

KEY MAP
U.S.G.S. QUADRANGLE
"INDIAN MILLS"
(1"=2000')
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MAJOR SITE PLAN

TABERNAACLE SAND SOLAR

HAAS SAND AND GRAVEL PIT

TABERNAACLE SAND SOLAR, LLC

HATHAWAY SOLAR, LLC

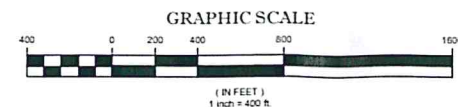
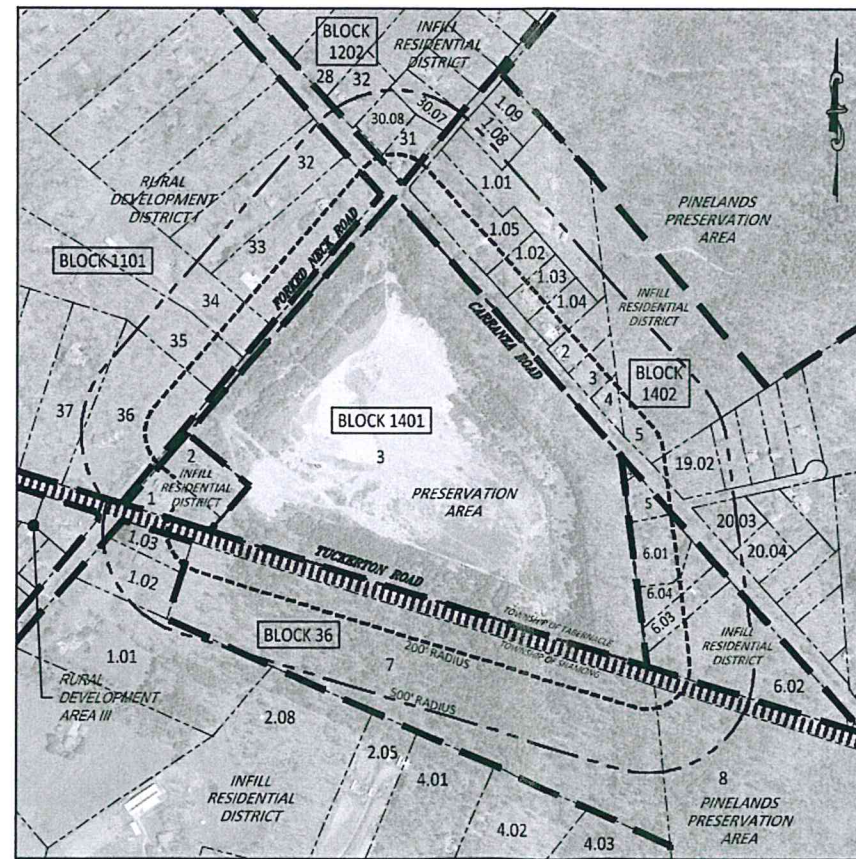
LOT 3 IN BLOCK 1401 (TAX MAP NO. 14)
TABERNAACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY



BERKELEY TOWNSHIP TAX MAP SHEET NO. 11, 12, AND 14
SCALE: 1" = 1,000'

GENERAL NOTES:

- PROPERTY KNOWN AS LOT 3, BLOCK 1401, AS SHOWN ON THE OFFICIAL TAX MAP OF TABERNAACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY.
- AREA= 2,548,623 S.F. OR 58.508 AC.
- LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE AS-BUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGUN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.
- THIS PLAN IS BASED ON INFORMATION PROVIDED BY THE CLIENT, A FIELD SURVEY PREPARED BY CARROLL ENGINEERING CORPORATION, AS WELL AS OTHER REFERENCE MATERIAL AS LISTED HEREON.
- EXISTING FIRM: BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS OF MINIMAL FLOOD HAZARD), PER REF. #2.
PRELIMINARY FIRM: BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS OF MINIMAL FLOOD HAZARD), PER REF. #3.
PRELIMINARY FIRM PANEL NOT PRINTED.
- THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88), BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETOPS).
TEMPORARY BENCH MARKS SET:
TBM-A: MAG NAIL SET IN ASPHALT DRIVE ELEVATION= 123.00'
TBM-B: X-CUT SET IN TOP OF CONCRETE FOOTING ELEVATION= 122.76'
PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SKETCH HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION.
- THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
- PER CONTRACTUAL AGREEMENT WITH THE CLIENT, DETAILED TOPOGRAPHIC FEATURES HAVE BEEN LIMITED TO THE PROPOSED DESIGN AREA (SAND PIT) AND ALONG A PORTION OF FORKED NECK ROAD.
- CONTOURS HAVE BEEN GENERATED WITHIN THE DESIGN AREA AND ALONG A PORTION OF FORKED NECK ROAD UTILIZING A LEICA SCANSTATION P40 3-D LASER SCANNER. CONTOURS OUTSIDE OF SAID AREA HAVE BEEN GENERATED UTILIZING NEW JERSEY STATE UAV LIDAR (2' CONTOURS).



APPLICANT:
TABERNAACLE SAND SOLAR, LLC
2045 LINCOLN HIGHWAY
EDISON, NJ 08817

OWNER:
HAAS SAND AND GRAVEL, LLC
PO BOX 2329
VINCENTOWN, NJ 08088-2329

SHEET INDEX:

SHEET NO.	SHEET NAME
1	COVER SHEET
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3	SITE PLAN
4	SITE PLAN
5	SOIL EROSION AND SEDIMENT CONTROL PLAN
6	SOIL EROSION AND SEDIMENT CONTROL NOTES
7	SOIL EROSION AND SEDIMENT CONTROL NOTES
8	CONSTRUCTION DETAILS
9	CONSTRUCTION DETAILS

REFERENCES:

- BOUNDARY AND TOPOGRAPHIC SURVEY ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY, BLOCK 1401 LOT 3, FORKED NECK ROAD AND CARRANZA ROAD SITUATED IN TABERNAACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY" PREPARED BY CARROLL ENGINEERING, DATED JUNE 9, 2022.
- THE OFFICIAL TAX ASSESSOR'S MAP OF TABERNAACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY, SHEET #12.
- MAP TITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, BURLINGTON COUNTY, NEW JERSEY, (ALL JURISDICTIONS), PANEL 415 OF 641", MAP NUMBER 3400500415F, EFFECTIVE DATE: DECEMBER 21, 2017.
- MAP TITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, BURLINGTON COUNTY, NEW JERSEY, (ALL JURISDICTIONS), PANEL 404 OF 641", MAP NUMBER 3400500404F, EFFECTIVE DATE: DECEMBER 21, 2017.

ORDINANCE 2021-10:

17-47E SOLAR ENERGY FACILITIES

SOLAR ENERGY FACILITIES SHALL BE PERMITTED AS A PRINCIPAL USE IN THE PRESERVATION AREA DISTRICT, PROVIDED THAT THE FOLLOWING STANDARDS ARE MET:

- THE SOLAR ENERGY FACILITY SHALL BE LOCATED ON THE PARCEL OF A RESOURCE EXTRACTION OPERATION AND:
 - THE FACILITY SHALL BE LIMITED TO THOSE PORTIONS OF THE PARCEL COMPRISED OF PREVIOUSLY MINED AREAS THAT HAVE NOT SUBSEQUENTLY BEEN RESTORED; COMPLEES
 - THE MAXIMUM ACREAGE OF THE SOLAR ENERGY FACILITY, INCLUDING THE AREA OF THE REQUIRED FIREBREAK, SHALL NOT EXCEED 25 ACRES; COMPLEES (17.2± ACRES) AND
 - THE REMAINDER OF THE PARCEL SHALL BE DEED RESTRICTED IN ACCORDANCE WITH SUBSECTION 17-33.5.B.1 OF THIS CHAPTER.
- THE ACQUISITION AND REDEMPTION OF 0.25 PINELANDS DEVELOPMENT CREDITS SHALL BE REQUIRED FOR EVERY FOUR ACRES OF THE COMBINED LAND AREA OCCUPIED BY THE SOLAR ENERGY FACILITY AND FIRE BREAK REQUIRED BY A.5 BELOW.
- THE SOLAR ENERGY FACILITY, INCLUDING ANY PROPOSED OFF-SITE INFRASTRUCTURE, SHALL BE LOCATED AND SCREENED WITH VEGETATION AND BY TOPOGRAPHY (WHERE FEASIBLE) TO MINIMIZE VISUAL IMPACTS AS VIEWED FROM:
 - THE WILD AND SCENIC RIVERS AND SPECIAL SCENIC CORRIDORS LISTED IN N.J.A.C. 7:50-6.105(A);
 - PUBLICLY DEDICATED ROADS AND HIGHWAYS;
 - LOW INTENSITY RECREATIONAL FACILITIES AND CAMPGROUNDS; AND
 - EXISTING RESIDENTIAL DWELLINGS LOCATED ON CONTIGUOUS PARCELS, (1) DECIDUOUS TREES SHALL BE AT LEAST 3.5 INCH CALIPER AND 14 FEET IN HEIGHT AT THE TIME OF PLANTING;

VEGETATED AREAS FOR VISUAL SCREENING OF THE SOLAR FACILITY SHALL NOT BE LESS THAN FIFTY FEET IN WIDTH AND CONSIST OF AT LEAST THREE ROWS OF TREES WITH ASSOCIATED UNDERSTORY PLANTS WHICH MAY INCLUDE EXISTING VEGETATION, NEW PLANTINGS, OR A COMBINATION THEREOF. NEW PLANTINGS SHALL BE CONSISTENT WITH THE REQUIREMENTS OF N.J.A.C. 7:50-6.21 ET SEQ. AND MEET THE FOLLOWING REQUIREMENTS:

- DECIDUOUS TREES SHALL BE AT LEAST 3.5 INCH CALIPER AND 14 FEET IN HEIGHT AT THE TIME OF PLANTING;
 - EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT AT PLANTING OF SIX FEET;
 - TREES SHALL BE PLANTED 10 FEET ON CENTER IN STAGGERED ROWS.
- IF THE DEVELOPMENT OF NEW OR EXPANSION OF EXISTING ON-SITE OR OFF-SITE INFRASTRUCTURE BE NECESSARY TO ACCOMMODATE THE SOLAR ENERGY FACILITY, CLEARING SHALL BE LIMITED TO THAT WHICH IS NECESSARY TO ACCOMMODATE THE INFRASTRUCTURE IN ACCORDANCE WITH SUBSECTIONS 17-35.1(A) AND (B) OF THIS CHAPTER. NEW RIGHTS-OF-WAY SHALL BE LIMITED TO A MAXIMUM WIDTH OF 20 FEET, UNLESS ADDITIONAL WIDTH IS NECESSARY TO ADDRESS SPECIFIC SAFETY OR RELIABILITY CONCERNS.
 - A FIREBREAK FIFTY FEET IN WIDTH OUTSIDE OF THE FENCED PERIMETER OF THE SOLAR ENERGY FACILITY IS REQUIRED. THE FIREBREAK AND AREA WITHIN THE FENCED PERIMETER OF THE SOLAR FACILITY MAY BE VEGETATED WITH GRASS SPECIES CONSISTENT WITH THE REQUIREMENTS OF N.J.A.C. 7:50-6.21 ET SEQ., BUT IN NO CASE SHALL THE COMBINED FOOTPRINT OF THE SOLAR ENERGY FACILITY AND FIREBREAK EXCEED 25 ACRES. COMPLEES (17.2± ACRES)
 - THE OWNER OF THE SOLAR ENERGY FACILITY SHALL MOW THE GRASSED AREAS PERMITTED BY A.5 ABOVE NOT LESS THAN TWO TIMES PER CALENDAR YEAR AND THE MAXIMUM PERMITTED HEIGHT ABOVE GRADE OF VEGETATION WITHIN SUCH AREAS SHALL BE 12 INCHES.
 - THE OWNER OF THE SOLAR ENERGY FACILITY SHALL ENSURE THAT THERE IS NO NEW TREE GROWTH WITHIN THE FOOTPRINT OF THE SOLAR ENERGY FACILITY AND 50 FOOT WIDE FIREBREAK, BUT IN NO EVENT SHALL THE AREA OF TREE MAINTENANCE OR REMOVAL EXCEED 25 ACRES AND NO MAINTENANCE OR REMOVAL OF TREES SHALL BE PERFORMED IN THE DEED RESTRICTED AREA FOR THE PURPOSE OF CONSTRUCTION OR OPERATION OF THE SOLAR ENERGY FACILITY.
 - PRIOR TO OPERATION (AND PERIODICALLY UPON REQUEST), THE OWNER OF THE SOLAR ENERGY FACILITY SHALL PROVIDE ORIENTATION AND TRAINING TO THE LOCAL FIRE DEPARTMENT AND OTHER FIRST RESPONDERS CONCERNING SAFE ENTRY AND OPERATION WITHIN THE SOLAR FACILITY FOR PROVISION OF EMERGENCY SERVICES



Carroll Engineering

105 Raider Boulevard Suite 206
Hillsborough, NJ 08844
Phone: (908) 874-7500 Fax: (908) 874-5762
Certificate of Authorization: #24GAZ7952100

CORPORATE OFFICE:
949 Easton Road Warrington, PA 18976
Phone: (215) 343-5700 Fax: (215) 343-0875

OTHER OFFICES:
630 Freedom Business Center Third Floor
King of Prussia, PA 19406
Phone: (610) 489-5100
101 Lindenwood Drive Suite 225 Mahan, PA 19355
Phone: (414) 875-3075

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THOMAS J. FIK
PROFESSIONAL ENGINEER
NJ LIC. NO. 24GE04591700

DATE: 9/6/2022

NO.	DATE	DESCRIPTION	INITIALS

COVER SHEET

MAJOR SITE PLAN
TABERNAACLE SAND SOLAR
HAAS SAND AND GRAVEL PIT
BLOCK 1401
LOT 3
SITUATED IN
TOWNSHIP OF TABERNAACLE
BURLINGTON COUNTY, NEW JERSEY
PREPARED FOR
TABERNAACLE SAND SOLAR, LLC
HATHAWAY SOLAR, LLC
2045 LINCOLN HIGHWAY
EDISON, NEW JERSEY 08817

DATE: 9/6/2022
CADD FILE: 21-5331-004
JOB NO: 21-5331-004

DSG BY: TJF
DWN BY: TJF/JAZ
CKD BY: TJF
SCALE: AS NOTED

DRAWER NUMBER:

SHEET: 1 OF 9 SHEETS

DRAWING NUMBER
200.4417



- NOTES:**
- PER TABERNACLE TOWNSHIP ORDINANCE NO. 2021-10, SOLAR PANELS SHALL BE SET BACK A MINIMUM OF 100 FEET FROM THE PROPERTY LINE. SOLAR INVERTERS SHALL BE SET BACK A MINIMUM OF 150 FEET FROM THE PROPERTY LINE.
 - MINIMAL GRADING TO SMOOTH OUT SURFACE IRREGULARITIES SHALL BE PERFORMED WITHIN THE AREA OF PERIMETER FENCE OF SOLAR FACILITY AND 50' FIREBREAK. SAME AREA SHALL BE VEGETATED WITH NATIVE GRASSES WHICH WILL BE MOWED NOT LESS THAN TWO (2) TIMES PER CALENDAR YEAR WITH A MAXIMUM PERMITTED HEIGHT ABOVE GRADE OF 12 INCHES.
 - TOTAL AREA WITHIN FIREBREAK TO BE RESTORED WITH VEGETATION: 17.2± ACRES.
 - AREA OF SOLAR ARRAY: 11.7± ACRES.
 - AREAS OF PREVIOUS SAND AND GRAVEL EXTRACTION OPERATIONS BEYOND FIREBREAK SHALL BE RESTORED BY THE OWNER/OPERATOR OF THE SOLAR FACILITY AFTER DECOMMISSIONING.
 - ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS).
 - SOLAR ENERGY FACILITY SHALL BE ENCLOSED WITH A FENCE THAT ADHERES WITH LOCAL ELECTRICAL AND BUILDING CODES. THE FENCE SHALL BE A MINIMUM OF SEVEN FEET IN HEIGHT WITH A MAXIMUM HEIGHT OF NINE FEET MADE OF 2" GALVANIZED MESH WITH TOP AND BOTTOM TENSION WIRE, SURROUND THE SOLAR FACILITY AND PREVENT UNAUTHORIZED ENTRY OF PERSONS OR VEHICLES INTO THE SOLAR AREA OF THE SOLAR ARRAY AND ANY OF THE SOLAR FACILITY'S ASSOCIATED INVERTERS AND TRANSFORMERS. A 'KNOX BOX' SHALL BE INSTALLED AT THE SITE ENTRANCE TO PROVIDE KEYED ENTRY TO FIRST RESPONDERS.



Carroll Engineering
 105 Raider Boulevard Suite 206
 Hillsborough, NJ 08844
 Phone: (908) 874-7500 Fax: (908) 874-5762
 Certificate of Authorization: #24GA27952100
CORPORATE OFFICE:
 949 Easton Road, Warminster, PA 18976
 Phone: (215) 343-5700 Fax: (215) 343-0875
OTHER OFFICES:
 630 Freedom Business Center - Third Floor
 King of Prussia, PA 19406
 Phone: (610) 489-5100
 101 Lindwood Drive, Suite 225 - Makers, PA 19355
 Phone: (610) 875-3075
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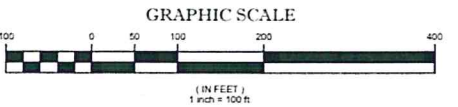
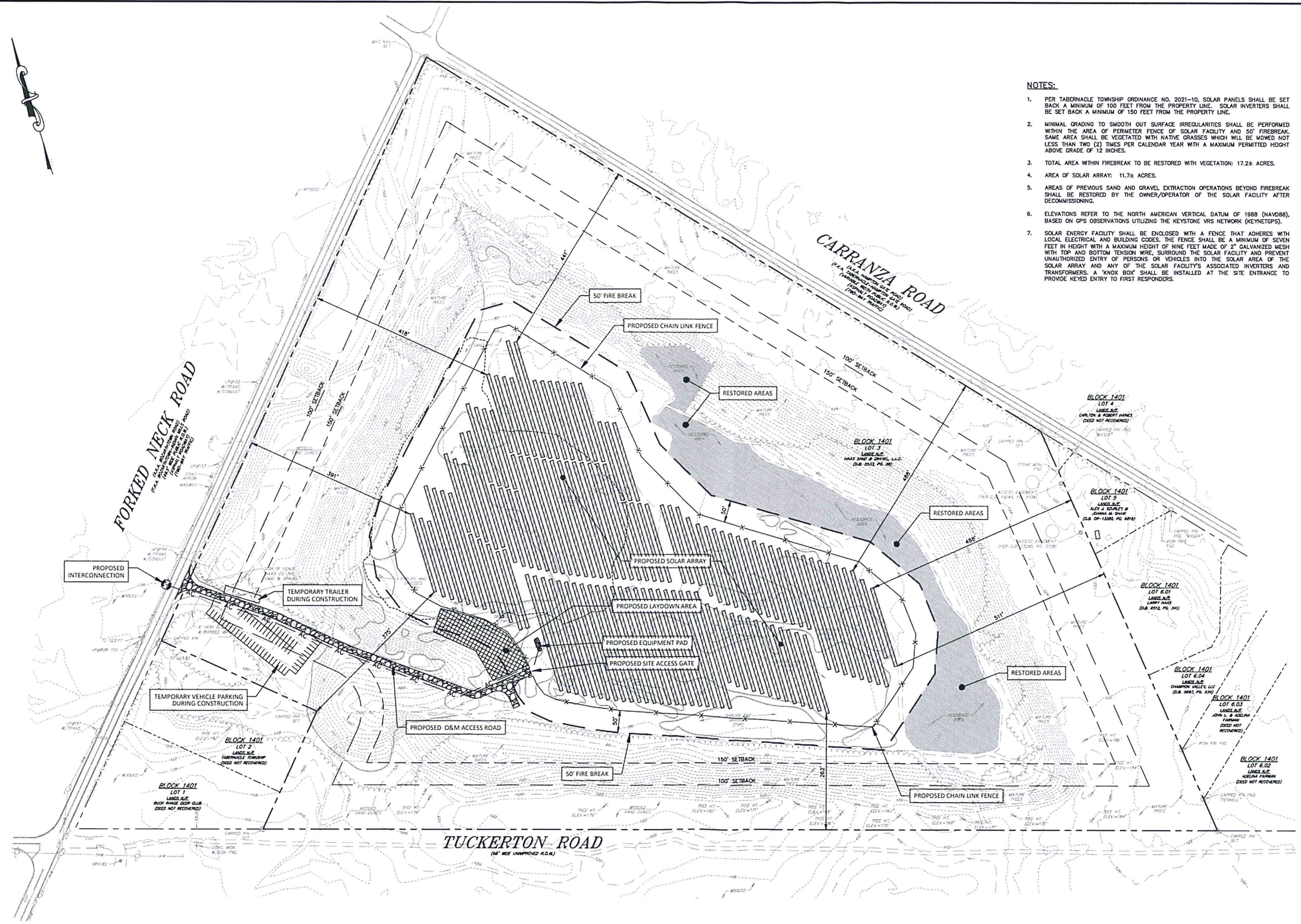
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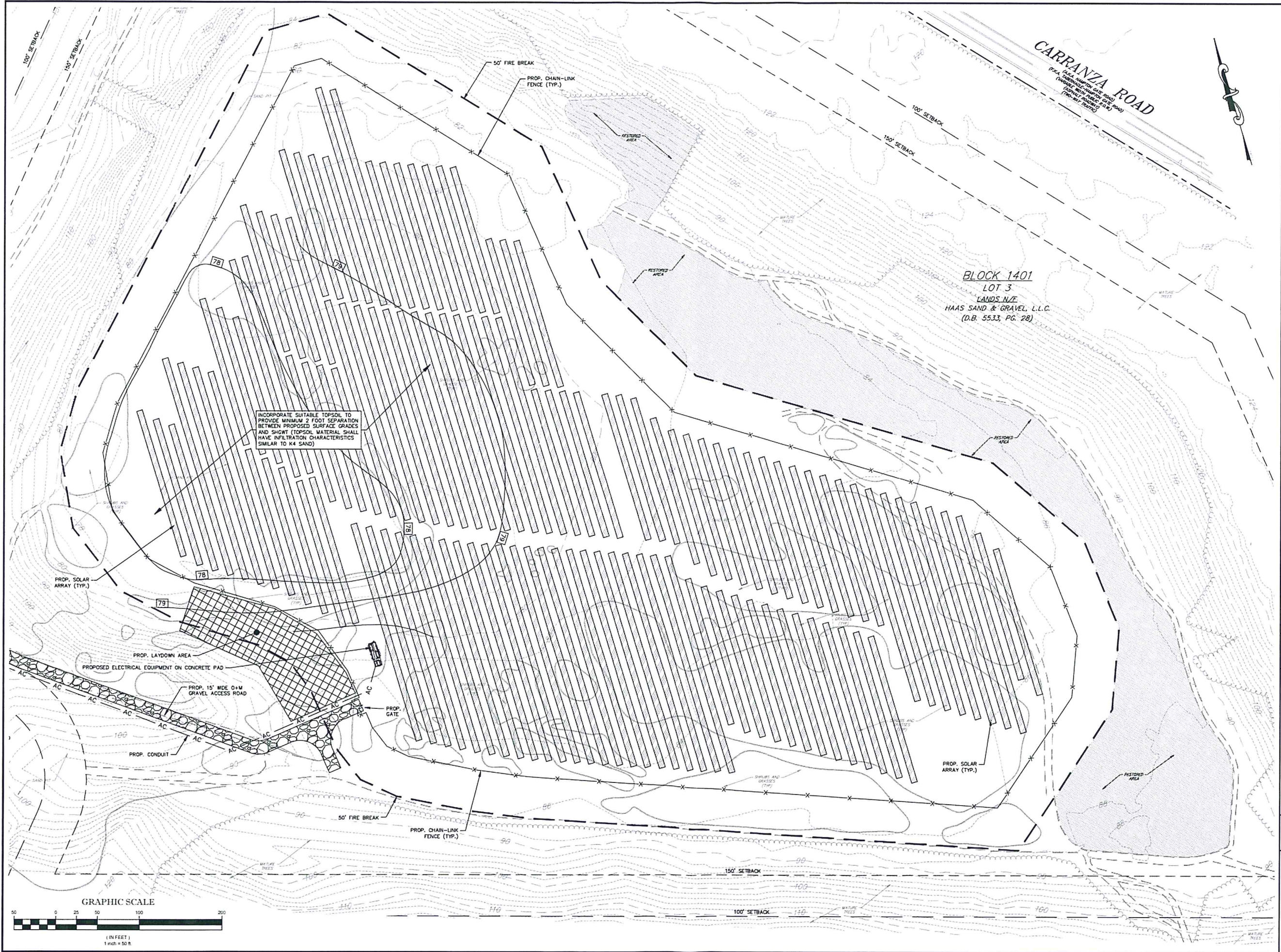
OVERALL SITE DEVELOPMENT PLAN

MAJOR SITE PLAN
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 SHEET: 2 OF 9 SHEETS
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Carroll Engineering
 105 Raider Boulevard Suite 206
 Hillsborough, NJ 08844
 Phone: (908) 874-7500 Fax: (908) 874-5762
 Certificate of Authorization: #24GA27952100

CORPORATE OFFICE:
 949 Easton Road, Warminster, PA 18976
 Phone: (215) 343-5700 Fax: (215) 343-0875

OTHER OFFICES:
 630 Freedom Business Center, Third Floor
 King of Prussia, PA 19406
 Phone: (610) 489-5100
 101 Lansdowne Drive, Suite 225, Mahers, PA 19355
 Phone: (414) 875-1075

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THOMAS J. FIK
 PROFESSIONAL ENGINEER
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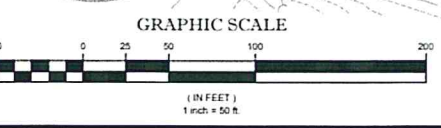
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 CKD BY: TJF
 SCALE: AS NOTED

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21-5331-004 - Site Plan - 21-5331-004 SITE PLAN 09/06/2022 9:25am TJK





Carroll Engineering

105 Raider Boulevard Suite 206
Hillsborough, NJ 08844
Phone: (908) 874-7500 Fax: (908) 874-5762
Certificate of Authorization: #24GAZ7952100

CORPORATE OFFICE:
949 Easton Road, Warminster, PA 18976
Phone: (215) 343-5700 Fax: (215) 343-0875

OTHER OFFICES:
630 Freedom Business Center - Third Floor
King of Prussia, PA 19406
Phone: (610) 489-5100
101 Lindenwood Drive - Suite 225 - Malvern, PA 19355
Phone: (610) 875-3075

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THOMAS J. FIK
PROFESSIONAL ENGINEER
NJ LIC. NO. 24GEO4591700
DATE: 9/6/2022

NO.	DATE	DESCRIPTION	INITIALS

SITE PLAN

MAJOR SITE PLAN
TABERNACLE SAND SOLAR
HAAS SAND AND GRAVEL PIT
BLOCK 1401
LOT 3

SITUATED IN
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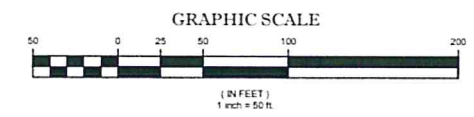
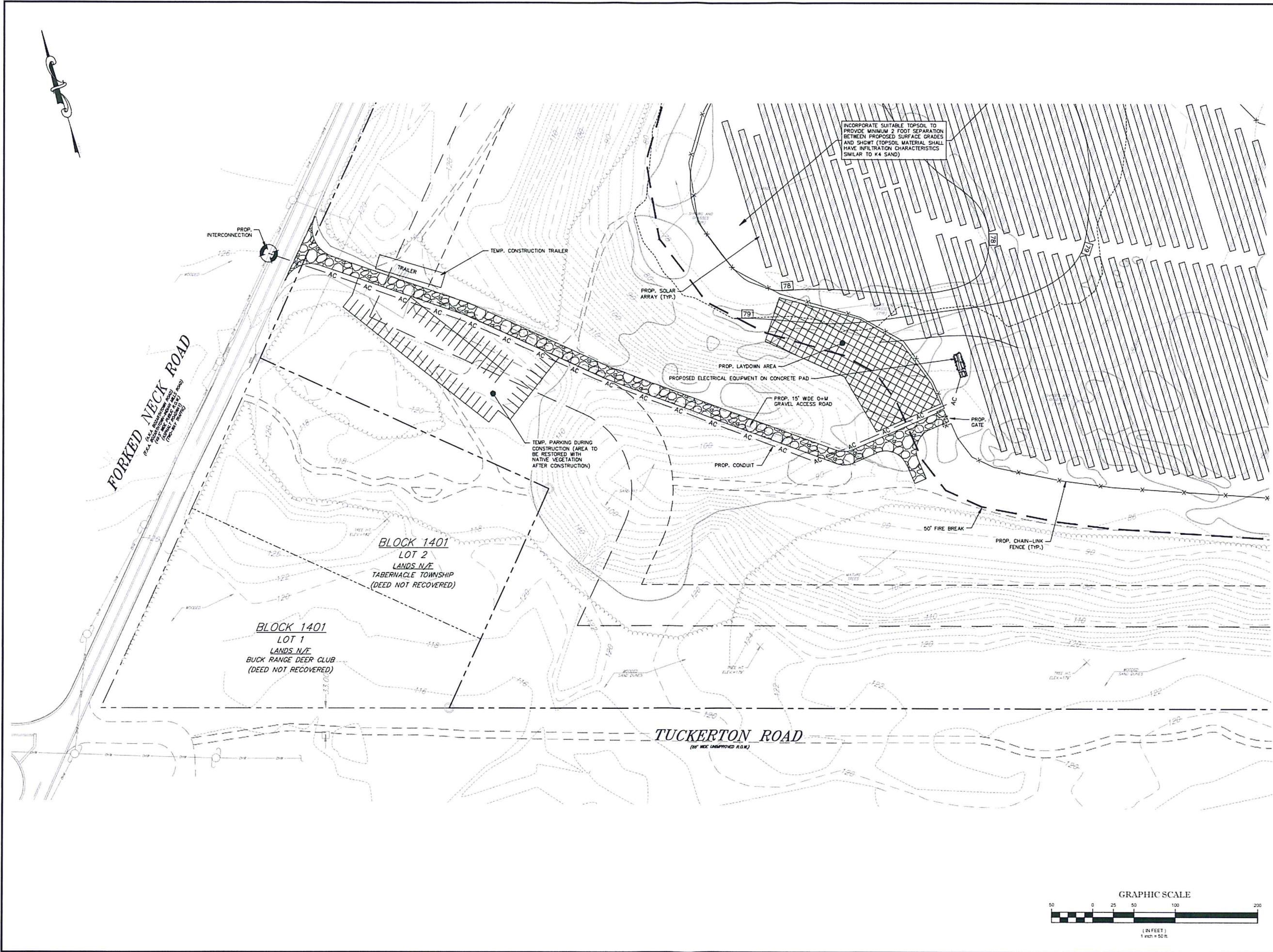
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SHEET: 4 OF 9 SHEETS

DRAWING NUMBER
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21-5331-004 - 2021 Plan (Scale 1"=50') - SEE PLAN SET FOR ALL SHEETS. 9/6/2022 9:20am TJK

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

DEFINITION
ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOILS WHERE PERENNIAL VEGETATION IS NEEDED FOR LONG-TERM PROTECTION.

PURPOSE
TO PERMANENTLY STABILIZE THE SOIL, ENSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.

WATER QUALITY ENHANCEMENT
SLOWS THE OVER-LAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

WHERE APPLICABLE
ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

1. SITE PREPARATION

- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING.
- B. IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
- C. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.
- D. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE-STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

2. SEEDBED PREPARATION

- A. UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS. SOIL SAMPLE ANALYSES ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE EXTENSION OFFICES (HTTP://NJAESRUTGERS/COEXT/). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF EQUIVALENT WITH SOIL WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY THE DESCRIBED ACIDIC DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.

- B. WORK LINE AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR, CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.

- C. HIGH ACID PRODUCING SOILS HAVING A PH OF 4 OR LESS OR CONTAINING ION SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 3 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

3. SEEDING

- A. SELECT A MIXTURE FROM TABLE 4-3 OR USE A MIXTURE RECOMMENDED BY RUTGERS CO-OPERATIVE EXTENSION OR NATURAL RESOURCES CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT. SEED GERMINATION SHALL HAVE BEEN TESTED WITHIN 12 MONTHS OF THE PLANTING DATE. NO SEED SHALL BE ACCEPTED WITH A GERMINATION TEST DATE MORE THAN 12 MONTHS OLD UNLESS RESTATED.

- 1. SEEDING RATES SPECIFIED ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO SOIL REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS BOX VEGETATIVE COVERAGE WITH THE SPECIFIED SEED MIXTURE FOR THE SEEDING AREA AND MOWED ONCE.

- 2. WARM-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT HIGH TEMPERATURES, GENERALLY 70-85 DEGREES F. SEE TABLE 4-3 MIXTURES 1 TO 7. PLANTING RATES FOR WARM-SEASON GRASSES SHALL BE THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY GERMINATION TESTING RESULTS.

- 3. COOL-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES BELOW 65 DEGREES F. MANY GRASSES BECOME ACTIVE AT 45 DEGREES F. SEE TABLE 4-3 MIXTURES 8-20. ADJUSTMENT OF PLANTING RATES TO COMPENSATE FOR THE AMOUNT OF PLS IS NOT REQUIRED FOR COOL SEASON GRASSES.

- B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR OUTDRIPPER SEEDER, EXCEPT FOR DRILLED, HYDROSEEDED OR OUTDRIPPED SEEDINGS. SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEP ON COARSE-TEXTURED SOIL.

- C. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EFFICIENCY. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

- D. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER-MOUNTED TANK WITH AN AERATOR SYSTEM FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL BE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. SHORT-FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION 4-MULCHING BELOW). HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL, WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH.

4. MULCHING

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL PROTECT AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

- A. STRAW OR HAY, UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, SHALL BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET). EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TAPOCKING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION - SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT AT LEAST 85% OF THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION. ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS:

- 1. PEG AND TWINE DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE AND AFTER APPLYING MULCH. MULCH SHALL BE APPLIED TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CROSS-GROSS AND A SQUARE PATTERN, SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
- 2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.

- 3. CRUMPER (MULCH ANCHORING TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE, NO TAPOCKING OR ADHESIVE AGENT IS REQUIRED.

- 4. LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCH.

- a. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE.

- b. USE ONE OF THE FOLLOWING:

- (1) ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER-BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CLUMPING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOLOGIC EFFECT OR IMPIDE GROWTH OF TURF GRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE.

- (2) SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, INSOLUBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION OF MULCH DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. BINDER SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

- B. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

- C. PELLETED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS, THE DRY PELLETS, WHEN APPLIED TO A SEEDBED AREA AND WATERED, FORM A MULCH MAT. PELLETED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 80-75 LBS./1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWNS OR RENOVATION AREAS, SEEDING AREAS WHERE WEED-SEED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TAPOCKING AGENT ARE NOT PRACTICAL. APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

5. IRRIGATION (WHERE FEASIBLE)

IF SOIL MOISTURE IS DEFICIENT SUPPLY NEW SEEDING WITH ADEQUATE WATER (A MINIMUM OF 1/4 INCH APPLIED UP TO THREE DAYS UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

6. TOPDRESSING

SINCE SOIL ORGANIC MATTER CONTENT AND SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) ARE PRESCRIBED IN SECTION 2A - SEEDBED PREPARATION IN THIS STANDARD, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE CROSS NITROGEN DEFICIENCY IN THE SOIL TO THE EXTENT THAT TURF FAILURE MAY DEVELOP. IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 300 POUNDS PER ACRE OR 7 POUNDS PER 1,000 SQUARE FEET EVERY 3 TO 5 WEEKS UNTIL THE CROSS NITROGEN DEFICIENCY IN THE TURF IS AMELIORATED.

7. ESTABLISHING PERMANENT VEGETATIVE STABILIZATION

THE QUALITY OF PERMANENT VEGETATION RESTS WITH THE CONTRACTOR. THE TIMING OF SEEDING, PREPARING THE SEEDBED, APPLYING NUTRIENTS, MULCH AND OTHER MANAGEMENT ARE ESSENTIAL. THE SEED APPLICATION RATES IN TABLE 4-3 ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO SOIL REDUCTION IN APPLICATION RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO REQUESTING A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS BOX VEGETATIVE COVER (OF THE SEEDING SPECIES) AND MOWED ONCE. NOTE THIS DESIGNATION OF MOWED ONCE DOES NOT GUARANTEE THE PERMANENCY OF THE TURF. SHOULD OTHER MAINTENANCE FACTORS BE REQUIRED OR OTHERWISE MISMANAGED, LICH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

TABLE 4-3 FOOTNOTES:

- 1. SEE APPENDIX B FOR DESCRIPTIONS OF TURF GRASS MIXTURES AND CULTIVARS. THE ACTUAL AMOUNT OF WARM-SEASON GRASS MIXTURES USED IN TABLE 3 (SEED MIX 1-7) SHALL BE ADJUSTED TO REFLECT THE AMOUNT OF PLS AS DETERMINED BY GERMINATION TESTING RESULTS. NO ADJUSTMENT IS REQUIRED FOR COOL-SEASON GRASSES (SEED MIXTURES 8-20).

- 2. SEEDING MIXTURES AND/OR RATES NOT LISTED ABOVE MAY BE USED IF RECOMMENDED BY THE LOCAL SOIL CONSERVATION DISTRICT, NATURAL RESOURCES CONSERVATION SERVICE, RECOMMENDATIONS OF RUTGERS CO-OPERATIVE EXTENSION MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT. LEGUMES (WHITE CLOVER, FLATPEA, LESPEDEZA) SHOULD BE MIXED WITH PROPER INNOCUOUS PRIOR TO PLANTING.

- 3. SEEDING RATES SPECIFIED ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO SOIL REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS BOX VEGETATIVE COVERAGE OF THE SEEDING AREA AND MOWED ONCE. GRASS SEED MIXTURE CHECKED BY THE STATE SEED ANALYST, NEW JERSEY DEPARTMENT OF AGRICULTURE, TRENTON, NEW JERSEY, WILL ASSURE THE PURCHASER THAT THE MIXTURE OBTAINED IS THE MIXTURE ORDERED, PURSUANT TO THE N.J. STATE SEED LAW, N.J.S.A. 4:9-17.13 ET. SEQ.

O = OPTIMAL PLANTING PERIOD A = ACCEPTABLE PLANTING PERIOD

4. MAINTENANCE LEVEL:

- A: INTENSIVE MOWING (2-4 DAYS), FERTILIZATION, LIME, PEST CONTROL AND IRRIGATION (EXAMPLES - HIGH-MAINTENANCE LAWNS, COMMERCIAL AND RECREATION AREAS, PUBLIC FACILITIES).
- B: FREQUENT MOWING (4-7 DAYS), OCCASIONAL FERTILIZATION, LIME AND WEED CONTROL (EXAMPLES - HOME LAWNS, COMMERCIAL SITES, SCHOOLS, SITES).
- C: PERIODIC MOWING (7-14 DAYS), OCCASIONAL FERTILIZATION AND LIME (EXAMPLES - HOME LAWNS, PARKS).
- D: INFREQUENT OR NO MOWING, MAY BE APPLIED WITH THE FIRST YEAR OF ESTABLISHMENT (EXAMPLES - ROADSIDES, RECREATION AREAS, PUBLIC OPEN SPACES).

- 5. SUMMER SEEDINGS SHOULD ONLY BE CONDUCTED WHEN THE SITE IS IRRIGATED. MIXES INCLUDING WHITE CLOVER REQUIRE THAT AT LEAST 80 WEEKS OF GROWING SEASON REMAIN AFTER SEEDING TO ENSURE ESTABLISHMENT BEFORE FREEZING CONDITIONS.

Table 4-2 Permanent Stabilization Mixtures for Various Uses

Application	PLANTING MIXTURES BY SOIL DRAINAGE CLASS ¹ (see Table 4-3)		
	Excessively Drained	Moderately Well Drained	Somewhat Poorly to Poorly Drained
Residential/commercial lawns	10, 12, 15	4, 10, 12, 13, 14, 15	16
Pond and channel banks, ditches, berms and dunes	2, 5, 6, 10	5, 6, 7, 8, 9, 13	2, 5, 16, 17
Drainage ditches, swales, detention basins	2, 9, 11	2, 9, 11, 12, 17	2, 9, 16, 17
Filter strips	11	11, 12	11, 12
Grass waterways, gutters	2, 9, 10, 12	6, 7, 9, 10, 11, 12	2, 9, 11, 12
Recreation areas, athletic fields	5, 12, 13, 14	12, 13, 14, 15, 16	16
Special Problem Sites			
Steep slopes and banks, roadbanks, borrow areas	2, 3, 4, 8	2, 3, 5, 2, 4, 8, 13, 15, 16	2, 9, 10, 11, 12
Sand and gravel pits, sand berms	1, 2, 3, 4, 6, 20	1, 2, 3, 4, 5, 6, 4, 15, 20	2, 8
Dumped material, spoilbanks, borrow areas	2, 3, 6, 20	2, 3, 6, 11	2, 8
Streambanks & ditches	2, 4, 20, 21a	2, 4, 19a, 20, 21a, 21b	2, 4, 19a, 21a, 21b
Utility rights-of-way	3, 7, 10	3, 7	8, 9, 17

1. Refer to Soil Surveys for drainage class descriptions.
2. Refer to Soil Drainage Standard for additional seed mixtures.
3. Spillways only.
4. See Appendix E for description of turf grasses and cultivars.

STANDARD FOR DUST CONTROL

DEFINITION
THE CONTROL OF DUST ON CONSTRUCTION SITES AND ROADS.

PURPOSE
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCED ON-SITE AND OFF-SITE DAMAGE AND HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

CONDITION WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON-SITE AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT. CONSULT WITH LOCAL MUNICIPAL ORDINANCES ON ANY RESTRICTIONS.

WATER QUALITY ENHANCEMENT

SEDIMENTS DEPOSITED AS "DUST" ARE OFTEN FINE COLLOIDAL MATERIAL WHICH IS EXTREMELY DIFFICULT TO REMOVE FROM WATER ONCE IT BECOMES SUSPENDED. USE OF THIS STANDARD WILL HELP TO CONTROL THE GENERATION OF DUST FROM CONSTRUCTION SITES AND SUBSEQUENT BLOWING AND DEPOSITION INTO LOCAL SURFACE WATER RESOURCES.

PLANNING CRITERIA

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:

- MULCHES - SEE STANDARD FOR STABILIZATION WITH MULCHES ONLY, PG. 5-1
- VEGETATIVE COVER - SEE STANDARD FOR TEMPORARY VEGETATIVE COVER, PG. 7-1. PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PG. 4-1 AND PERMANENT STABILIZATION WITH SOO, PG. 6-1

SEAL-OH ADHESIVES - ON MINERAL SOLS (NOT EFFECTIVE ON MUCK SOILS), KEEP TRAFFIC OFF THESE AREAS.

TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEEN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 10 FEET APART AND SPRING-TOWNEED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARBERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEP SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS. NOT TO BE USED ON LAWNS.

STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

Table 16-1 Dust Control Materials

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACR
Anionic asphalt emulsion	7:1	Coarse Spray	1200
Lime emulsion	12.5:1	Fine Spray	235
Rainis in water	4:1	Fine Spray	300
Polycrylamide (PAM) - spray on			
Polycrylamide (PAM) - dry spread			
Arbitolated Soy Beans Soap Slick	None	Coarse Spray	1200

Standards for Soil Erosion and Sediment Control in New Jersey January 2014

TABLE 4-3 PERMANENT VEGETATIVE MIXTURES, PLANTING RATES AND PLANTING DATES¹

SEED MIXTURE ²	PLANTING RATE ³	PLANTING DATES												REMARKS
		O = Optimal Planting period A = Acceptable Planting period												
		PLANT HARDINESS ZONES (see Figure 4-1)												
		Zone 5a, 6a				Zone 6b				Zone 7a, 7b				
		Before April 1	4/1-7/31	8/1-10/31	11/1-2/28	3/1-5/31	6/1-8/31	9/1-11/30	12/1-2/28	3/1-5/31	6/1-8/31	9/1-11/30	12/1-2/28	
WARM SEASON SEED MIXTURES														
1A. For Pinelands National Reserve Seed mixtures see Table 4-4 page 4-17														
1. Switchgrass and/or Coastal prairiegrass plus or Flatsop	15	35												C-D
2. Dactyloctenium or Switchgrass Ryegrass	15	35												C-D
3. Switchgrass Dactyloctenium Little Bluestem Sheep fescue plus Partridge pea	15	35												C-D
4. Switchgrass Big Bluestem Little Bluestem Sand bromegrass Coastal prairiegrass	10	25												C-D
5. Bermudagrass Zoysia (seed) Zoysia (sprig)	15	0.25												A-D
COOL SEASON SEED MIXTURES														
6. Fine Fescue (blend) Hard Fescue Chewgrass fescue Strong Creeping Red Fescue Kentucky bluegrass Perennial ryegrass plus White clover (see note at right)	45	1												B-D
7. Strong Creeping Red fescue Kentucky bluegrass Perennial ryegrass Ryegrass plus White clover	130	3												B-D
8. Tall fescue (turf-type) or Strong Creeping Red fescue Perennial ryegrass Flatsop	30	7												B-D
9. Dactyloctenium Ryegrass Wild rye (Elymus) Switchgrass	20	45												C-D
10. Tall fescue (turf-type) Perennial ryegrass White clover (see note at right)	25	6												C-D
11. Kentucky bluegrass Turf-type Tall fescue	44	0.23												C-D
12. Turf-type Tall fescue (blend of 3 cultivars)	350	8												C-D
13. Hard Fescue and/or Chewgrass fescue and/or Strong creeping red fescue Perennial ryegrass Ky. bluegrass (new)	175	4												A-C
14. Tall fescue Ky. bluegrass (blend) Perennial ryegrass (blend)	245	6												A-B
15. Hard fescue Chewgrass fescue Strong Creeping red fescue Perennial ryegrass	130	3												C-D
16. Rough bluegrass Strong Creeping red fescue	90	20												C-D
17. Creeping bromegrass Creeping red fescue Annual ryegrass	45	1												B-D
18. Hard or Sheep fescue N. E. wildflower mixture	25	0.60												C-D
19. a. Smooth cordgrass b. Saltmeadow cordgrass	veg	veg												C-D
20. American Beachgrass Coastal Prairiegrass	veg	45												D
21. a. Purpletop willow b. Dwarf willow c. Redwing dogwood d. Sticky dogwood	veg	veg												D

STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

DEFINITION
ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON SOILS EXPOSED FOR PERIODS OF TWO TO 6 MONTHS WHICH ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION OR NOT SCHEDULED FOR PERMANENT SE

Pinelands National Reserve Specifications

Methods and Materials

Due to the low fertility of native soils and other related factors, indigenous Pinelands vegetation can be relatively slow to re-colonize disturbed areas. Natural re-colonization by native plants is preferable however, where the intended land use permits or requires native plant re-growth

The following approaches shall be used for post-development soil stabilization in the Pinelands National Reserve (PNR) in areas where it is a desire for native plant materials to be used. These practices are limited to areas where slope is less than 2% which do not experience concentrated surface runoff.

Note: areas requiring traditional turf-type vegetation either by seeding or sodding shall be subject to the Standards for Topsoiling or Sodding and the prior portions of this Standard which detail methods for permanent vegetative stabilization. Table 4-4 below contains the required cool season turf mixture suitable for use in the PNR.

PNR A-horizon soil shall be segregated and stockpiled separately to maintain seed and root stock remnants for revegetation efforts outlined below.

Site / Seedbed Preparation.

- The reuse of stockpiled Pinelands A-Horizon soils to the depth found prior to construction (1.0" minimum) is required for all permanent stabilization efforts involving native plant materials.
- pH, organic matter, texture and cation exchange capacity (CEC) (as estimated by sum of cations, CEC_{sum}) of any non-native PNR soil shall be equal to or less than that of the native soil on the project site.
 - See Web Soil Survey: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> for typical soil measurements for pH, soil texture, organic matter and CEC.
- Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and mulch anchoring. All grading shall be done in accordance with Standards for Land Grading, including methods to alleviate soil compaction (the addition of compost for organic matter shall not exceed the in-situ composition).
- Sand fencing - Sand fencing (standard snow fence) may be used to address potential wind erosion on large sites (See Sand fencing, Dune Stabilization Standard). Sand fencing shall be used in combination with other permanent stabilization methods to prevent erosion.

Reseeding with Pinelands Approved Seed Mixtures

Appropriate seed mixtures shall be selected from Table 4-4 below. Seed shall be broadcast or drill seeded directly into the A-horizon soils. * Mulch consistent with the Standard.

Re-establishment of Native Vegetation without seeding.

- In cases where it is desirable or required for native vegetation to be re-established by unassisted re-colonization, A-horizon soils (without added seeding) shall be protected from erosion by any of the following measures until native plant materials (seed and root stock preserved in A-horizon soils and other native volunteer vegetation) re-colonize the area:
 - Unrotted small-grain straw, at 2.0 to 2.5 tons per acre, is spread uniformly at 90 to 115 pounds per 1,000 square feet and anchored with a mulch anchoring tool, liquid mulch binders, or netting tie down. Other suitable materials may be used if approved by the Soil Conservation District. The approved rates above have been met when the mulch covers the ground completely upon visual inspection.
 - Light layer (2 inches thick maximum) of wood chips (locally sourced from within the Pinelands National Reserve if available)
 - Unseeded, Type A¹ (or greater) biodegradable erosion control blanket.
 - Combinations of the above.
 - Re-apply mulch materials as needed (to limit erosion) until an adequate cover of native plants is established. * This may require several growing seasons to adequately establish native vegetation.
 - A bond (estimate to be prepared by a NJ licensed Engineer) may be required by the local Soil Conservation District to ensure the suitable establishment of native vegetation is accomplished. A Final Certificate of Compliance shall not be issued to the overall project site until adequate, permanent vegetative cover is established.
 - If natural re-colonization fails after 2 growing seasons, vegetative establishment will require the area to be mechanically seeded with a suitable mixture from Table 4-4 below or otherwise replanted with live vegetation.

* Adequate cover is defined as no visible evidence of off-site erosion with the natural re-colonization appearing to have the same spacing (if not height) as undisturbed vegetation in the immediate vicinity.

¹ Type A - Texas DOT testing labs for non-channel liner blankets

h. Table 4-4 Seeding Rates for Pinelands National Reserve Seed Mixtures

Name	Common name	Growth habit	Soil Drainage Tolerance	Height	Seeding rate lbs./acre
Non-Roadside Pinelands Mixture					
<i>Schizachyrium scoparium</i>	Little bluestem	PIB	EXDR-WD	2-3'	5
<i>Dichanthelium clandestinum</i>	Deertonque	PIB	EXDR-SWPD	1-3'	5
<i>Panicum virgatum</i>	Switchgrass	PIB	EXDR-PD	4-6'	5
<i>Chamaecrista fasciculata</i>	Partridge pea	AB	EXDR-WD	3'	5
Recommended/Optional Addition (See recommended Pinelands species for mixture augmentation. Not for Roadside)					
<i>Andropogon virginicus</i>	Broomsedge	PIB	EXDR-SWPD	18"-3'	5
<i>Solidago bicolor</i>	White (Silver rod) Goldenrod	P	EXDR-WD	1-4'	5
<i>Lespedeza capitata</i>	Roundheaded bushclover	PIB	EXDR-WD	2-4'	2
<i>Baptisia linctoria</i>	Wild Indigo	PIB	EXDR	1-3'	5
<i>Carex pensylvanica</i>	Pennsylvania sedge	PIS	EXDR-WD	16"	Plugs
Temporary Seeding/Nurse Crops (choose one as a nurse crop where quick germination is needed)					
<i>Hordeum vulgare</i>	Barley	AsB	EXDR-WD	8"-3'	30
<i>Avena sativa</i>	Oats	AB	EXDR-WD	1-3'	30
<i>Elymus canadensis</i>	Canada wildrye	PaB	WD-MWD	3-6'	30
Roadside Native Seed Mixture					
<i>Schizachyrium scoparium</i>	Little bluestem	PIB	EXDR-WD	2-3'	5
<i>Dichanthelium clandestinum</i>	Deertonque	PIB	EXDR-SWPD	1-3'	5
<i>Chamaecrista fasciculata</i>	Partridge pea	AB	EXDR-WD	3'	5
Cool Season Turf Mixtures					
<i>Festuca longifolia</i>	Hard fescue	PIB	EXWD-WD	2-3'	50
<i>Festuca rubra ssp. rubra</i>	Strong Creeping red fescue	PIB	EXWD-WD	1-2'	50
<i>Festuca rubra ssp. fallax</i>	Chewings fescue	PIB	EXWD-MWD	1-2'	50
<i>Lolium perenne</i>	Turf-type perennial ryegrass	PeB	EXWD-WD	1-2'	50
Key					
Growth Habit	Soil Drainage Tolerance				
A-Annual	EXDR-Excessively drained				
P-Perennial	WD-Well-drained				
L-Long lived	MWD-Moderately well-drained				
S-short lived	SWPD-Somewhat poorly drained				
R-rizomatous	PD-Poorly drained				
S-stoloniferous					
B-bunch					

Additional Pinelands Approved Species for Augmentation

NOT Recommended for Roadside Plantings

Annual Grasses:

- Six Weeks Fescue (*Vulpia octiflora*)
- Three-Awn Grass (*Aristida longispica*)

Perennial Cool-Season Grasses:

- Poverty Oat Grass (*Danthonia spicata*)
- Silky Wild Oat Grass (*Danthonia sericea*)
- Ticklegrass (*Agrostis hyemalis*)

Perennial Warm-Season Grasses:

- Dichanthelium* species
- Dichanthelium sphaerocarpon*
- Dichanthelium depauperatum*
- Dichanthelium meridionale*
- Dichanthelium subulorum*

Perennial Herbs:

- Butterfly-weed (*Asclepias tuberosa*)
- Grass-leaf Blazing-star (*Liatris pilosa*)
- Hyssop-leaved Boneset (*Eupatorium hyssopifolium*)
- Maryland Goldenaster (*Chrysopsis mariana*)
- Sweet Goldenrod (*Solidago odora*)
- Toothed Whitetop Aster (*Sericocarpus asteroides*)
- Trailing Tick-Trefoil (*Desmodium rotundifolium*)

Species which may be more difficult to obtain but whose listing could encourage propagation include:

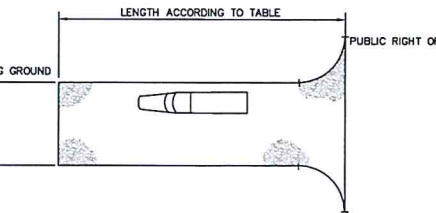
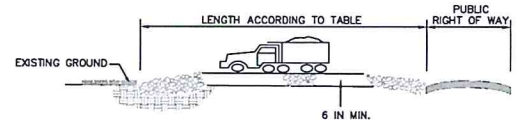
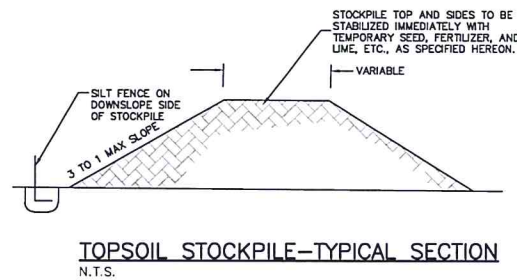
- Bearberry (*Arctostaphylos uva-ursi*)
- Orange-grass, (*Hypericum gentianoides*)
- Teaberry (*Gaultheria procumbens*)
- Pine Barren Sandwort (*Minuartia caroliniana*)
- Hudsonia (*Hudsonia ericoides*)

NOTES:

- IF DEWATERING IS REQUIRED THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE OCEAN COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
- ALL SEDIMENT WASHED, TRACKED, DROPPED, OR SPILLED ONTO PAVED SURFACES SHALL BE IMMEDIATELY REMOVED.

BURLINGTON COUNTY SOIL EROSION AND SEDIMENT CONTROL NOTES

- ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
- SOIL EROSION AND SEDIMENT CONTROL PRACTICES ON THE PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
- ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN SIXTY (60) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION IN ACCORDANCE WITH THE STANDARDS. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREAS WILL BE MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE STANDARDS.
- ALL CRITICAL AREAS SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH IN ACCORDANCE WITH THE STANDARDS IMMEDIATELY FOLLOWING ROUGH GRADING.
- RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
- ALL SOIL EROSION AND SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
- SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF A FLOOD PLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY. THE BASE OF ALL STOCKPILES SHOULD BE PROTECTED BY A HAY BALE BARRIER OR SEDIMENT FENCE. PROPOSED LOCATIONS MUST BE DELINEATED ON THE PLANS.
- A CRUSHED STONE TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS EXISTS. THE RIP RAP PAD MUST BE 100 FEET IN LENGTH AND THE STONE MUST BE 1.5" - 4" IN SIZE. PLACED 12" THICK WITH THE FULL WIDTH OF THE ENTRANCE. IT SHOULD BE UNDERLAIN WITH A SUITABLE SYNTHETIC FILTER FABRIC AND MAINTAINED. THE STRUCTURE MUST BE DELINEATED AND DETAILED ON THE PLANS.
- IF A STONE CONSTRUCTION ACCESS IS TO BE USED AS AN EXIT ONTO A MAJOR HIGHWAY, A THIRTY (30) FOOT PAVED TRANSITION AREA SHALL BE INSTALLED.
- ALL DRIVEWAYS MUST BE STABILIZED WITH 2 1/2" CRUSHED STONE OR SUB BASE PRIOR TO INDIVIDUAL LOT CONSTRUCTION.
- PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
- ALL CATCH BASIN INLETS WILL BE PROTECTED DURING CONSTRUCTION (FILTER DETAILS APPEAR ON PLANS).
- ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED BEFORE THE DISCHARGE POINTS BECOME OPERATIONAL.
- ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTRATION DEVICE. THE SEDIMENT FILTER MUST BE PLACED SO AS NOT TO CAUSE EROSION OF THE DOWNSTREAM AREA. FIELD PLACEMENT AND USE OF THE STRUCTURE MUST BE APPROVED BY THE DISTRICT EROSION CONTROL INSPECTOR PRIOR TO THE BEGINNING OF DEWATERING ACTIVITIES.
- THE BURLINGTON COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 72 HOURS PRIOR TO ANY LAND DISTURBANCE.
- SOIL HAVING A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE MUST BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5.0 OR MORE BEFORE SEEDBED PREPARATION.
- IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO PROVIDE CONFIRMATION OF LIME, FERTILIZER AND SEED APPLICATION RATES AT THE REQUEST OF THE BURLINGTON COUNTY SOIL CONSERVATION DISTRICT.
- N.J.S.A. 4:24-39, ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE ALL PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOUR PERMANENT MEASURES. ALL SITE WORK FOR THE PROJECT MUST BE COMPLETED PRIOR TO THE DISTRICT USING A REPORT OF COMPLIANCE AS A PREREQUISITE TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
- N.J.S.A. 4:24-39, ET SEQ. REQUIRES THAT UPON PERMANENT SITE STABILIZATION AND COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL APPLY TO THE SOIL CONSERVATION DISTRICT FOR A FINAL COMPLIANCE INSPECTION TO CHECK THAT ALL THE PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES.
- OFF-SITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE DISTRICT EROSION CONTROL INSPECTOR.
- A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
- ANY CONVEYANCE OF THIS PROJECT PRIOR TO ITS COMPLETION WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ALL SUBSEQUENT OWNERS.
- IMMEDIATELY AFTER THE COMPLETION OF STRIPPING AND STOCKPILING TOPSOIL, THE STOCKPILE SHALL BE SEED WITH TEMPORARY VEGETATION. STABILIZE TOPSOIL STOCKPILES WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE ESTABLISHMENT OF TEMPORARY SEED.
- ANY CHANGES TO THE SITE PLAN WILL REQUIRE THE SUBMISSION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE BURLINGTON COUNTY SOIL CONSERVATION DISTRICT. THE REVISED PLAN MUST BE IN ACCORDANCE WITH THE CURRENT STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1.
- THE DISTRICT EROSION CONTROL INSPECTOR MAY REQUIRE ADDITIONAL MEASURES TO BE INSTALLED.
- IMMEDIATELY PRIOR TO TOPSOIL APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING. SEE DETAILS.
- N.J.S.A. 4:24-39 ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE COMPLETION OF A SOIL COMPACTION MITIGATION VERIFICATION FORM AND CONFIRMATION BY THE DISTRICT INSPECTOR THAT THE COMPACTION MITIGATION REQUIREMENTS IN THE STANDARD FOR LAND GRADING HAVE BEEN SUFFICIENTLY ADDRESSED.
- THE RESPONSIBILITY FOR EROSION CONTROLS FOR INDIVIDUAL LOTS WILL TRANSFER TO SUBSEQUENT OWNERS OF THE LOT. THIS RESPONSIBILITY WILL BE DESCRIBED IN THE DEED, AND A SINGLE FAMILY HOME PLAN CONTAINING ALL NECESSARY EROSION CONTROLS WILL BE PROVIDED TO THE OWNER.
- CONCRETE TRUCK WASHOUT AREAS WILL BE MAINTAINED ON A CONTINUAL BASIS AND AS NEEDED.
- THE STORMWATER POLLUTION PREVENTION PLAN AND THE SPILL RESPONSE PLAN SHALL BE AVAILABLE ON SITE FOR REVIEW BY THE SCD INSPECTOR AND/OR THE NJDEP INSPECTOR.
- THE SCD INSPECTOR OR NJDEP INSPECTOR MAY REQUIRE ADDITIONAL MEASURES FOR STORMWATER POLLUTION PREVENTION TO BE INSTALLED.
- INSPECTIONS OF ALL STORMWATER POLLUTION PREVENTION PLAN MEASURES WILL BE CONDUCTED AND DOCUMENTED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
- WASTE COLLECTION CONTAINERS WILL NOT BE PERMITTED TO OVERFLOW.
- ANY SPILLS OF HAZARDOUS OR SANITARY WASTES WILL BE CLEANED UP IMMEDIATELY, AND IN ACCORDANCE WITH THE SPILL RESPONSE PLAN. SPILL KITS MUST BE AVAILABLE ON-SITE OR ADJACENT TO THE SITE.
- ANY HAZARDOUS SUBSTANCE RELEASES IN EXCESS OF REPORTABLE QUANTITIES (RQ) ESTABLISHED UNDER 40 C.F.R. 110, 117 AND 302 THAT OCCUR WITHIN A 24-HOUR PERIOD MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER (800 424-8802).

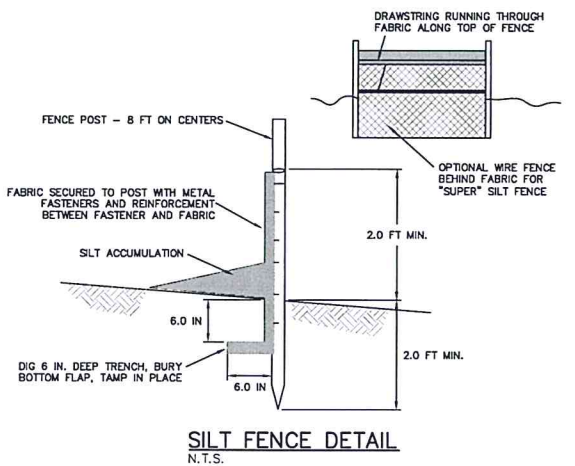


*NOTE: INDIVIDUAL LOT ACCESS POINTS MAY REQUIRE STABILIZATION. THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY (TYP.).

PERCENT SLOPE OF ROADWAY	LENGTH OF CONSTRUCTION EXITS ON SLOPING ROADBEDS	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2 TO 5%	100 FT	200 FT
> 5%	SURFACE STABILIZED WITH HOT MIX ASPHALT BASE COURSE*	

*AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

STABILIZED CONSTRUCTION ACCESS DETAIL N.T.S.



SILAGE FENCE DETAIL N.T.S.



Carroll Engineering

105 Raider Boulevard Suite 206
Hillsborough, NJ 08844
Phone: (908) 874-7500 Fax: (908) 874-5762
Certificate of Authorization: #24GAZ7952100
CORPORATE OFFICE:
949 Easton Road, Washington, PA 18976
Phone: (215) 343-5700 Fax: (215) 343-0875
OTHER OFFICES:
630 Freedom Business Center - Third Floor
King of Prussia, PA 19406
Phone: (610) 489-5100
101 Lindenwood Drive - Suite 225 - Mahers, PA 19355
Phone: (610) 875-3075
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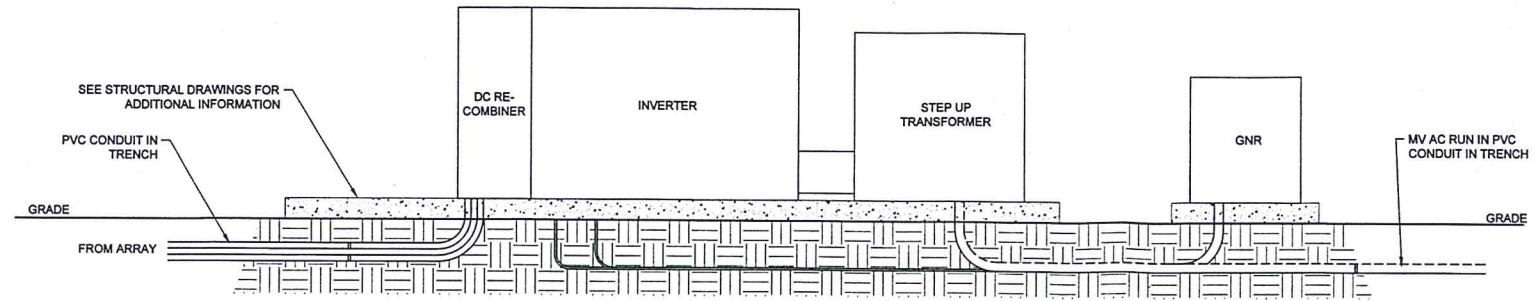
THOMAS J. FIK
PROFESSIONAL ENGINEER
NJ LIC. NO. 24GE04591700
DATE: 9/6/2022

SOIL EROSION & SEDIMENT CONTROL NOTES

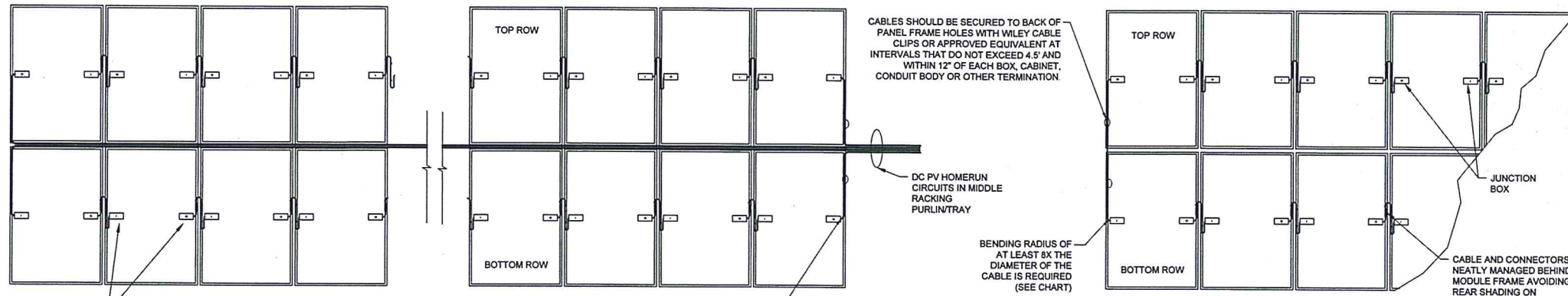
MAJOR SITE PLAN
TABERNACLE SAND SOLAR
HAAS SAND AND GRAVEL PIT

BLOCK 1401
LOT 3
SITUATED IN
TOWNSHIP OF TABERNACLE
BURLINGTON COUNTY, NEW JERSEY
PREPARED FOR
TABERNACLE SAND SOLAR, LLC
HATHAWAY SOLAR, LLC
2045 LINCOLN HIGHWAY
EDISON, NEW JERSEY 08817

DATE: 9/6/2022
CADD FILE: 21-5331-004
JOB NO: 21-5331-004
DSG BY: TJF
DWN BY: TJF/JAZ
CKD BY: TJF
SCALE: AS NOTED
DRAWER NUMBER:
SHEET: 7 OF 9 SHEETS
DRAWING NUMBER
200.4417



1 EQUIPMENT PAD WIRING MANAGEMENT
E-401 SCALE: NTS



2KV PV WIRE BEND RADIUS

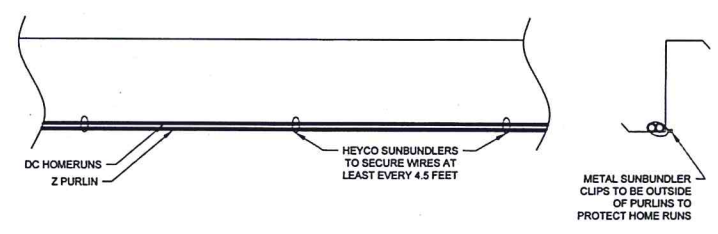
AWG	MINIMUM BEND RADIUS
#12 / 4MM ²	1 7/8"
#10	2 1/16"
#8	2 1/2"
#6	2 13/16"

- NOTE:**
1. MODULE WIRING IS BASED ON THE DAISY CHAIN METHOD. TOP ROW IS ONE STRING, BOTTOM ROW IS ANOTHER STRING.
 2. PANEL HOME RUNS WIRES SHOULD BE ROUTED INSIDE Z PURLIN.
 3. REFER TO THE RACKING & PANEL INSTALLATION MANUAL FOR INSTRUCTIONS.
 4. USE J-HOOKS, CABLE HANGERS OR APPROVED EQUIVALENT AS REQUIRED.
 5. ALL MATING STRING WIRING CONNECTORS SHALL BE OF THE SAME BRAND NAME.

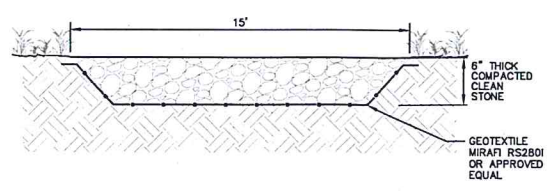
- NOTE:**
1. MODULE WIRING IN HALF TRACKER IS C SHAPED. ENTIRE TRACKER IS A SINGLE STRING.
 2. PANEL HOME RUNS WIRES SHOULD BE ROUTED INSIDE Z PURLIN.
 3. REFER TO THE RACKING & PANEL INSTALLATION MANUAL FOR INSTRUCTIONS.
 4. USE J-HOOKS, CABLE HANGERS OR APPROVED EQUIVALENT AS REQUIRED.

2 PANEL WIRING MANAGEMENT DETAIL - FULL RACK
E-401 SCALE: NTS

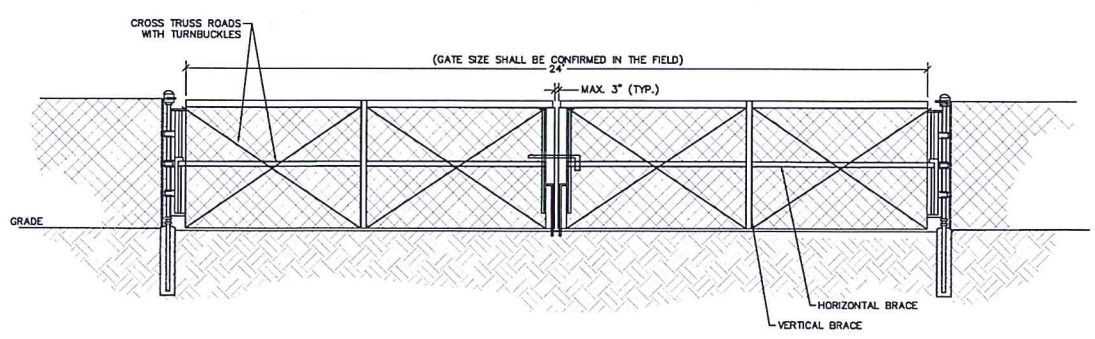
3 PANEL WIRING MANAGEMENT DETAIL (HALF RACK)
E-401 SCALE: NTS



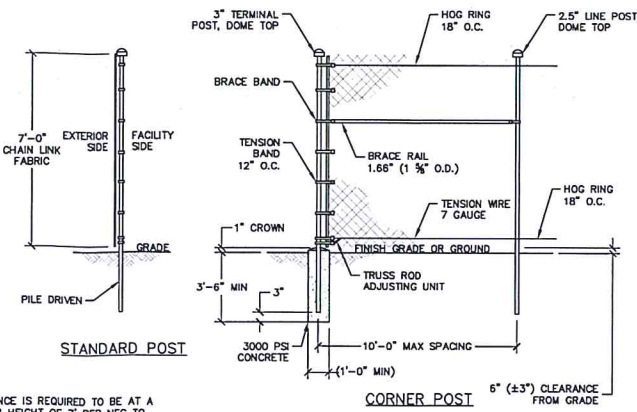
4 WIRE MANAGEMENT IN Z PURLIN (FRONT AND SIDE VIEW)
E-401 SCALE: NTS



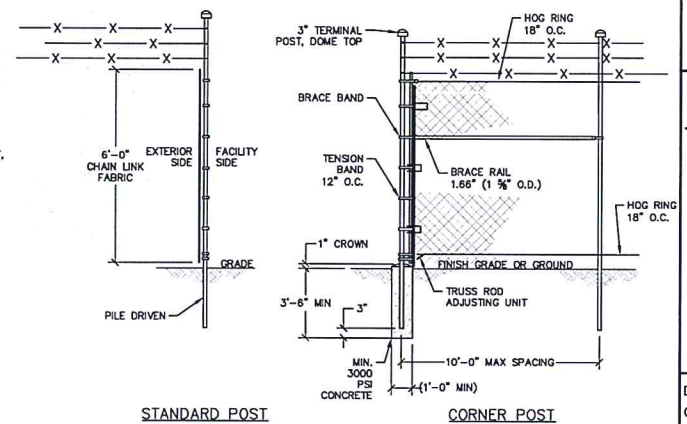
O+M ACCESS ROAD DETAIL
N.T.S.



PERIMETER FENCE GATE DETAIL
N.T.S.



PERIMETER FENCE DETAIL
N.T.S.



- STANDARD POST**
- CORNER POST**
- NOTES:**
1. STANDARD FENCE IS FOR THE PERIMETER OF THE SOLAR ARRAY.
 2. HEIGHT SHALL BE 6' PLUS 1' BARBED WIRE REQUIRED PER NEC TO CLASSIFY SITE AS ONLY ACCESSIBLE TO QUALIFIED INDIVIDUALS. TOTAL HEIGHT OF FENCE SHALL BE SEVEN FEET TALL.
 3. FENCING SHALL BE CONSTRUCTED OF CHAIN LINK FENCE, WITH BARB-WIRE 3-STRANDED
 4. THE FENCE SHALL BE OF A 2\"/>

SWITCHGEAR FENCE OPTION A (DRIVEN POST)
N.T.S.

NOTE: DETAILS SHOWN HEREON ARE SUBJECT TO CHANGE AND SHALL NOT BE USED FOR CONSTRUCTION.



Carroll Engineering
105 Raider Boulevard - Suite 206
Hillsborough, NJ 08844
Phone: (908) 874-7500 Fax: (908) 874-5762
Certificate of Authorization: #24GA27952100

CORPORATE OFFICE:
949 Easton Road - Warrington, PA 18976
Phone: (215) 343-5700 Fax: (215) 343-0875

OTHER OFFICES:
630 Freedom Business Center - Third Floor
King of Prussia, PA 19406
Phone: (610) 489-5100

101 Lindenwood Drive - Suite 225 - Malvern, PA 19355
Phone: (610) 875-3075

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PROFESSIONAL ENGINEER
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DATE: 9/6/2022

NO.	DATE	DESCRIPTION	INITIALS

CONSTRUCTION DETAILS

MAJOR SITE PLAN
TABERNACLE SAND SOLAR
HAAS SAND AND GRAVEL PIT
BLOCK 1401
LOT 3

SITUATED IN
TOWNSHIP OF TABERNACLE
BURLINGTON COUNTY, NEW JERSEY
PREPARED FOR
TABERNACLE SAND SOLAR, LLC
HATHAWAY SOLAR, LLC
2045 LINCOLN HIGHWAY
EDISON, NEW JERSEY 08817

DATE: 9/6/2022
CADD FILE: 21-5331-004
JOB NO: 21-5331-004

DSG BY: TJF
DWN BY: TJF/JAZ
CKD BY: TJF
SCALE: AS NOTED

DRAWER NUMBER:
SHEET: 8 OF 9 SHEETS

DRAWING NUMBER
200.4417

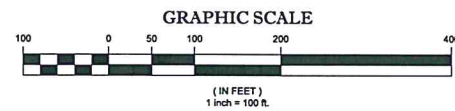
M:\Projects\2021\21-5331-004 - SW - Permit\04-21-23\21-5331-004_SIT PLAN.dwg Sep 06, 2022 9:25am TJF

LEGEND (NOTE: NOT ALL ITEMS MAY APPEAR ON THIS SURVEY)

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> INLETS FLARED END SECTION GAS MANHOLE SANITARY MANHOLE DRAINAGE MANHOLE GAS VALVE WATER VALVE UTILITY POLE & STREET LIGHT UTILITY POLE GUY WIRE AREA LIGHT FIRE HYDRANT SIGN(S) REFLECTOR TITLE REPORT EXCEPTION OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE | <ul style="list-style-type: none"> MONITORING WELL BOLLARD OVERHEAD WIRE STORM DRAINAGE LINE SANITARY LINE TELEPHONE LINE WATER LINE GAS LINE ELECTRIC LINE FIBER OPTIC LINE TERMINUS UNKNOWN TREE LINE VEGETATION, STONE, AND/OR OTHER ANOMALIES WITHIN SAND PIT SAND ROAD | <ul style="list-style-type: none"> CONCRETE CHAIN LINKED FENCE TYPICAL DEPRESSED CURB EDGE OF PAVEMENT EDGE OF GRAVEL GUTTER LINE AREA LIGHT SOLID WHITE LINE DOUBLE YELLOW LINE LANDSCAPE AREA STOP BAR |
|---|---|--|

REFERENCES:

- THE OFFICIAL TAX ASSESSOR'S MAP OF TABERNACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY, SHEET #12.
- MAP TITLED, "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, BURLINGTON COUNTY, NEW JERSEY, (ALL JURISDICTIONS), PANEL 415 OF 641", MAP NUMBER 34005C0415F, EFFECTIVE DATE: DECEMBER 21, 2017.
- MAP TITLED, "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, BURLINGTON COUNTY, NEW JERSEY, (ALL JURISDICTIONS), PANEL 404 OF 641", MAP NUMBER 34005C0404F, EFFECTIVE DATE: DECEMBER 21, 2017.



NOTES:

- PROPERTY KNOWN AS LOT 3, BLOCK 1401, AS SHOWN ON THE OFFICIAL TAX MAP OF TABERNACLE TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY.
- AREA= 2,548,623 S.F. OR 58.508 AC.
- LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE AS-BUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.
- THIS PLAN IS BASED ON INFORMATION PROVIDED BY THE CLIENT, A FIELD SURVEY PREPARED BY CARROLL ENGINEERING CORPORATION, AS WELL AS OTHER REFERENCE MATERIAL AS LISTED HEREON.
- THIS SURVEY IS PREPARED WITH REFERENCE TO A TITLE COMMITMENT PREPARED BY PRESTIGE TITLE AGENCY, INC. AS AGENT FOR OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, FILE NO. 22-065221, WITH AN EFFECTIVE DATE OF JANUARY 10, 2021, WHERE THE FOLLOWING SURVEY RELATED EXCEPTIONS APPEAR IN SCHEDULE B, SECTION II:
 - (12) EASEMENTS AS CONTAINED IN DEED BOOK 13245, PAGE 5108. - SHOWN HEREON.
- EXISTING FIRM: BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS OF MINIMAL FLOOD HAZARD), PER REF. #2.
- PRELIMINARY FIRM: BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS OF MINIMAL FLOOD HAZARD), PER REF. #3.
- PRELIMINARY FIRM PANEL NOT PRINTED.
- THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS).
 - TEMPORARY BENCH MARKS SET:
 - TBM-A: MAG NAIL SET IN ASPHALT DRIVE ELEVATION= 123.00'
 - TBM-B: X-CUT SET IN TOP OF CONCRETE FOOTING ELEVATION= 122.76'
- PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SKETCH HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION.
- THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
- PER CONTRACTUAL AGREEMENT WITH THE CLIENT, DETAILED TOPOGRAPHIC FEATURES HAVE BEEN LIMITED TO THE PROPOSED DESIGN AREA (SAND PIT) AND A PORTION OF FORKED NECK ROAD.
- CONTOURS HAVE BEEN GENERATED WITHIN THE DESIGN AREA AND ALONG A PORTION OF FORKED NECK ROAD UTILIZING A LEICA SCANSTATION P40 3-D LASER SCANNER. CONTOURS OUTSIDE OF SAID AREA HAVE BEEN GENERATED UTILIZING NEW JERSEY STATE UAV LIDAR (2' CONTOURS).



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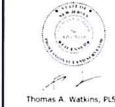
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949 Easton Road - Warminster, PA 18976
Phone: (215) 343-5700 Fax: (215) 343-0875

OTHER OFFICES
630 Freedom Business Center - Third Floor
King of Prussia, PA 19406
Phone: (610) 489-5100
101 Lindenwood Drive - Suite 225 - Mahan, PA 19355
Phone: (484) 875-3075

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Digitally signed by
Tom Watkins
Date:
2022.06.09
21:34:57
-04'00'



THOMAS A. WATKINS
PROFESSIONAL LAND SURVEYOR
NJ LIC. NO. 24G503761100
DATE: 06/07/2022

BOUNDARY & TOPOGRAPHIC SURVEY

HAAS SAND AND GRAVEL
TABERNACLE SAND SOLAR, LLC
BLOCK 1401
LOT 3
FORKED NECK ROAD
&
CARRANZA ROAD
SITUATED IN
TABERNACLE TOWNSHIP
BURLINGTON COUNTY, NEW JERSEY
PREPARED FOR
TABERNACLE SAND SOLAR, LLC
2045 LINCOLN HIGHWAY
EDISON, NEW JERSEY 08817

DATE:	06/07/2022
CADD FILE:	21-5331-001
JOB NO.:	21-5331-001
DSG BY:	N/A
DWN BY:	J.P.J./J.A.G.
CKD BY:	J.P.J.
SCALE:	1"=100'
DRAWER NUMBER:	
SHEET:	1 OF 1 SHEETS
DRAWING NUMBER:	200.4422