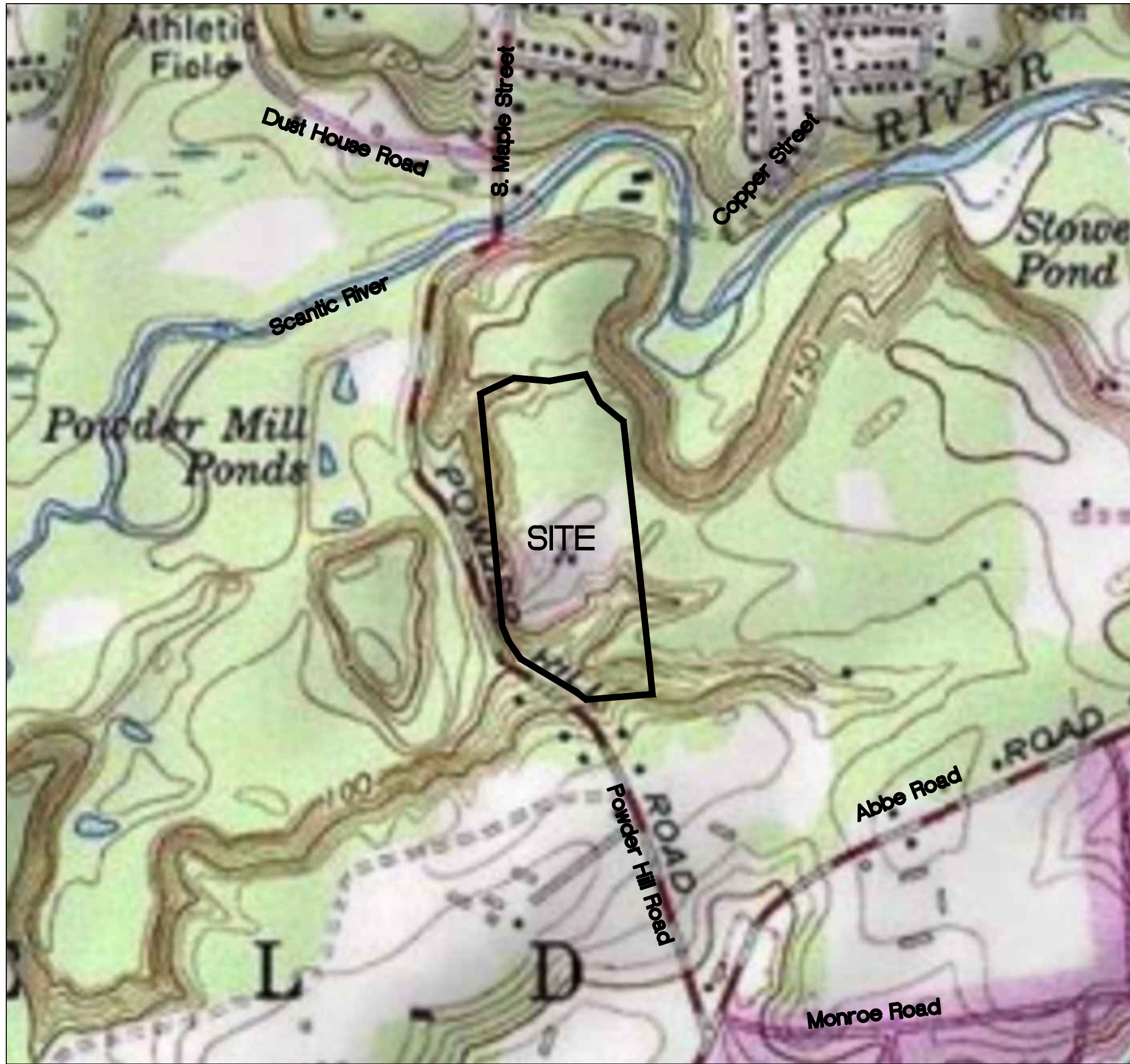


Powder Hill Road Solar

Powder Hill Road
Enfield, Connecticut
Map 084 Lot 0015 Zone: R88



SITE LOCUS MAP

1"=500'

Owner
Powder Hill Sand & Gravel, LLC
38 Post Office Road
Enfield, CT 06082

Applicant
LSE Delphinus LLC
140 Tower Lane, Suite 145
Avon, CT 06001



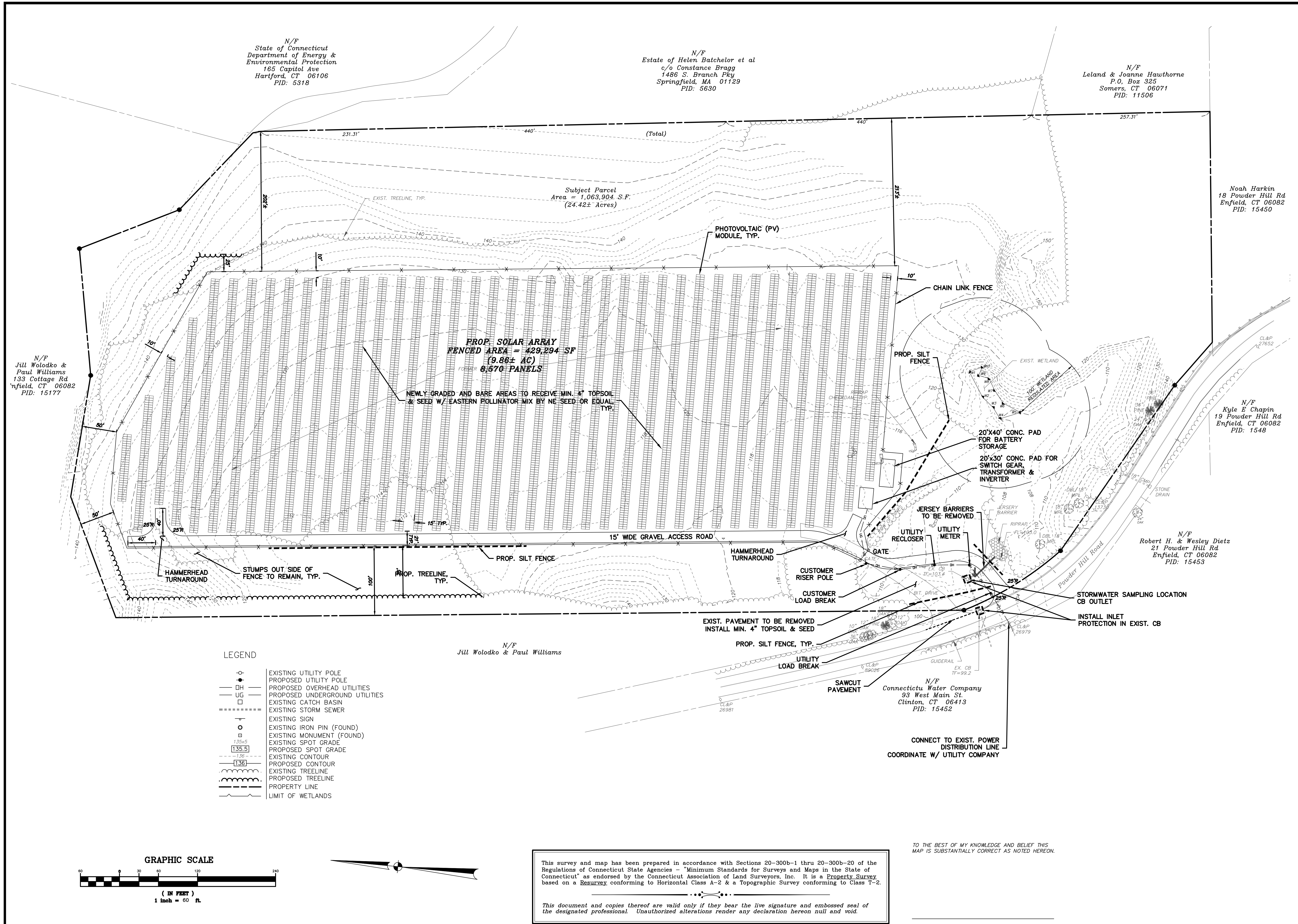
Prepared By




DRAWING INDEX


SHEET TITLE	SHEET NO.	LATEST REVISION
CIVIL		
COVER SHEET	1 of 6	9-10-19
EXISTING CONDITIONS	2 of 6	9-10-19
OVERALL SITE PLAN	3 of 6	9-10-19
SITE PLAN	4 of 6	9-10-19
EROSION & SEDIMENT CONTROL NOTES	5 of 6	9-10-19
DETAILS	6 of 6	9-10-19

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RUSSO
SURVEYORS & ENGINEERS
SERVING CT & MA



LODESTAR ENERGY

REVISIONS	
BY: LF/TAC	CHK: JEU

Powder Hill Road Solar

Prepared For
LSE Delphinus LLC

Powder Hill Road
Enfield, CT

Map 084 Lot 0015 Zone: R88

Site Plan

DATE	9-10-19
SCALE	1"=60'
JOB NUMBER	2018-059
SHEET	4 of 6

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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. All disturbed areas are to be seeded with the Solar Farm Seed Mix as soon as possible after placement of topsoil. Stormwater basin shall be seeded upon completion of construction and removal of accumulated sediment. Strips between panels shall be overseeded with Eastern Pollinator Mix upon completion of installation of panels and electric conduit.

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
General Seeding: Eastern Pollinator Mix by N.E. Seed or approved equal.

Seedbed Preparation
Apply topsoil, if necessary, in accordance with the Topsoiling 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.

Mulching
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.

DUST CONTROL (DC)

SPECIFICATIONS

Mechanical Sweeping
Use mechanical sweeping on paved areas where dust and fine materials accumulate as a result of truck traffic, pavement saw cutting spillage, and wind or water deposition from adjacent disturbed areas. Sweep daily in heavily traveled areas.

Water
Periodically moisten exposed soil surfaces on unpaved travelways to keep the travelway damp.

Non-Asphaltic Soil Tackifier
Non-asphaltic soil tackifier consists of an emulsified liquid soil stabilizer of organic, inorganic or mineral origin, including, but not limited to the following: modified resins, calcium chloride, complex surfactant copolymers or high grade latex acrylics. The solutions shall be non-asphaltic, non toxic to human, animal and plant life, non corrosive and nonflammable. Materials used shall meet local, state and federal guidelines for intended use. All materials are to be applied according to the manufacturer's recommendations and all safety guidelines shall be followed in storing, handling and applying materials.

MAINTENANCE
Repeat application of dust control measures when fugitive dust becomes evident.

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

Application
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 continuous 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.

TEMPORARY SEEDING (TS)

SPECIFICATIONS

Site Preparation
Install needed erosion control measures such as diversions, grade stabilization structures, sedimentation basins and grassed 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.

Seeding
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 guidelines 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.

SOIL EROSION & SEDIMENT CONTROL NOTES

- 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.
- 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.
- 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.
- 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.
- 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, as ordered by the town, of any debris from these construction activities.
- 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.
- 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.
- 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.
- 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.
- 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.

CHECKLIST FOR EROSION CONTROL PLAN

PROJECT: Powder Hill Road Solar
LOCATION: Powder Hill Road, Enfield, CT
PROJECT DESCRIPTION: Construction of 10± acres of ground mounted solar panels.
PARCEL AREA: 24.4 acres
RESPONSIBLE PERSONNEL: LSE Delphinus LLC, Kevin Midea (410) 274–2716
EROSION AND SEDIMENT CONTROL PLAN PREPARER: J.R. Russo & Associates, LLC

Work Description Erosion & Sediment Control Measures	Location	Date Installed	Initials	Date Removed	Initials
Install silt fence	As shown on plan.				
Install sediment barrier at CB	As shown on plan.				

MAINTENANCE OF MEASURES:			
Location	Description or Number	Date	Initials

Project Dates:
Date of groundbreaking for project:
Date of final stabilization:

PROJECT NARRATIVE AND CONSTRUCTION SEQUENCE

This project is located at the former Powder Hill Sand & Gravel LLC pit on Powdered Hill Road in Enfield, Connecticut. The proposed activity is the construction of a 2.0 MW AC photovoltaic solar facility. The suggested schedule of construction is as follows:

- Utilize existing 240' paved drive for site access during construction to minimize off-site tracking and dust.
- Install perimeter silt fence (GSF) in areas downgradient of the site as shown on the project plans.
- Clear trees. Grub stumps within proposed security fence. Stumps outside of security fence to remain. Fill stump holes as necessary.
- Install portion of access drive north of existing paved drive.
- Spread topsoil over all bare soil and disturbed areas. If prior to October 30th, seed all areas with permanent seed mix. If after October 30th, return in the spring to seed with the permanent seed mix.
- Install foundations and solar panels.
- Install electrical equipment and distribution lines.
- Install security fence.
- Demolish existing paved drive and install new gravel drive. Restore disturbed areas with topsoil and seed.
- Remove silt fence after site is fully stabilized.

Construction of this site is anticipated to begin in the Fall of 2019, pending approvals. Site work is anticipated to be completed within one construction season. 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 DEEP 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. Sediment deposits shall be periodically removed from the upstream sides of silt fence (GSF). 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 fences (GSF) are to be replaced as necessary to maintain proper filtering action. Silt fence (GSF) shall 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.



J.R. Russo & Associates, LLC
SURVEYORS-ENGINEERS
SERVING CT & MA
www.jrusso.com • info@jrusso.com



REVISIONS

BY: LF/TAC	CHK: JEU
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Powder Hill Road Solar

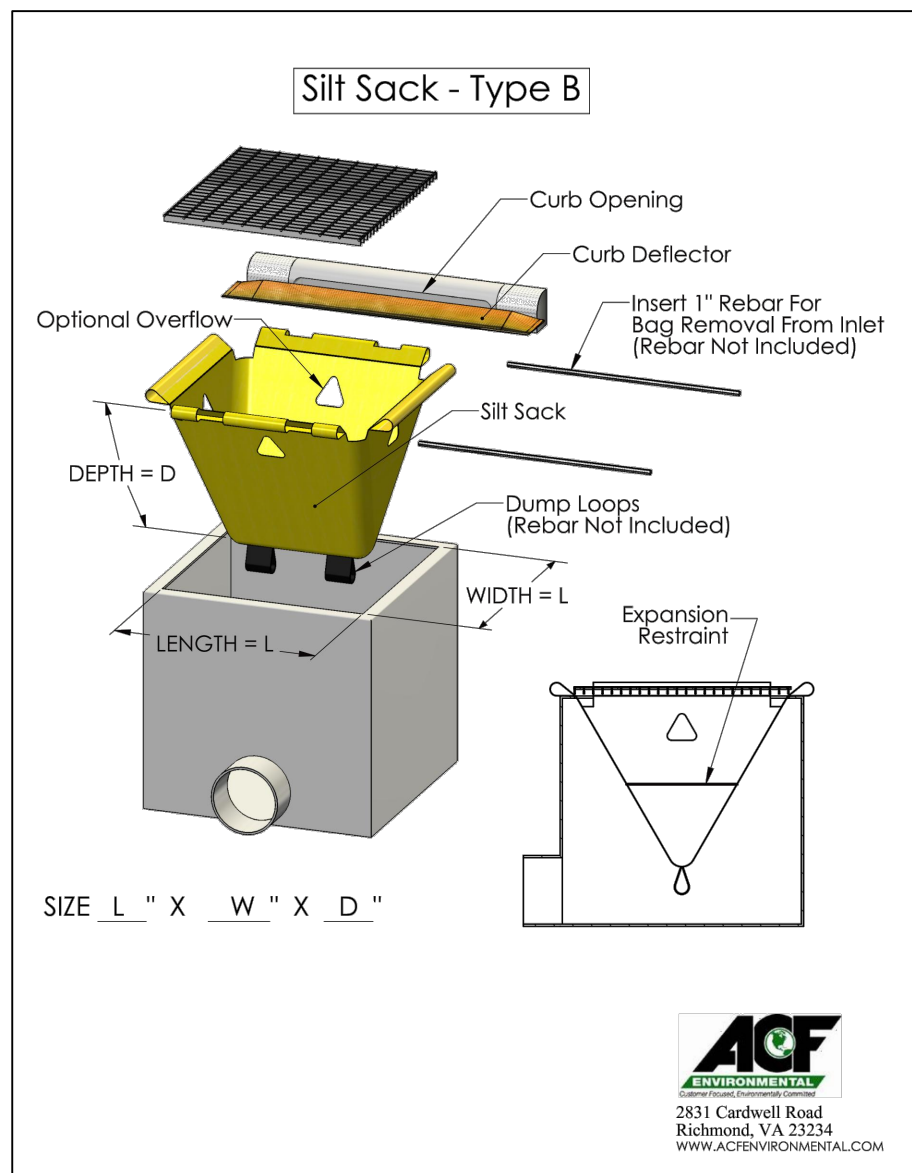
Prepared For
LSE Delphinus LLC

Powder Hill Road
Enfield, CT

Map 084 Lot 0015 Zone: R88

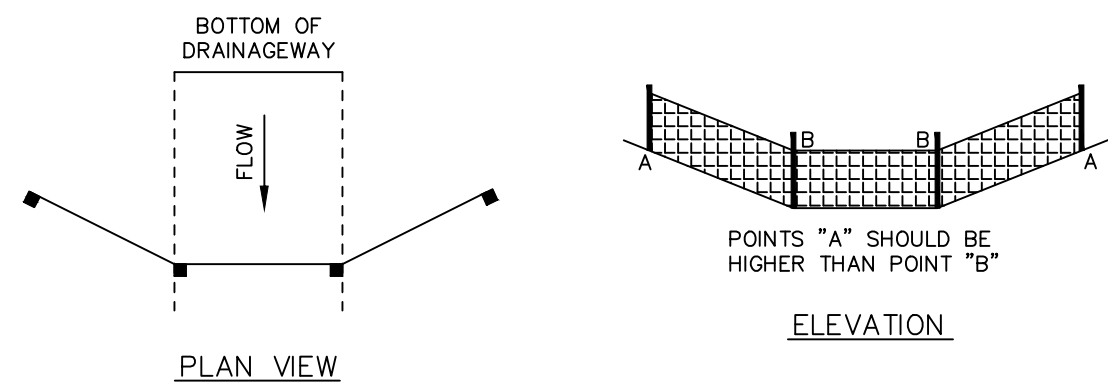
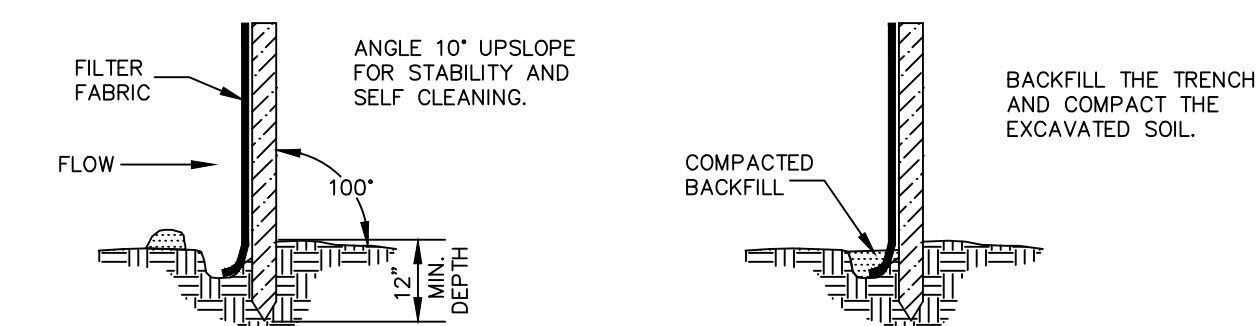
Erosion & Sediment Control Notes

DATE
9–10–19
SCALE
As Noted
JOB NUMBER
2018–059
SHEET
5 of 6



CB GRATE INLET PROTECTION (IP)

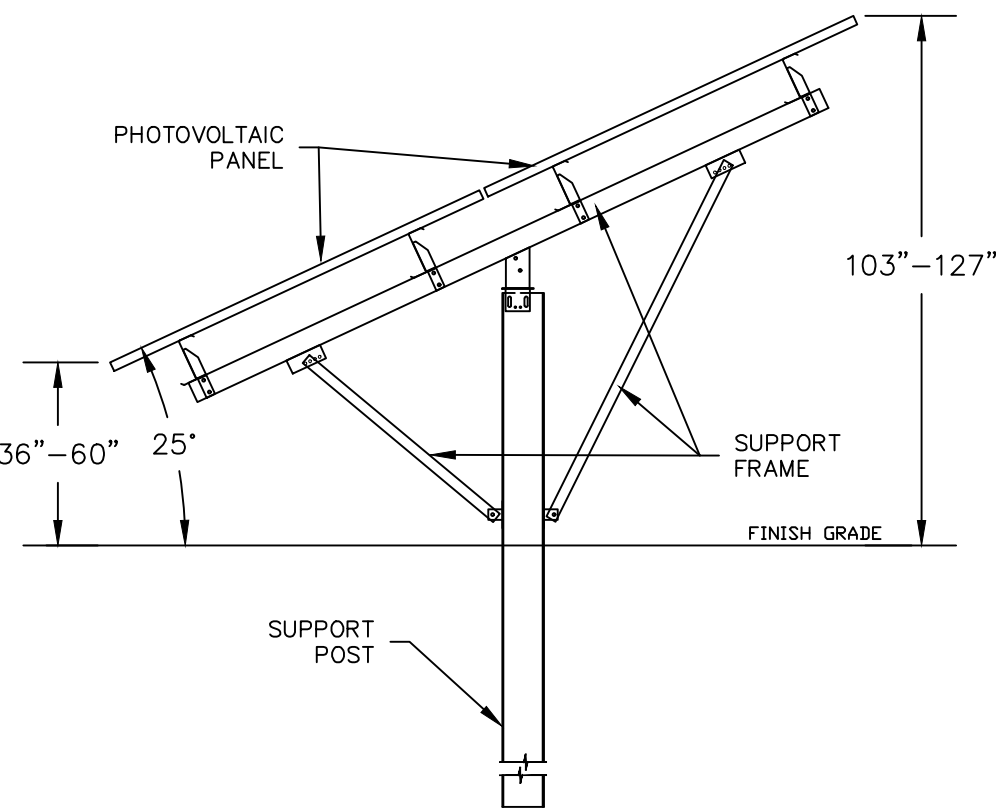
NOT TO SCALE



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

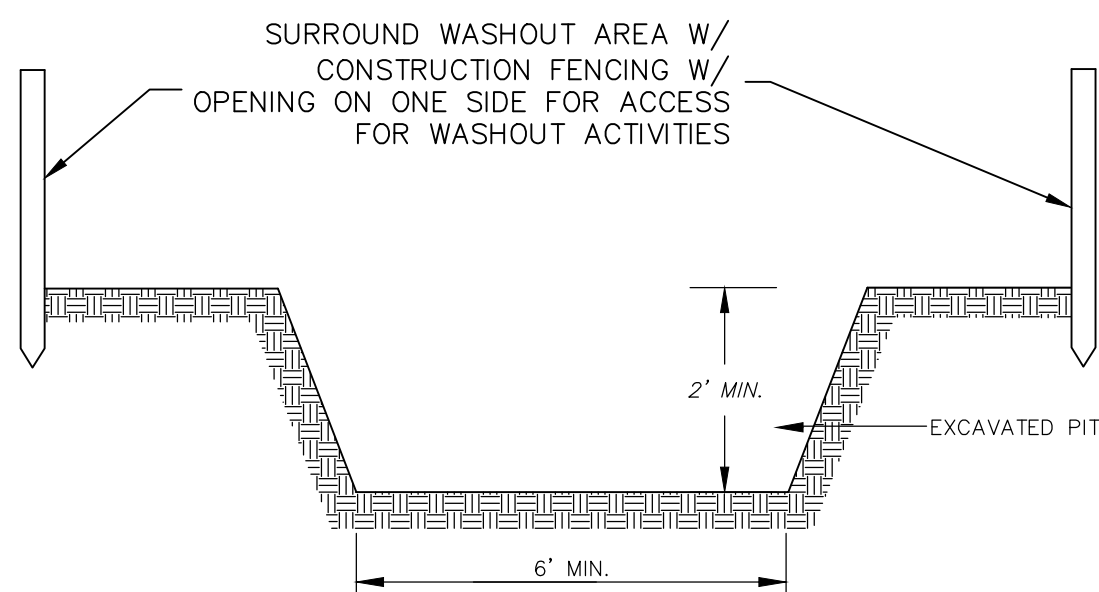
GEOTEXTILE SILT FENCE

NOT TO SCALE



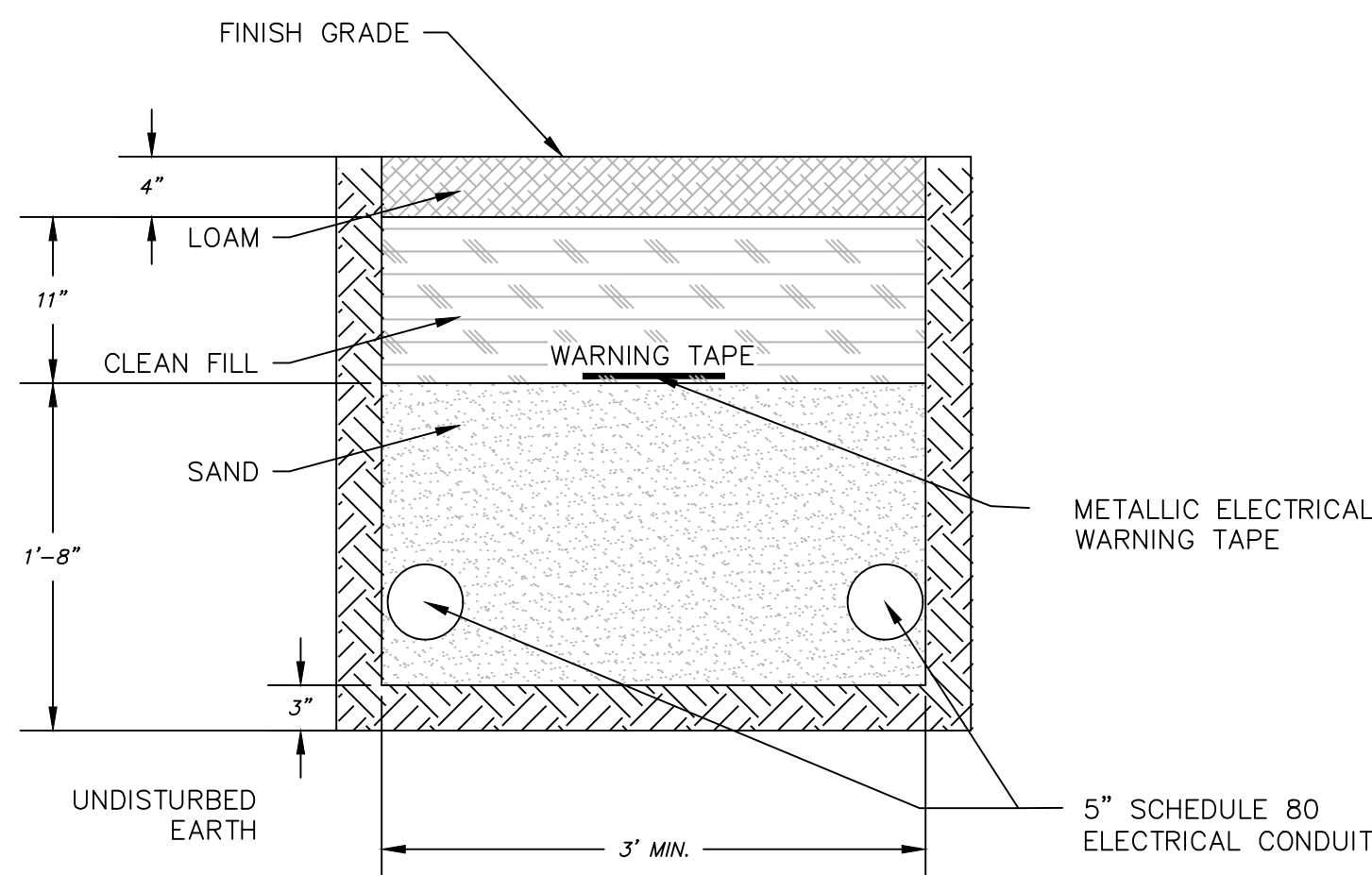
TYPICAL RACKING ELEVATION

NOT TO SCALE



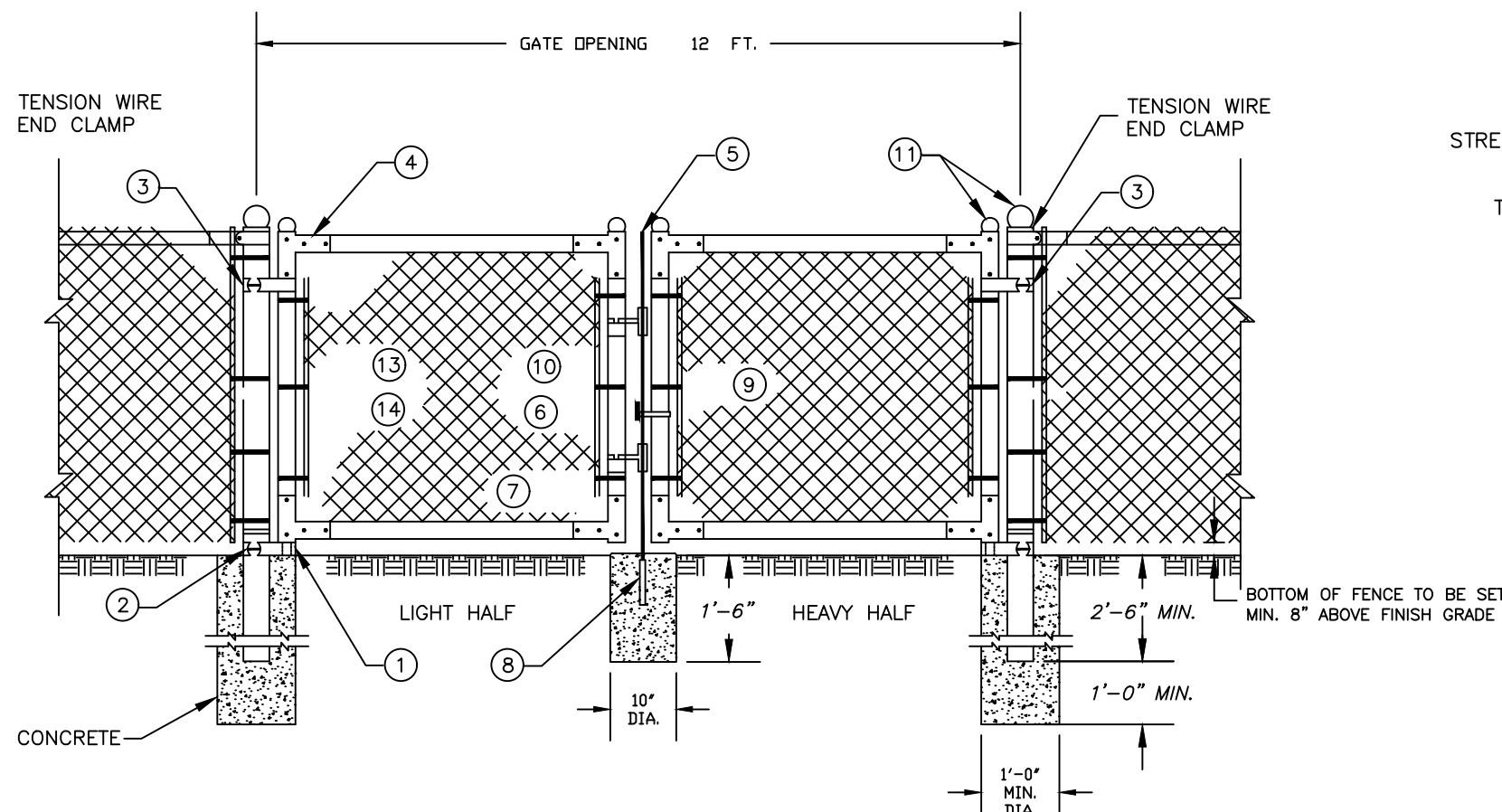
CEMENT TRUCK WASHOUT AREA

NOT TO SCALE



MEDIUM VOLTAGE CABLE TRENCH DETAIL (MV)

NOT TO SCALE



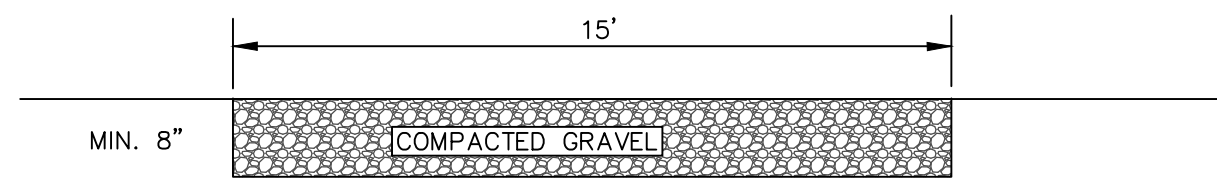
GATE DETAIL

LEGEND		
PART NO.	DESCRIPTION	QUANTITY
1	STRAIGHT PLUG	2
2	BOTTOM HINGE	2
3	TOP HINGE	2
4	CORNER ELBOW	8
5	PLUNGER ROD	1
6	LATCH FORK	2
7	FORK CATCH	2
8	PLUNGER ROD CATCH	1
9	LOCK KEEPER GUIDE	1
10	LOCK KEEPER	1
11	ORNAMENTAL TOPS	6
12	TRUSS RODS	4
13	STRETCHER BAR	4
14	HOOK BOLTS	12

NOTE:
THE FENCING SHALL BE #9 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH.

CHAIN LINK FENCE DETAIL

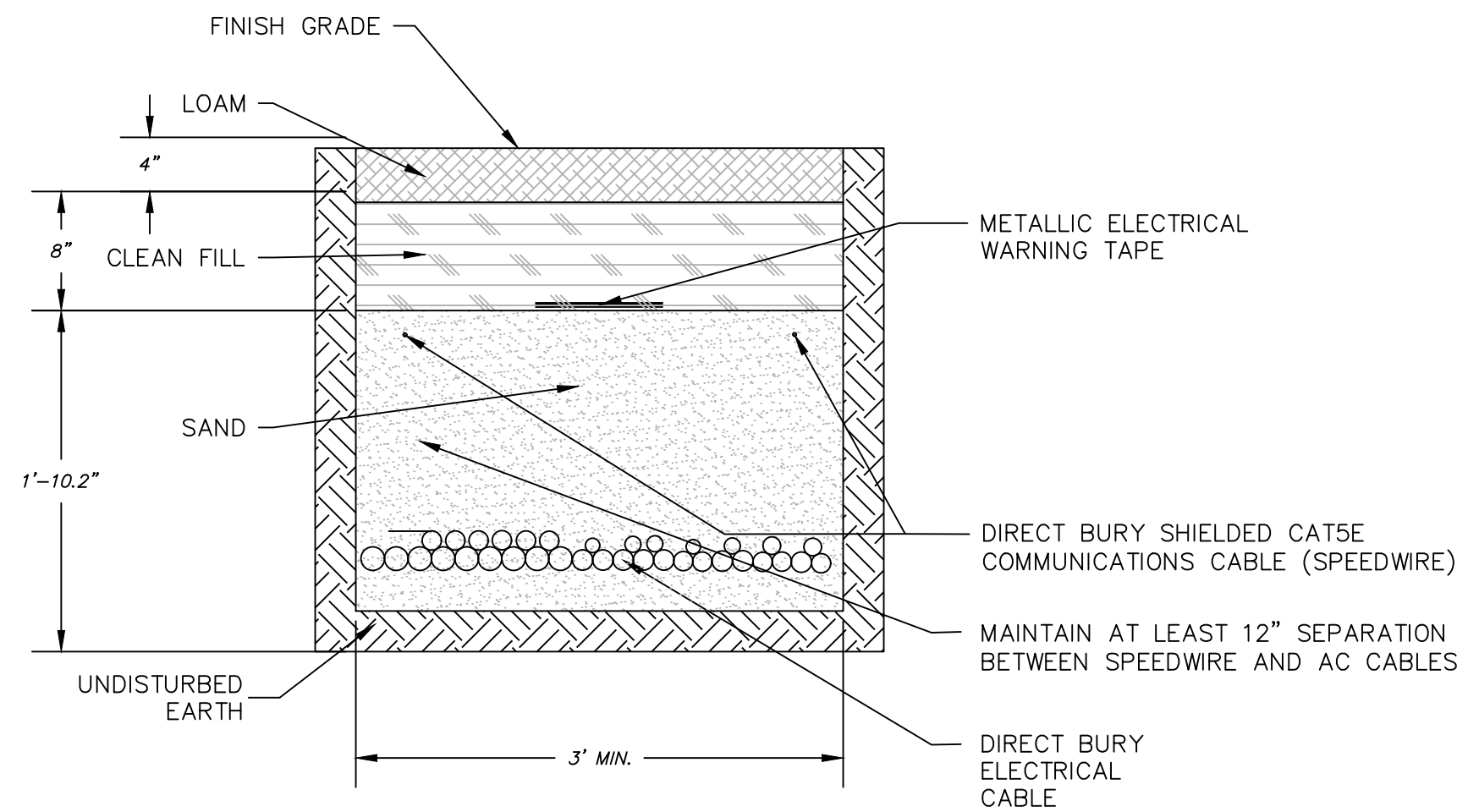
NOT TO SCALE



NOTES:
1. SUBGRADE SHALL BE EVALUATED IN THE FIELD FOR STABILITY. WHERE SUBGRADE IS WET OR CANNOT BE PROOF ROLLED WITHOUT SIGNIFICANT RUTTING OR MOVEMENT, ADDITIONAL STABILIZATION MEASURES WILL BE REQUIRED AND MAY INCLUDE EXCAVATION & INSTALLATION OF ADDITIONAL GRAVEL AND/OR INSTALLATION OF A GEOTEXTILE AS DIRECTED BY THE ENGINEER.
2. FINISH GRADE SHALL BE SET SO AS TO MAINTAIN EXISTING SHEET FLOW ACROSS THE DRIVEWAY.

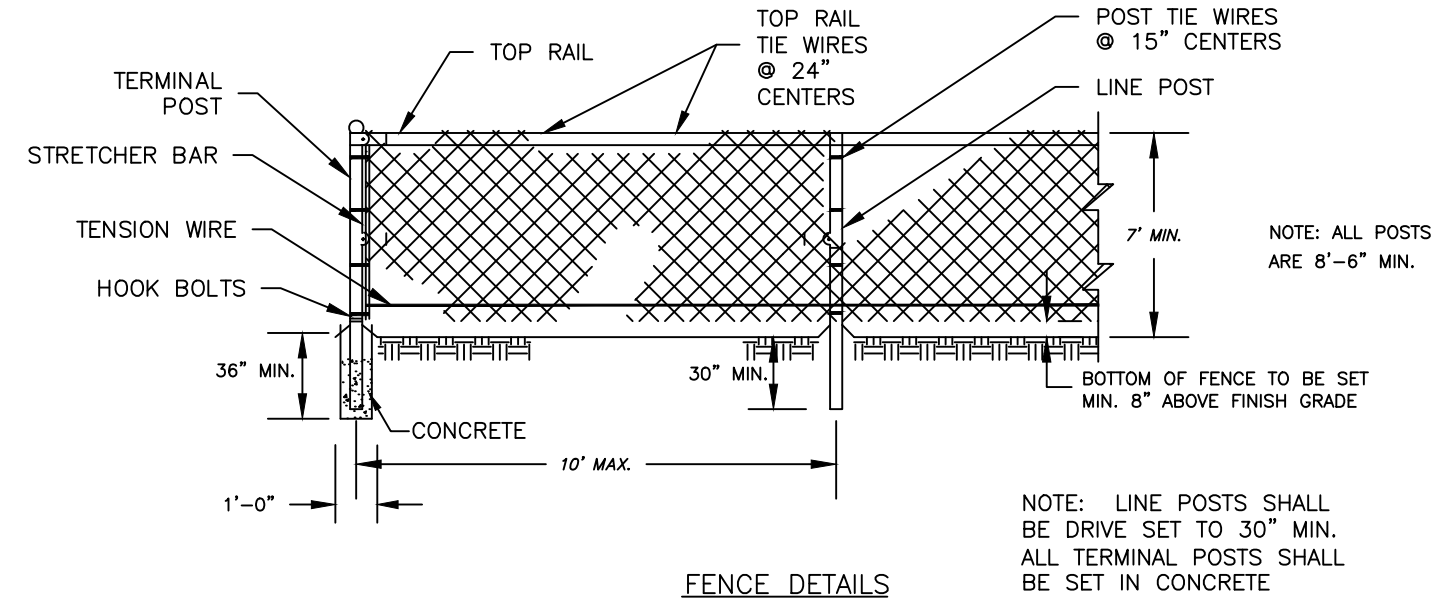
DRIVEWAY DETAIL

NOT TO SCALE



INVERTER POWER & COMMS CABLE TRENCH DETAIL (INV/C)

NOT TO SCALE



FENCE DETAILS

SHAPE, SIZE AND WEIGHT REQUIREMENTS FOR FENCE POSTS AND RAILS			
ITEM	SHAPE	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
** TERMINAL POSTS	ROUND	2.375	3.65
LINE POSTS	*ROUND	2.375	3.12
TOP & BRACE RAILS	*ROUND	1.90	2.72
	*ROUND	1.90	2.28
	*ROUND	1.66	2.27
	*ROUND	1.66	1.84

CONSTRUCTION NOTES

1. MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
2. ALL POSTS SHALL BE INSTALLED VERTICALLY. WHERE POSTS ARE INSTALLED ON AN INCLINED SURFACE, THE ANGLE OF THE POST SHALL BE ADJUSTED SO THAT THE POST WILL BE VERTICAL.
3. THE FENCING SHALL BE #9 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH.

GATE FRAME MEMBERS SIZE AND WEIGHT		
GATE FRAME	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	1.66	2.27
*ROUND	1.66	1.84

GATE POST SIZE AND WEIGHT		
GATE LEAF WIDTH OF 6 FT. OR LESS	OUTSIDE DIMENSIONS INCHES	WEIGHT LBS./LIN. FT.
ROUND	2.875	5.79
*ROUND	2.875	4.64