorption and percolation of moisture and shall not form a tough crust such that it interferes with seed germination or growth. Generally applied with tackifier and fertilizer. Refer to manufacturer's specifications for application rates needed to attain 80%–95% coverage without interfering with seed germination or plant growth. Not recommended as a mulch for use when seeding occurs outside of the recommended seeding dates.

Tackifiers within this specification include, but are not limited to: Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hydrophilic polymers, resins, viscosifiers, sticking aids and gums. Good for areas intended to be mowed. Cellulose fiber mulch may be applied as a tackifier to other mulches, provided the application is sufficient to cause the other mulches to adhere to one another. Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application.

Nettings within this specification include, but are not limited to: Prefabricated openwork fabrics made of cellulose cords, ropes, threads, or biodegradable synthetic material that is woven, knotted or molded in such a manner that it holds mulch in place until vegetation growth is sufficient to stabilize the soil. Generally used in areas where no mowing is planned.

Site <u>Preparation</u> Grade according to plans and allow for the use of appropriate equipment for seedbed preparation, seeding, mulch application and mulch anchoring.

Timing: Applied immediately following seeding. Some cellulose fiber may be applied with seed to assist in marking where seed has been sprayed, but expect to apply a second application of cellulose fiber to meet the requirements of Mulch For Seed in the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

Spreading: Mulch material shall be spread uniformly by hand or machine resulting in 80%-95% coverage of the disturbed soil when seeding within the recommended seeding dates. Applications that are uneven can result in excessive mulch smothering the germinating seeds. For hay or straw anticipate an application rate of 2 tons per acre. For cellulose fiber follow manufacture's recommended application rates to provided 80%–95% coverage.

When seeding outside the recommended seeding dates, increase mulch application rate to provide between 95%-100% coverage of the disturbed soil. For hay or straw anticipate an application rate to 2.5 to 3 tons per acre.

When spreading hay mulch by hand, divide the area to be mulched into approximately 1,000 square feet and place 1.5-2 bales of hay in each section to facilitate uniform distribution.

For cellulose fiber mulch, expect several spray passes to attain adequate coverage, to eliminate shadowing, and to avoid slippage.

Anchoring: Expect the need for mulch anchoring along the shoulders of actively traveled roads, hill tops and long open slopes not protected by wind breaks.

When using netting, the most critical aspect is to ensure that the netting maintains substantial contact with the underlying mulch and the mulch, in turn, maintains continuos contact with the soil surface. Without such contact, the material is useless and erosion can be expected to occur.

MAINTENANCE

Inspect mulch for seed area at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater until the grass has germinated to determine maintenance needs.

Where mulch has been moved or where soil erosion has occurred, determine the cause of the failure and repair as needed.

31st/.

verification.

SOIL ERSOION & SEDIMENT CONTROL NOTES

2. Any additional erosion/sediment control deemed necessary by the engineer during construction, shall be installed by the developer. In addition, the developer shall be responsible for the repair/replacement and/or maintenance of all erosion control measures until all disturbed areas are stabilized to the satisfaction of the town staff.

4. In all areas, removal of trees, bushes and other vegetation as well as disturbance of the soil is to be kept to an absolute minimum while allowing proper development of the site. During construction, expose as small an area of soil as possible for as short a time as possible. 5. The developer shall practice effective dust control per the soil

conservation service handbook during construction and until all areas are stabilized or surface treated. The developer shall be responsible for the cleaning of nearby streets of any debris from these construction activities. 6. All fill areas shall be compacted sufficiently for their intended

purpose and as required to reduce slipping, erosion or excess saturation. Fill intended to support buildings, structures, conduits, etc., shall be compacted in accordance with local requirements or codes.

7. Topsoil is to be stripped and stockpiled in amounts necessary to complete finished grading of all exposed areas requiring topsoil. The stockpiled topsoil is to be located as designated on the plans. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding.

8. Any and all fill material is to be free of brush, rubbish, timber, logs vegetative matter and stumps in amounts that will be detrimental to constructing stable fills. Maximum side slopes of exposed surfaces of earth to be 3:1 or as otherwise specified by local authorities.

Soil stabilization should be completed within 5 days of clearing or inactivity in construction.

10. Waste Materials — All waste materials (including wastewater) shall be disposed of in accordance with local, state and federal law. Litter shall be picked up at the end of each work day.

11. The Contractor shall maintain on-site additional erosion control materials as a contingency in the event of a failure or when required to shore up existing BMPs. At a minimum, the on-site contingency materials should include 30 feet of silt fence and 5 straw haybales with 10 stakes.

The proposed solar facility is located within sensitive habitat known to be used by northern long-eared bat ("NLEB"; Myotis septentrionalis), a Federally- and State-listed Endangered Species. order to protect this bat species and prevent incidental take, protection and conservation measures are proposed during construction and operation of the solar facility.

It is of the utmost importance that the Contractor complies with the requirement for implementation of these protective measures and the education of its employees and subcontractors performing work on the project site.

All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that these protection and conservation measures are implemented properly. APT will provide an education session for the Contractor prior to the start of construction activities on the potential presence of NLEB. The Contractor shall contact Dean Gustafson, Senior Biologist at APT, at least 5 business days prior to the start of any construction activities to schedule a pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 552-2033 or via email at dgustafson@allpointstech.com.

This protection program consists of several components: education of all contractors and sub-contractors prior to initiation of work on the site; protective and conservation measures; periodic inspection of the construction project; and, reporting. Details of the NLEB protection measures to be implemented in association with construction and operation of the facility are provided below.

a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT to emphasize the environmentally sensitive nature of the project, the rare species resources, and the requirement to diligently follow the Protective and Conservation Measures as described in sections below.

1. All soil erosion and sediment control work shall be done in strict accordance with the Connecticut Guidelines For Soil Erosion and Sediment Control latest edition.

3. All soil erosion and sediment control operations shall be in place prior to any grading operations and installation of proposed structures or utilities and shall be left in place until construction is completed and/or area is stabilized.

ENVIRONMENTAL NOTES - RESOURCES PROTECTION MEASURES

NORTHERN LONG-FARED BAT PROTECTION PROGRAM

1. Contractor Education

b. The Contractor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with any rare species. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

c. If any rare species are encountered, the Contractor shall immediately cease all work, avoid any disturbance to the species, and contact APT.

2. NLEB Tree Clearing Restriction

a. Tree clearing is restricted to occur only between November 1st/ through April 14th/, during the bat's inactive season, when NLEB bats would likely be in hibernacula and not present in forested habitat on the Site. Do not remove trees between April 15th/ through October

3. NLEB Conservation

a. Four (4) multi-chamber nursery bat houses will be installed in the western portion of the solar facility within a tree clearing area located between the western fenced edge of the facility and the western limit of tree clearing. Bat house boxes will be installed on pressure treated 20-foot long 4-inch by 4-inch posts embedded 4-feet into the ground. Bat house boxes will be painted black or a dark shade of paint and installed facing east to capture morning sun and attain sun exposure for a minimum of 6-8 hours/day, ideal conditions for rearing young bat pups.

4. Reporting

a. A Compliance Monitoring Report (brief narrative and applicable photos) documenting each APT inspection will be submitted by APT to the contractor and permittee for compliance verification. APT will perform inspections at the pre-construction meeting and during installation of the bat houses. Any observations of rare species will be included in the reports.

b. Following completion of the construction project, APT will provide a Final Compliance Monitoring Report to the permittee documenting implementation of this NLEB protection and conservation program and any species observations. The permittee shall provide a copy of the Final Compliance Monitoring Report to the Connecticut Siting Council for compliance

c. Any observations of rare species will be reported to DEEP by APT on the appropriate special animal reporting form, with photo-documentation (if possible) and specific information on the location and disposition of the animal.

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT

GEOTEXTILE SILT FENCE (GSF)

NOT TO SCALE

NOTE: MAY BE USED AS ALTERNATIVE TO GEOTEXTILE SILT FENCE.

CHECKLIST FOR EROSION CONTROL PLAN

PROJECT: Lodestar Energy

LOCATION: 410 Denslow Hill Road, Hamden, CT PROJECT DESCRIPTION: Construction of a solar array

PARCEL AREA: 11.05± acres

RESPONSIBLE PERSONNEL: Sam Valone, Lodestar Energy (860) 308-8013 EROSION AND SEDIMENT CONTROL PLAN PREPARER: J.R. Russo & Associates, LLC

CHECKIIST

Work Description Erosion & Sediment Control Measures	Location	Date Installed	Initials	Date Removed	Initials
Install construction entrance	As shown on plan.				
Install perimeter sediment barriers	As shown on plan.				

MAINTENANCE OF MEASUDE

MAINTENANCE OF MEASURES:						
Location	Description or Number	Date	Initials			

<u>Project Dates:</u>

Date of groundbreaking for project: Date of final stabilization:

PROJECT NARRATIVE AND CONSTRUCTION SEQUENCE

This project is located at 336 & 410 Denslow Hill Road in Hamden, Connecticut. The proposed activity is the construction of a solar array. The suggested schedule of construction is as

- 1. Conduct a pre-construction meeting on-site with the contractor to review the design and requirements of the Stormwater Pollution Control Plan.
- 2. Install perimeter silt fence/silt sock (GSF) downgradient of the construction activities as shown on the project plans. Clear trees & grub stumps in the vicinity of the Denslow Hill Road entrance. Construct
- anti-tracking pad. Clear trees. Grub stumps within security fence and vicitnity of stormwater management basins. Stumps outside of fence to remain. All debris to be removed from the site.
- Strip topsoil in the vicinity of the proposed stormwater management basins and access drives. Stockpile suitable amount of topsoil for reuse on-site in areas shown. Stockpiles shall be surrounded by sediment barriers (GSF). Construct and stabilize access drives and stormwater management basins. Seed & mulch to
- establish vegetation as soon as practicable. Install foundations and solar panels.
- Install electrical equipment and distribution lines. Install security fence.
- 10. Restore all disturbed areas with topsoil, seed mix and mulch as soon as practicable. 11. Remove silt fence after site is fully stabilized.

Construction of this site is anticipated to begin in the fall of 2024 and be complete by summer 2025, pending approvals. Temporary erosion control measures shall be installed prior to any soil disturbance and maintained throughout construction until soils have been stabilized with permanent vegetation.

The Contractor shall keep the area of disturbance to a minimum and establish vegetative cover on exposed soils as soon as practical. All soil and erosion control measures shall be installed and maintained in accordance with these plans and the "Connecticut DEP Guidelines for Soil Erosion and Sediment Control", as amended. The Contractor shall verify all conditions noted on the plans and shall immediately notify the Engineer of any discrepancies.

The developer shall be responsible for the repair/replacement/maintenance of all erosion control measures until all disturbed areas are stabilized. Accumulated sediment shall be removed as required to keep silt fence functional. In all cases, deposits shall be removed when the accumulated sediment has reached one-half above the ground height of the silt fence. This material is to be spread and stabilized in areas not subject to erosion, or to be used in areas which are not to be paved or built on. Silt fence (GSF) is to be replaced as necessary to maintain proper filtering action. Silt fence (GSF) are to remain in place and shall be maintained to insure efficient sediment capture until all areas above the erosion checks are stabilized and vegetation has been established.

