

# NORTHLAND SOLAR PROJECT

VT Route 100  
Lowell, Vermont

Northland Solar LLC

PO Box 1204  
Manchester Center, VT 05255  
www.nhsolar.com

**KREBS & LANSING**  
CONSULTING ENGINEERS  
164 Main Street, Suite 201 P: (802) 878-0375  
Colchester, Vermont 05446 www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

Krebs and Lansing Consulting Engineers, Inc.  
301 College Street  
Colchester, Vermont 05446

Environmental:

Arrowood Environmental  
950 Bert White Road  
Huntington, Vermont 05462

Landscape Architect:

T.J. Boyle Associates, LLC  
301 College Street  
Burlington, Vermont 05401

0' 50' 100' 200' 300'

STANDARD GRAPHIC SCALE (1" = 100')

VALID WHEN PLOTTED ON 24" BY 36" MEDIA

0' 109.1' 218.2'

REDUCED GRAPHIC SCALE (1" = 218.2')

VALID WHEN PLOTTED ON 11" BY 17" MEDIA

## Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE
A	Revise to fixed tilt (25', 16" between rows), increase setbacks along south and southeastern property lines, update landscaping, revise LOD, update LOD area and PAS impacts within LOD on table.	5/12/26

DATE of Issue: 09/29/25

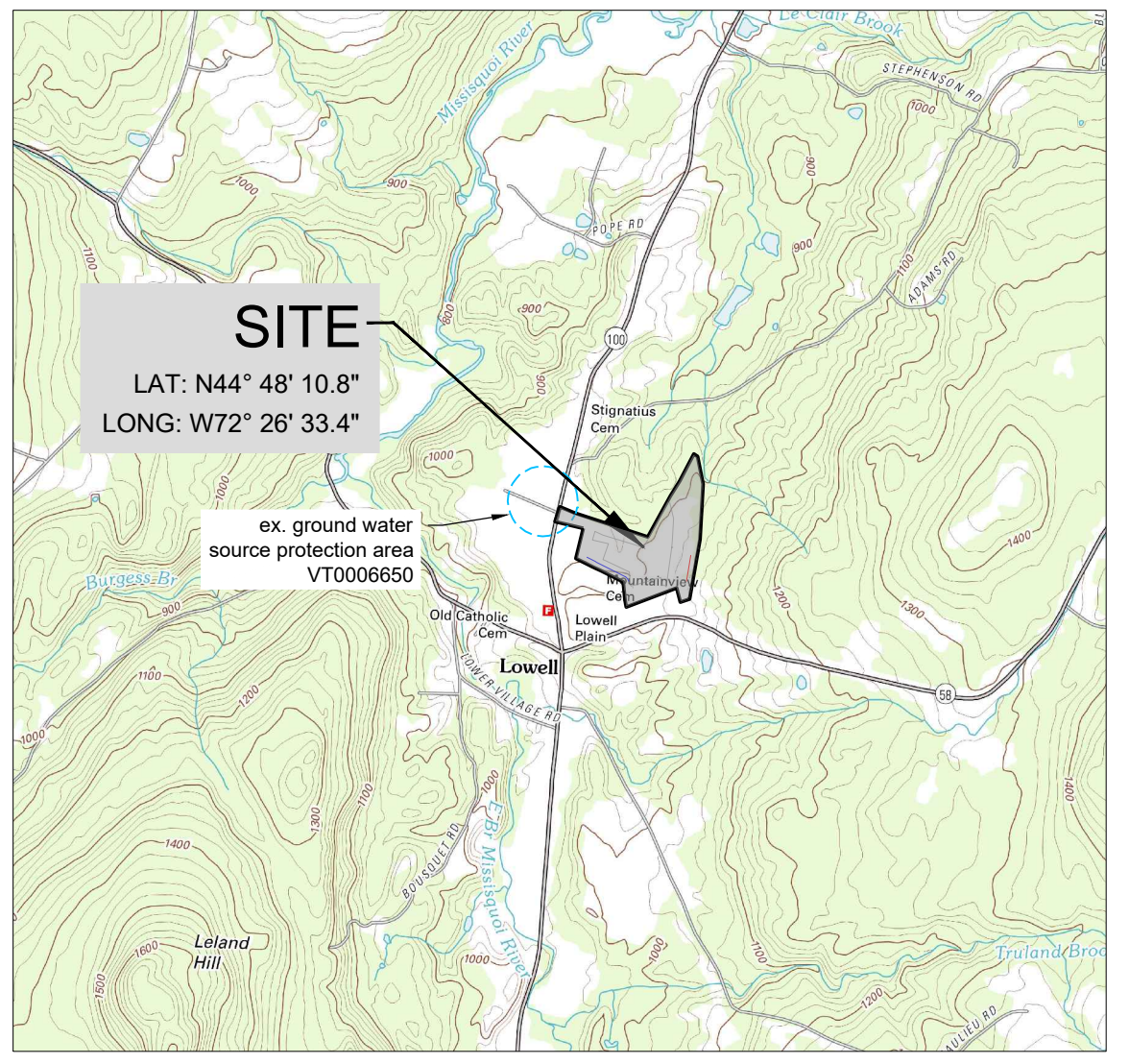
Drawn by: CPG Checked by: SDG

Project No.: 25222 Scale: 1" = 100'

Drawing No.: C-100 Rev No.: A

Drawing Title:

### SITE PLAN



LOCATION MAP  
SCALE: 1" = 1/2 Mile

LEGEND

- EXISTING/PROPOSED POWER POLE
- EXISTING TREE
- APPROXIMATE PROPERTY LINES
- PROJECT PARCEL PROPERTY LINE
- EXISTING OVERHEAD POWER
- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- LIMITS OF K&L TOPOGRAPHIC SURVEY
- SOLAR SETBACKS
- EXISTING TREELINE
- EXISTING STONE WALL
- WETLAND
- GROUNDWATER SPA
- CENTERLINE STREAM
- STREAM TOBITOS
- LIMITS OF DEER WINTERING AREA
- 100' SETBACK FROM DWA
- ENVIRONMENTAL BUFFER
- NRCS SOIL DELINEATION
- PROPOSED PERIMETER FENCING
- PROPOSED FINISH GRADE CONTOUR
- PROPOSED OVERHEAD POWER
- PROPOSED UNDERGROUND POWER
- PROPOSED FIXED TILT SOLAR RACKING
- PROPOSED 12' WIDE GRAVEL ACCESS ROAD
- PROPOSED PERMEABLE GRAVEL ACCESS ROAD OR TEMPORARY GRAVEL ACCESS ROAD FOR CONSTRUCTION
- PROPOSED VEGETATIVE MANAGEMENT AREA
- PROPOSED CONSTRUCTION STAGING AREA
- PROPOSED PRIME AG SOIL STOCKPILE AREA
- PROPOSED LIMITS OF DISTURBANCE
- ORIGINAL PROPOSED PERIMETER FENCING

### PROJECT AREA CALCULATIONS

PROJECT AREA		
	AREA (S.F.)	AREA (AC.)
Project Parcel Area	1,912,284	43.90
Area within Perimeter Fence	953,151	21.88
Area within LOD	1,337,118	30.70

IMPERVIOUS AREA		
	AREA (S.F.)	AREA (AC.)
Ex. Impervious	3,671	0.08
Proposed Gravel Drive	16,513	0.38
Proposed Eq. Pads	1,312	0.03
Total Impervious (Post Construction)	21,496	0.49

POTENTIAL DISTURBED SOILS		
	AREA (S.F.)	AREA (AC.)
Proposed Gravel Drives (pervious & impervious)	28,081	0.64
Proposed equipment pads	1,312	0.03
Solar Racking Posts	2,500	0.06
Trenching	8,000	0.18
Disturbed from grading for pads & roads	10,000	0.23
<b>TOTAL SUBJECT TO CONSTRUCTION STORMWATER PERMIT</b>	<b>1,337,118</b>	<b>30.70</b>

VEGETATIVE CLEARING		
	AREA (S.F.)	AREA (AC.)
Clearing (Stumped and grubbed)	0	0.00
Veg. management for solar array (No stumping)	0	0.00
Vegetative man. for interconnection (No stumping)	1,480	0.03

PRIME AG SOILS (MAPPED)		
	AREA (S.F.)	AREA (AC.)
Within Project Parcel	1,755,810	40.31
Within LOD	1,219,795	28.00
Disturbed from proposed gravel drives (pervious & impervious)	12,613	0.29
Disturbed from trenching	6,500	0.15
Disturbed from grading for pads & roads	3,700	0.08

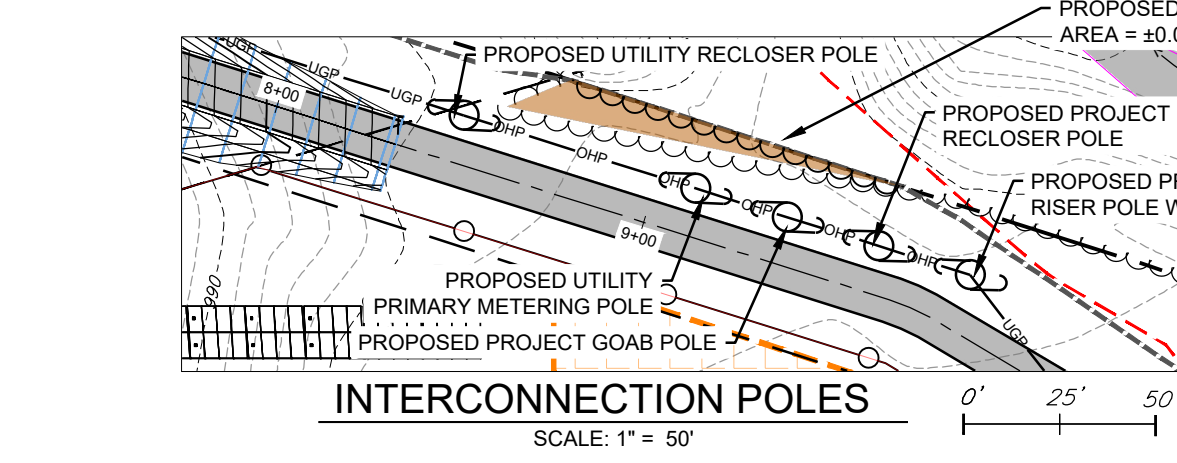
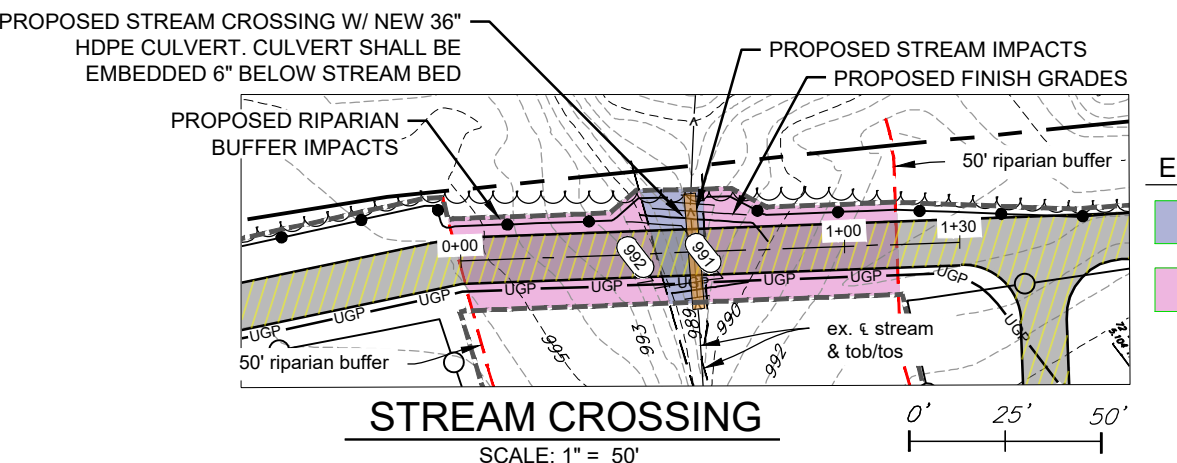
  

ENVIRONMENTAL IMPACTS		
	AREA (S.F.)	AREA (AC.)
Impact to Riparian Buffer from Access Road Crossing	2,510	0.06
Impact to Stream from Access Road Crossing	390	0.01
Impact to Class III Wetland from Post Installation	21	0.00
Impact to Class II Wetland Buffer from Fence Post Installation	7	0.00

**DEER WINTERING AREA NOTES:**

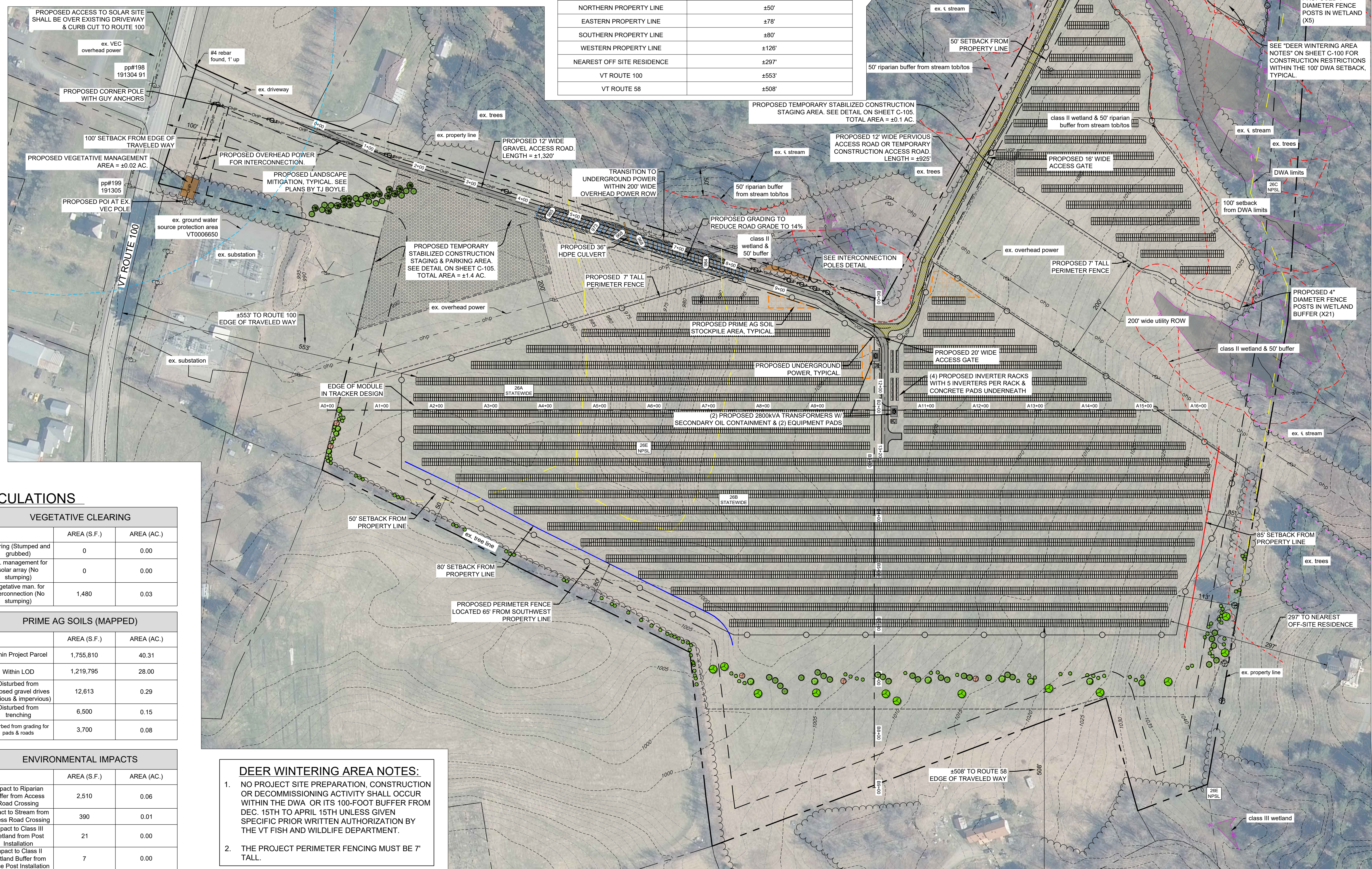
- NO PROJECT SITE PREPARATION, CONSTRUCTION OR DECOMMISSIONING ACTIVITY SHALL OCCUR WITHIN THE DWA OR ITS 100-FOOT BUFFER FROM DEC. 15TH TO APRIL 15TH UNLESS GIVEN SPECIFIC PRIOR WRITTEN AUTHORIZATION BY THE VT FISH AND WILDLIFE DEPARTMENT.
- THE PROJECT PERIMETER FENCING MUST BE 7' TALL.

- NOTES:**
- ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
  - THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 VERMONT STATE PLANE 4400 (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD83 (US SURVEY FEET).
  - EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON A TOPOGRAPHIC SURVEY BY KREBS & LANSING IN AUGUST 2025 AND LIDAR DATA PROVIDED BY THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION.
  - UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
  - THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES FOR PROPERTY ARE FROM BOUNDARY MONUMENTATION FOUND IN THE FIELD AND LAND RECORDS RESEARCH.
  - PRIMARY AGRICULTURAL SOILS (PAS) ON THE PROJECT SITE SHALL BE PRESERVED IN A MANNER THAT ALLOWS FOR COMPLETE RESTORATION DURING PROJECT DECOMMISSIONING. CONTRACTOR SHALL RESTORE EXCAVATED PAS SOIL IN ACCORDANCE WITH AAFM GUIDELINES. FACT 250 PROCEDURE: RECLAMATION OF VERMONT AGRICULTURAL SOILS.
  - SOIL EXCAVATION FOR CONDUIT TRENCHING IN PAS WILL BE REMOVED AND THEN BACKFILLED IN THE SAME SOIL LAYERS. SOIL DISPLACED BY INSTALLATION OF CONDUIT IS NEGLIGIBLE. # SAND BEDDING IS REQUIRED THEN IT WILL BE STORED IN THE PAS STOCKPILE AREAS.
  - WIRING WITHIN THE SOLAR ARRAY SHALL BE EITHER UNDERGROUND OR AN ABOVE GROUND WIRE MANAGEMENT SYSTEM. A DETAIL OF THE TYPICAL CAB ABOVE GROUND WIRE MANAGEMENT SYSTEM IS SHOWN ON SHEET C-107.
  - THIS IS A PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECT'S REVIEW.
  - SEE SHEET C-103 FOR EROSION PREVENTION & SEDIMENT CONTROL PLAN AND NOTES.



**SETBACK DISTANCES**

POINT OF INTEREST	DISTANCE FROM NEAREST SOLAR PANEL/SUPPORT STRUCTURE TO POINT OF INTEREST
NORTHERN PROPERTY LINE	±50'
EASTERN PROPERTY LINE	±78'
SOUTHERN PROPERTY LINE	±80'
WESTERN PROPERTY LINE	±126'
NEAREST OFF SITE RESIDENCE	±297'
VT ROUTE 100	±553'
VT ROUTE 58	±508'



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MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:

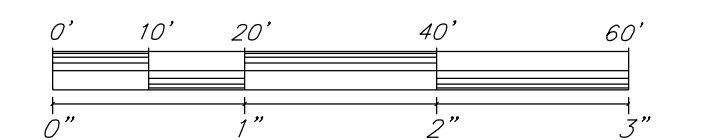
Krebs and Lansing Consulting Engineers, Inc.  
164 Main Street, Suite 201  
Colchester, Vermont 05446

Environmental:

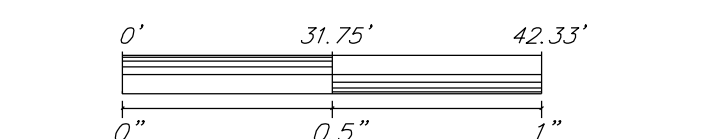
Arrowwood Environmental  
950 Bert White Road  
Huntington, Vermont 05462

Landscape Architect:

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Burlington, Vermont 05401



STANDARD GRAPHIC SCALE (1" = 20')  
VALID WHEN PLOTTED ON 24" BY 36" MEDIA



REDUCED GRAPHIC SCALE (1" = 42.33')  
VALID WHEN PLOTTED ON 11" BY 17" MEDIA

## Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE
A	Revise to fixed tilt	5/12/26

Drawing Title:

### ELEVATION A-A VIEWS

DATE of Issue: 09/18/24

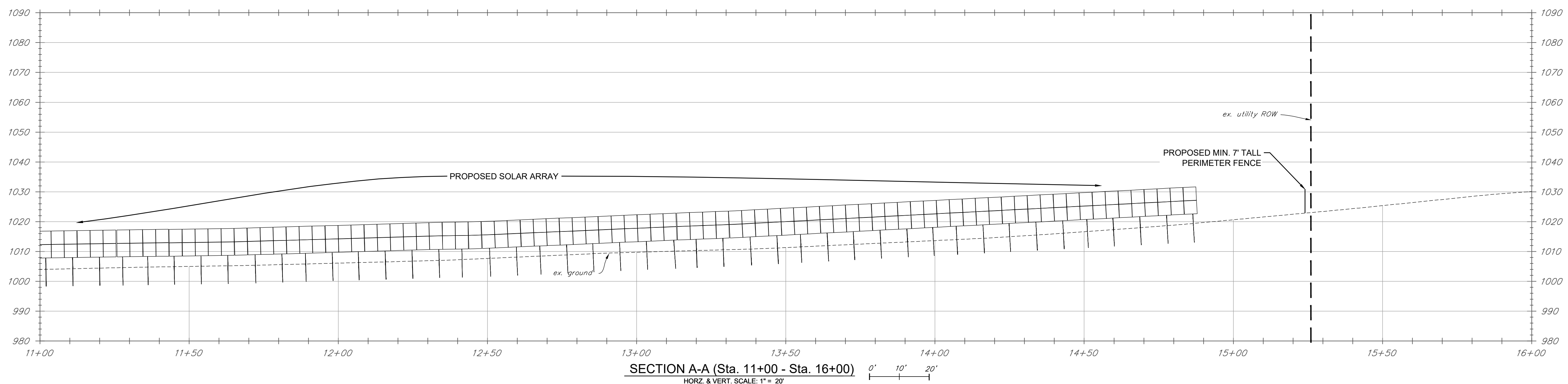
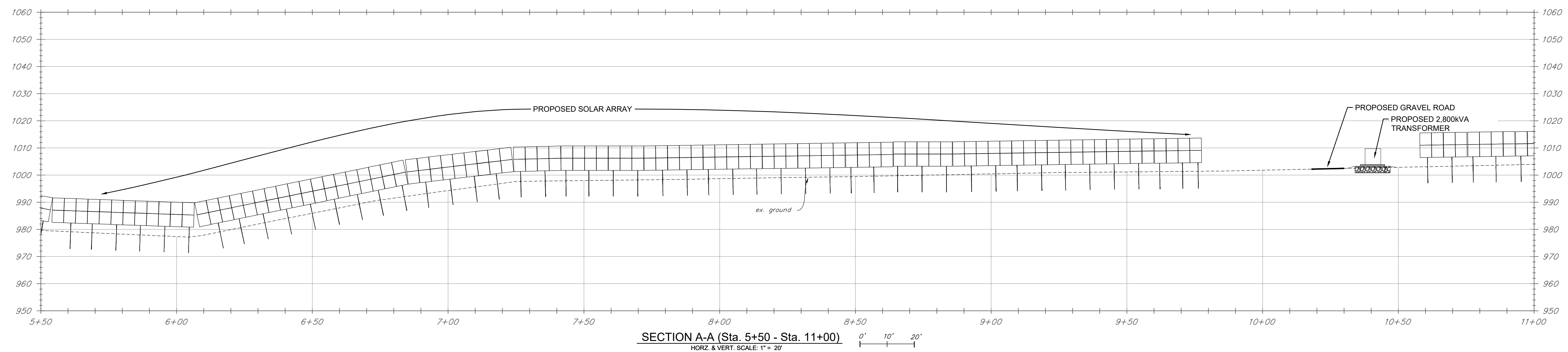
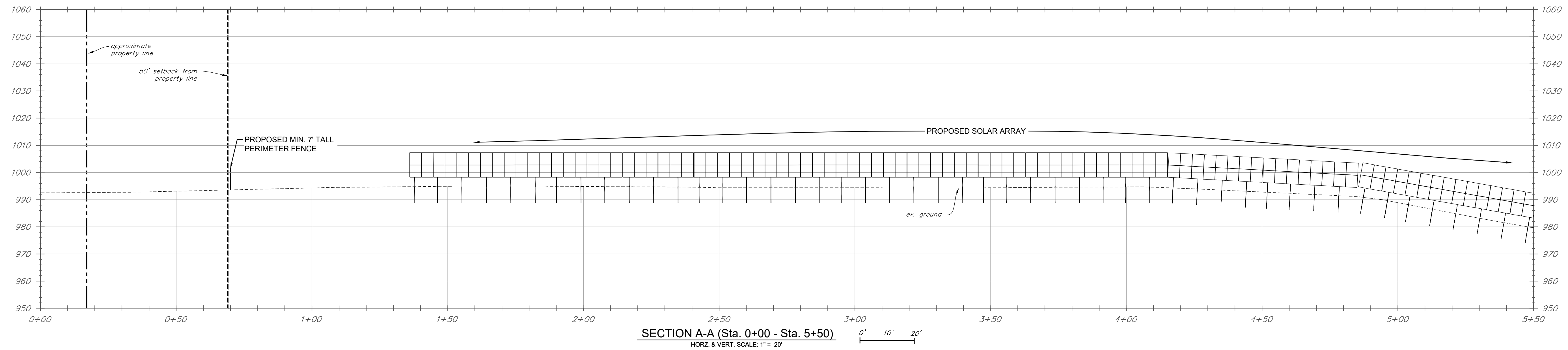
Drawn by: SDG Checked by: GTD

Project No.: 24207 Scale: 1" = 20'

Drawing No.: Rev No.:

C-101

A



# NORTHLAND SOLAR PROJECT

VT Route 100  
Lowell, Vermont

## Northland Solar LLC

PO Box 1204  
Manchester Center, VT 05255  
www.nhtgsolar.com



164 Main Street, Suite 201 P: (802) 878-0375  
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Civil Engineering:

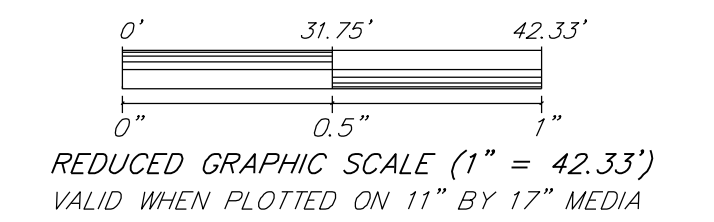
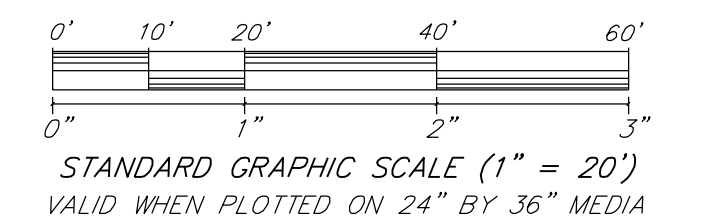
Krebs and Lansing Consulting Engineers, Inc.  
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Environmental:

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Landscape Architect:

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Burlington, Vermont 05401



## Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE
A	Revise to fixed tilt	5/12/26

Drawing Title:

### ELEVATION B-B VIEWS

DATE of Issue: 09/18/24

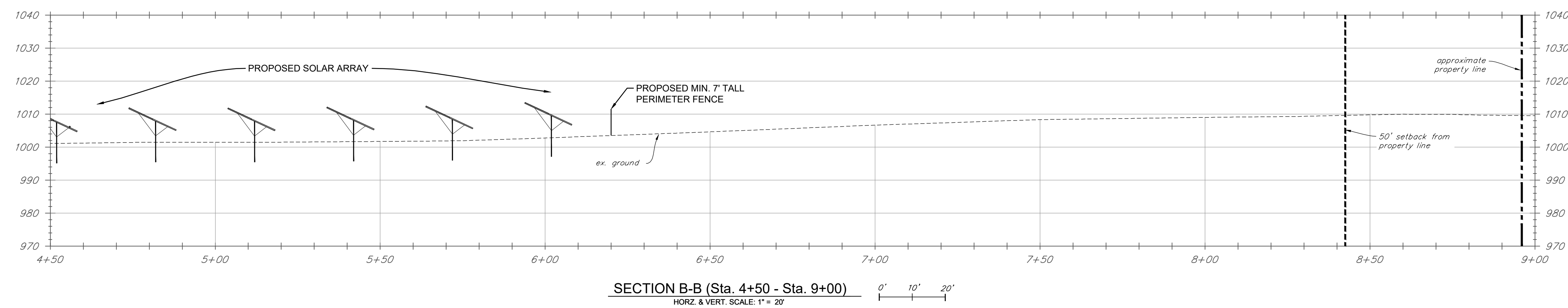
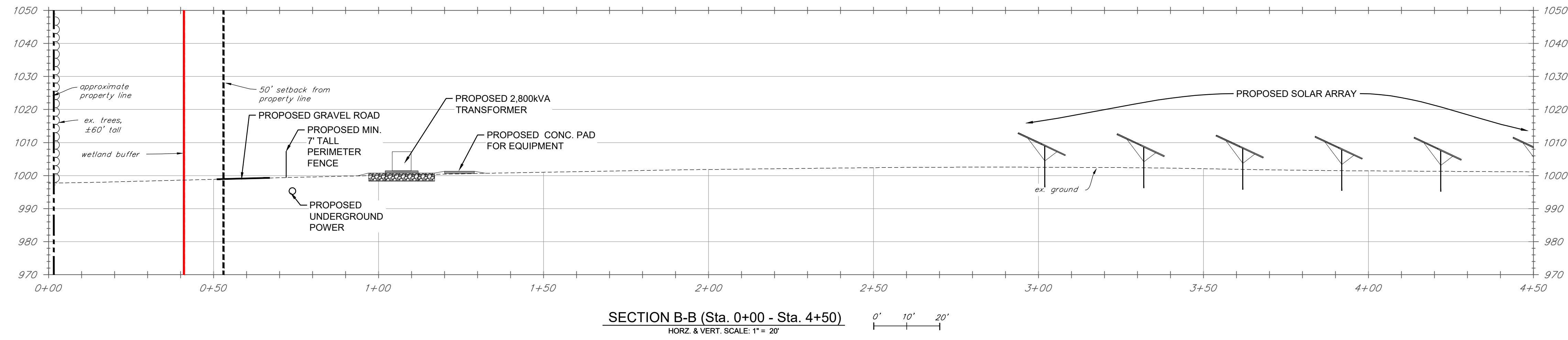
Drawn by: SDG Checked by: GTD

Project No.: 22162 Scale: 1" = 20'

Drawing No.: Rev No.:

C-102

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**CONSTRUCTION EPSC NOTES:**

- Existing vegetation shall be protected and maintained to the extent practicable. All clearing activities will be conducted in accordance with the acceptable management practices.
- A vegetated buffer shall be maintained for water bodies where feasible (e.g., wetlands and streams).
- To the extent practicable, surface flow shall be diverted away from exposed soils via diversion berms, earth dikes, perimeter dikes/swales, temporary swales, water bars, and/or check dams (see details).
- Resource areas (e.g., wetlands, streams, RTE plant species) shall be flagged prior to any construction related activities occurring within close proximity to those areas.
- Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not violate water quality standards or contribute to erosion. Dewatering details shall be reviewed and approved by OSCP prior to use.
- Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel (see details), flume, or slope drain structure.
- Adequate drainage or other protection shall be provided whenever water seeps from a slope face. Install rock sandwiches in locations where seep from cut slopes shall flow through the roadbed; no co-mingling with road runoff, where feasible, or directing of upslope run-on into stormwater treatment systems (see details).
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
  - No more than 500 linear feet of trench may be opened at one time.
  - Excavated material shall be placed on the uphill side of trenches, where feasible, but not in resource areas.
- Where feasible, all sediment removed from sediment control practices as part of maintenance shall be disposed of in an area that is at least one of the following, with immediate stabilization following disposal of material:
  - Less than 5% slope
  - At least 100 feet from any downslope water body or conveyance to a water body, including a ditch
  - Vegetated
- Disturbed areas bordering or draining to existing roads shall have an appropriate sediment ditch (e.g., silt fence) spanning the edge of the disturbance to prevent washing of sediment onto roadways or into road ditches.
- In advance of predicted rainfall or snowmelt, all EPSC measures that are located in active areas of earth disturbance shall be inspected and repaired as needed. If necessary, this shall include temporary stabilization of all disturbed soils on the site in advance of the anticipated runoff period.
- Dust control shall be handled via water application to roadways and other areas where dust may be generated.

**TEMPORARY AND FINAL STABILIZATION NOTES**

- All areas of earth disturbance associated with this project must be stabilized within 14 days of initial disturbance. After the initial 14-day period, all earth disturbance areas associated must be stabilized on a daily basis, with the following exceptions:
  - Stabilization is not required if work is to continue within the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
  - Stabilization is not required if the work is occurring in a self-contained excavation (i.e., no outlet for stormwater) with a depth of 2 feet or greater (e.g., underground line installation).
- The maximum area of earth disturbance at any one time shall not exceed 5 acres (\*\*10 acres if project applies for an IND permit\*\*).
- Soil stabilization shall be achieved by seed and mulch (see details), hydroseeding with mulch tackifier, soil, stone, and/or rolled erosion control products (e.g., erosion control blanket; see detail). Mulch shall be comprised of straw, hay, compost, woodchips, wood stump grindings, and/or erosion control mat (see detail).
- Appropriate seed mix shall be applied to designated areas per this EPSC Plan and seed specifications (see details). For an area to be stabilized for winter by vegetative cover, seeding must be completed by September 15.
- Areas to be stabilized for winter that do not have established vegetation by October 15 shall be stabilized by anchored mulch at the winter application rate, or other approved stabilization measures (e.g., rolled erosion control product; see detail). Dormant seeding with Winter Rye is recommended (see detail).
- All temporary EPSC measures shall be removed within 30 days after final site stabilization or after the temporary EPSC measures no longer needed, unless otherwise authorized and approved in writing by the Owner.
- Following temporary or permanent stabilization, maintenance shall be performed as necessary to ensure continued stabilization.
- Except as noted below, all areas of disturbance shall be seeded and stabilized with EPSC measures (e.g., mulch, erosion control mix, rock rip rap, or rolled erosion control product), including areas where construction has been suspended or sections completed. The following shall also apply:
  - For active construction areas such as borrow or stockpile areas, roadway improvements, and areas within 50 feet of a building under construction, a perimeter sediment control system (e.g., silt fence) shall be installed and maintained to contain soil. Exposed disturbed areas adjacent to a conveyance that provides rapid offsite discharge of sediment (e.g., a cut slope at an entrance) shall be covered with plastic or geotextile to prevent soil loss until the area can be stabilized. Stabilized construction entrances shall be maintained to control equipment and vehicles from tracking material off site.
  - Permanent seeding shall only be undertaken in the spring season from April through May and in late summer and early fall until September 15, summer planting may be conducted if adequate watering is provided. During the peak summer months and in the fall after September 15, an appropriate temporary stabilization shall be implemented. Temporary summer planting may suffice for permanent seeding if adequate rainfall allows for vigorous growth during the mid summer period. The Contractor's scope of work shall include return to the site the spring following construction to perform any further seeding that may be required and to remove any remaining erosion control measures that are no longer needed.
  - Temporary sediment trapping devices (e.g., silt fence) shall not be removed until permanent stabilization is established in all contributory drainage areas. Similarly, stabilization shall be established prior to converting sediment traps and/or sediment basins into permanent (post-construction) stormwater management practices.
  - Stabilization measures shall be applied to bare earth surfaces with seed and anchored straw mulch, or other approved stabilization measures (e.g., rolled erosion control product) as soon as possible after disturbance.

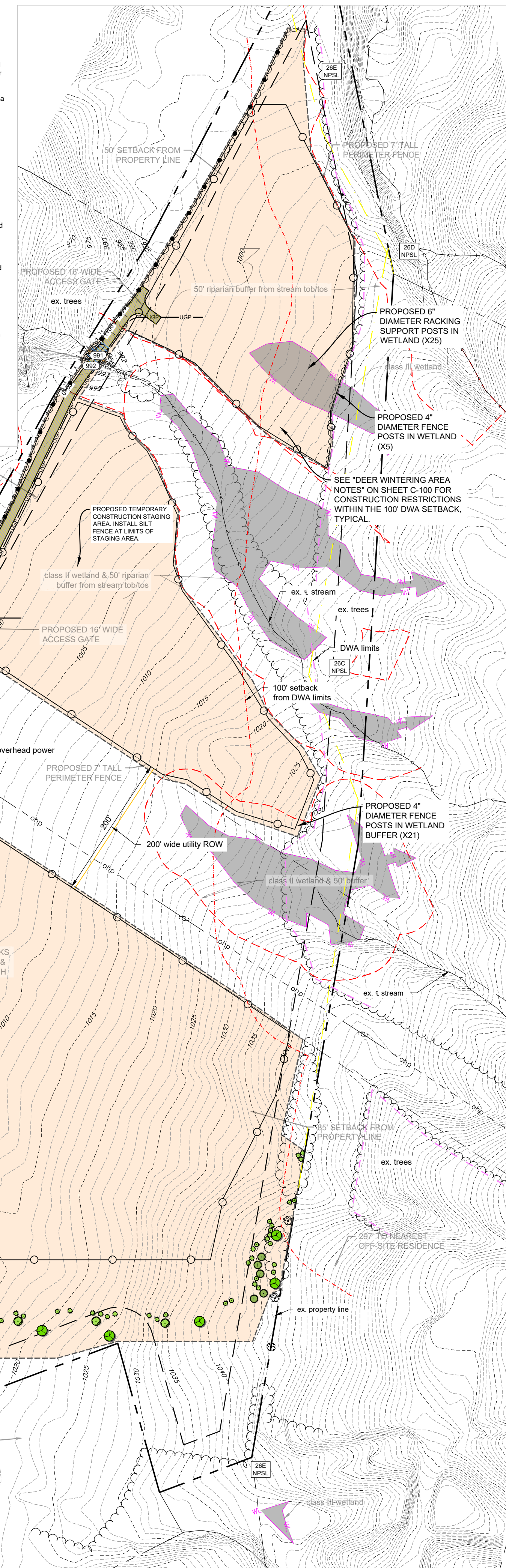
\*EPSC\* - Erosion Prevent & Sediment Control  
 \*OSPC\* - On-Site Plan Coordinator

**WINTER EROSION PREVENTION AND SEDIMENT CONTROL REQUIREMENTS**

(October 15th - April 15th)

- For areas to be stabilized with vegetative cover, seeding or hydroseeding shall be completed no later than September 15th to ensure adequate growth and cover.
- If seeding is not completed by September 15th, additional non-vegetative protection must be used to stabilize the site for the winter period. This includes the use of rolled Erosion Control Matting or netting of a heavy mulch layer.
- Where mulch is used for temporary stabilization it must be applied at double the standard rate, or a minimum of 3 inches with an 80%-90% cover.
- Stabilized Construction Entrances shall be enlarged to provide for snow stockpiling.
- Limits of disturbance shall be moved or replaced to reflect any revised boundaries of winter work.
- A snow management plan shall be prepared with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of stormwater treatment structures.
- A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
- Drainage structures must be kept open and free of snow and ice dams.
- Site fence and other sediment control practices requiring earth disturbance must be installed ahead of frozen ground.
- To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
  - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
  - Disturbed areas that collect and retain runoff, such as house foundation or open utility trenches.
- Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
- Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10-20 feet wide to accommodate vehicular traffic.
- For areas of disturbance within 100 ft of a waterbody, the following must be installed across the slopes, down gradient of the earth disturbance:
  - A combination of one practice from group A placed in front of a practice from group B
  - Two group B practices, or
  - A single row of Reinforced Silt Fence

Group A	Group B
Silt Socks	Silt Fence
Straw Wattles	Erosion Control Berms



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**LEGEND**

- EXISTING GRADE CONTOUR LINES (5 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (1 FOOT INTERVALS)
- CENTERLINE STREAM
- STREAM TOPTOS
- WETLAND (DELINEATED BY ARROWWOOD ENVIRONMENTAL)
- ENVIRONMENTAL BUFFER
- LIMITS OF DEER WINTERING AREA
- 100' SETBACK FROM DWA
- PROPOSED FINISH GRADE CONTOUR (1' INTERVALS)
- CONSTRUCTION STAGING AREA
- TEMPORARY SILT FENCE (TO BE INSTALLED PRIOR TO CONSTRUCTION)
- LIMITS OF DISTURBANCE SUBJECT TO CONSTRUCTION STORMWATER PERMIT. INSTALL CONSTRUCTION LIMIT BARRIER FENCING/FLAGGING AT LIMITS AND MAINTAIN THROUGHOUT CONSTRUCTION.
- PROPOSED PAS STOCKPILE AREA
- PROPOSED 12' WIDE GRAVEL ACCESS ROAD
- PROPOSED PERMEABLE GRAVEL ACCESS ROAD OR TEMPORARY GRAVEL ACCESS ROAD FOR CONSTRUCTION
- PROPOSED VEGETATIVE MANAGEMENT AREA

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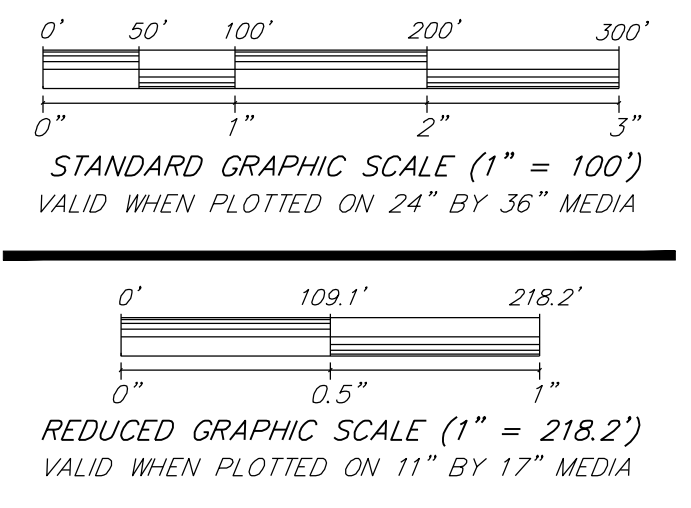
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**EROSION PREVENTION & SEDIMENT CONTROL PLAN & NOTES**

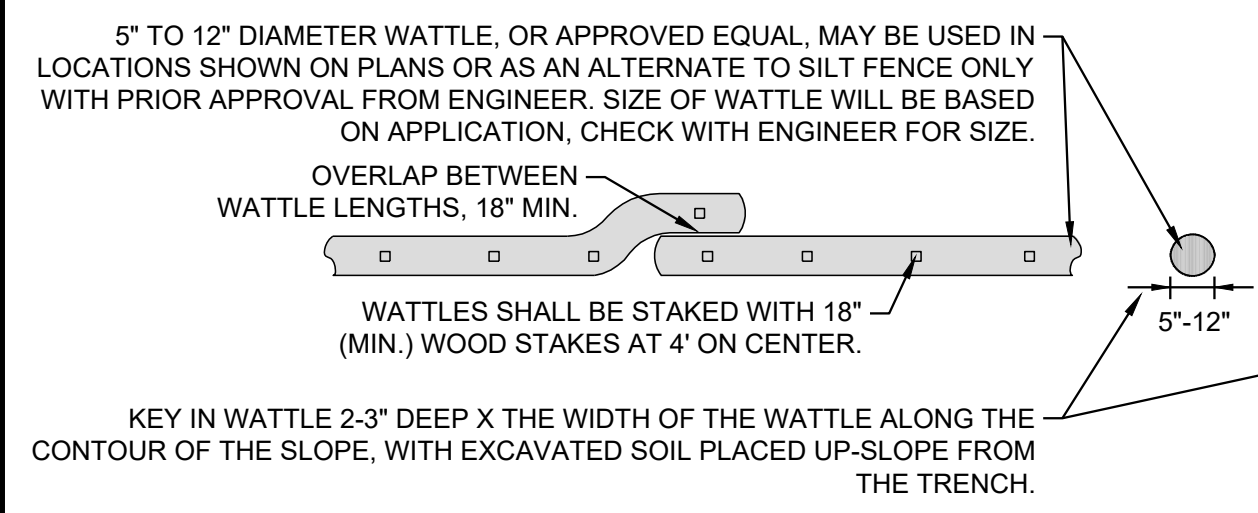
DATE of Issue: 09/22/24  
 Drawn by: SDG Checked by: GTD  
 Project No.: 24207 Scale: 1" = 100'  
 Drawing No.: Rev No.:

**CONSTRUCTION NOTES:**

- THE MAXIMUM CONCURRENT AREA OF EARTH DISTURBANCE AT ANY ONE TIME SHALL NOT EXCEED 5 ACRES (\*\*10 ACRES IF PROJECT APPLIES FOR AN IND PERMIT\*\*).
  - THE CONTRACTOR SHALL BE THE ON-SITE COORDINATOR FOR THE PROJECT AND SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL MEASURES FOR THE PROJECT. INSPECTIONS, TURBIDITY MONITORING AND CORRESPONDING REPORTS SHALL BE PERFORMED AT A MINIMUM, ONCE A WEEK AND AFTER EVERY PRECIPITATION EVENT THAT RESULTS IN A DISCHARGE FROM THE SITE.
  - AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL NOT BE DISTURBED.
- EPSC INSPECTION NOTES:**
- THE CONTRACTOR FOR EACH PROJECT SHALL BE THE ON-SITE PLAN COORDINATOR FOR THE PROJECT AND SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL MEASURES FOR THE PROJECT.
  - INSPECTIONS FOR RUNOFF OF VISIBLY DISCOLORED STORMWATER LEAVING THE CONSTRUCTION SITE SHALL BE CONDUCTED ONCE A WEEK, AND DAILY DURING THE WINTER CONSTRUCTION PERIOD (OCT. 15 - APRIL 15). INSPECTIONS SHALL ALSO OCCUR AS SOON AS REASONABLY POSSIBLE DURING OR AFTER EVERY PRECIPITATION EVENT WHICH PRODUCES RUNOFF FROM THE CONSTRUCTION SITE. A RUNOFF-PRODUCING EVENT IS A PRECIPITATION EVENT THAT RESULTS IN WATER EXITING THE LIMITS OF DISTURBANCE, REGARDLESS OF WHETHER OR NOT THERE IS ULTIMATELY A DISCHARGE OF THAT RUNOFF INTO A RECEIVING WATER.
  - THE OSCP SHALL CONTINUE INSPECTIONS UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED FOR THE PROJECT.

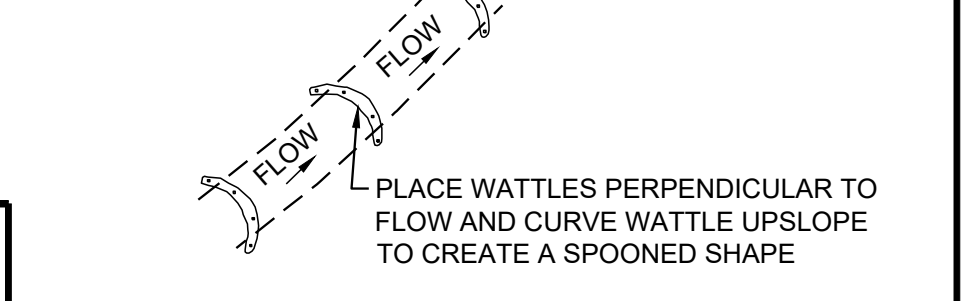
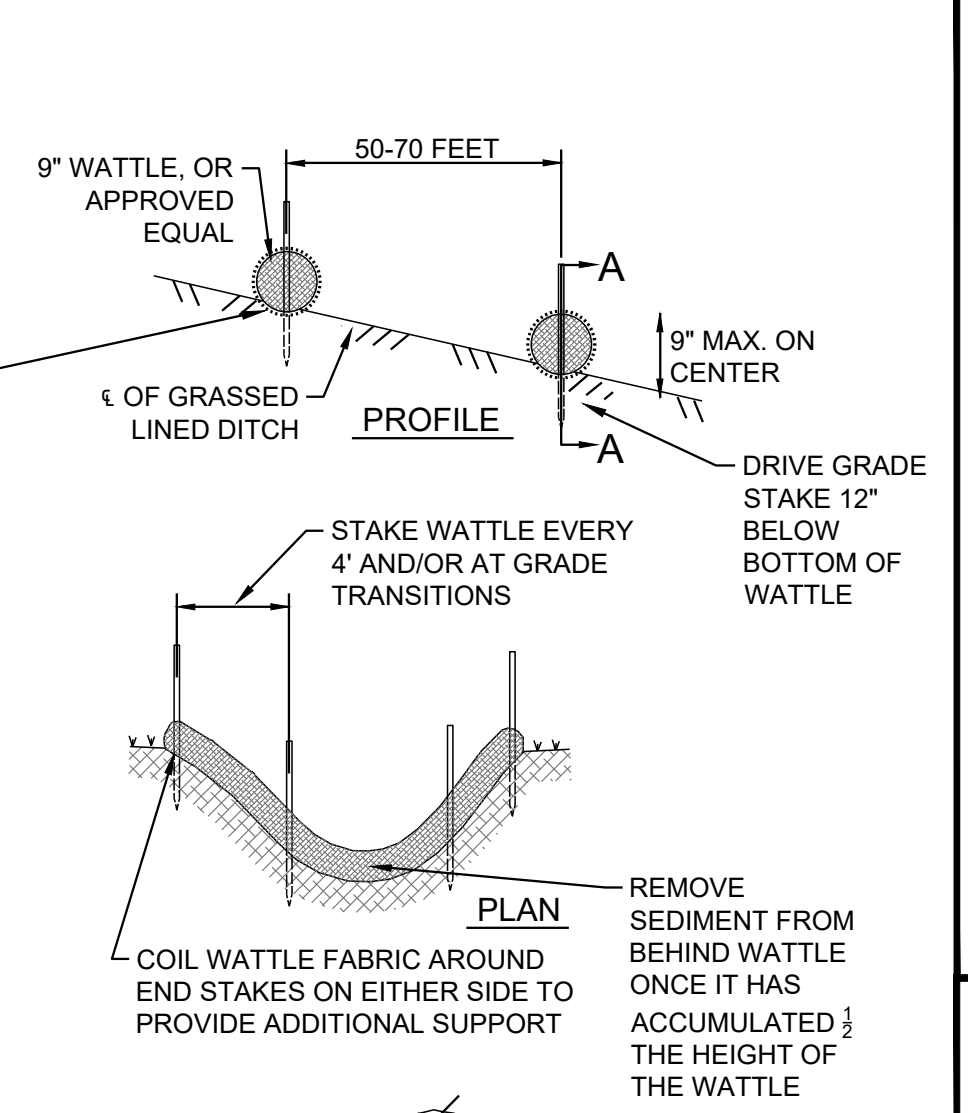
**ON-SITE PLAN COORDINATOR NOTES:**

- A QUALIFIED PERSON OR PERSONS SHALL BE DESIGNATED AS THE ON-SITE PLAN COORDINATOR (OSPC).
- THE OSCP SHALL BE KNOWLEDGEABLE IN PRINCIPLES AND PRACTICES OF EPSC IMPLEMENTATION AND POSSESS SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY AND TO ASSESS EFFECTIVENESS OF EPSC MEASURES SELECTED TO CONTROL QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY.
- THE OSCP SHALL BE RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THIS EPSC PLAN, INCLUDING TURBIDITY MONITORING AND DISCHARGE REPORTING.
- THE OSCP SHALL HAVE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THIS EPSC PLAN AND TERMS AND CONDITIONS OF THE PERMIT.
- THE OSCP SHALL BE RESPONSIBLE FOR INSPECTIONS AND REPORTING PER THE PERMIT.
- THE OSCP OR HIS/HER DESIGNEE SHALL BE ON-SITE ON A DAILY BASIS DURING ACTIVE CONSTRUCTION.
- THE OSCP'S CONTACT INFORMATION SHALL BE PROVIDED TO VT DEC PRIOR TO START OF CONSTRUCTION.



- NOTES**
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF WATTLE IN ALL LOCATIONS SHOWN ON THE PLANS. WATTLE MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES OVER WATTLE FOR GROWTH POST CONSTRUCTION.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL WATTLES WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
  - WHEN INSTALLING LENGTHS OF WATTLE, LENGTHS WILL OVERLAP BY MINIMUM 18" WHEN TRANSITIONING TO A NEW LENGTH OF WATTLE.
  - CONTRACTOR SHALL REFER TO ALL MANUFACTURERS SPECIFICATIONS AND DETAILS.
  - SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.
  - WATTLE CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER.

**TYPICAL WATTLE SEDIMENT CONTROL**  
N.T.S.



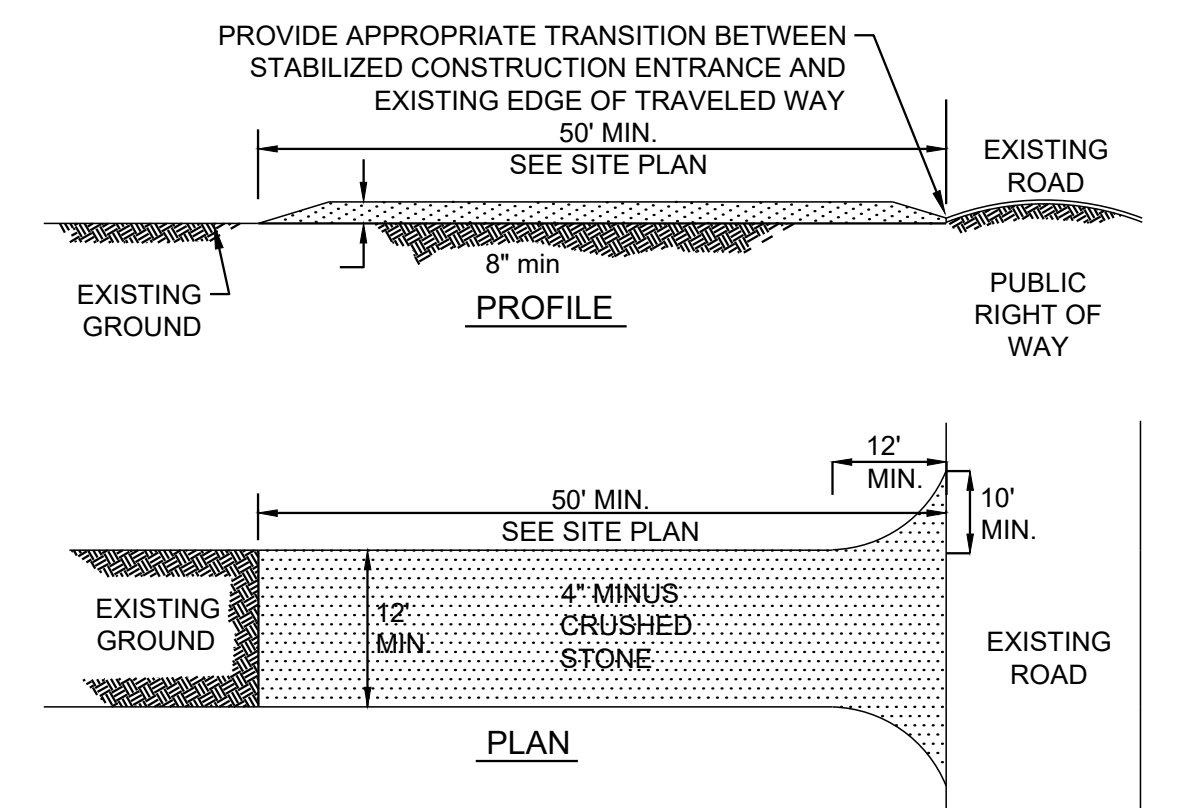
- NOTES**
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  - WHEN INSTALLING LENGTHS OF WATTLE, LENGTHS WILL OVERLAP BY MINIMUM 18" WHEN TRANSITIONING TO A NEW LENGTH OF WATTLE.
  - CONTRACTOR SHALL REFER TO ALL MANUFACTURERS SPECIFICATIONS AND DETAILS.
  - WATTLE CAN ONLY BE USED IN A GRASS LINED SWALE, MAY NOT BE USED IN STONE LINED SWALES.
  - WATTLE CHECK DAM CAN ONLY BE USED IN CHANNELS WITH SLOPES LESS THAN 5%.
  - SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.

**TYPICAL WATTLE CHECK DAM DETAIL**  
N.T.S.

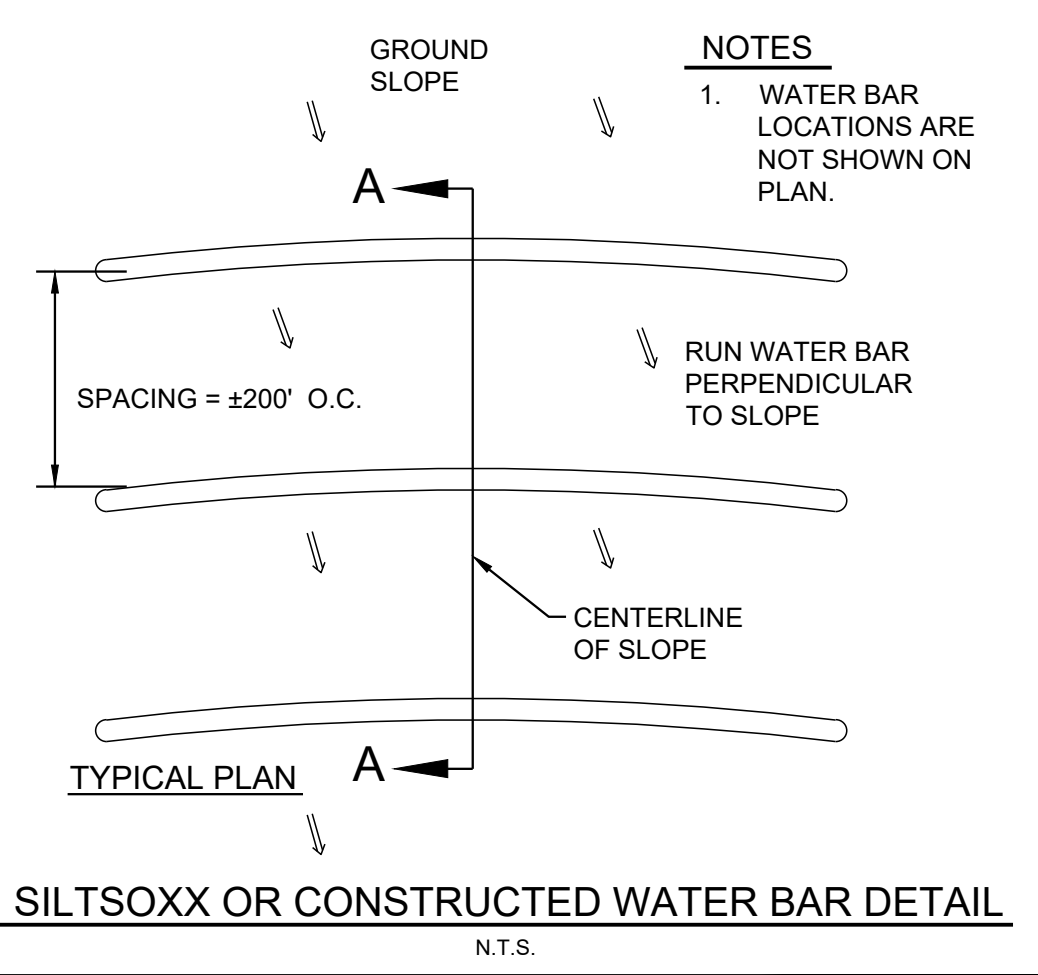
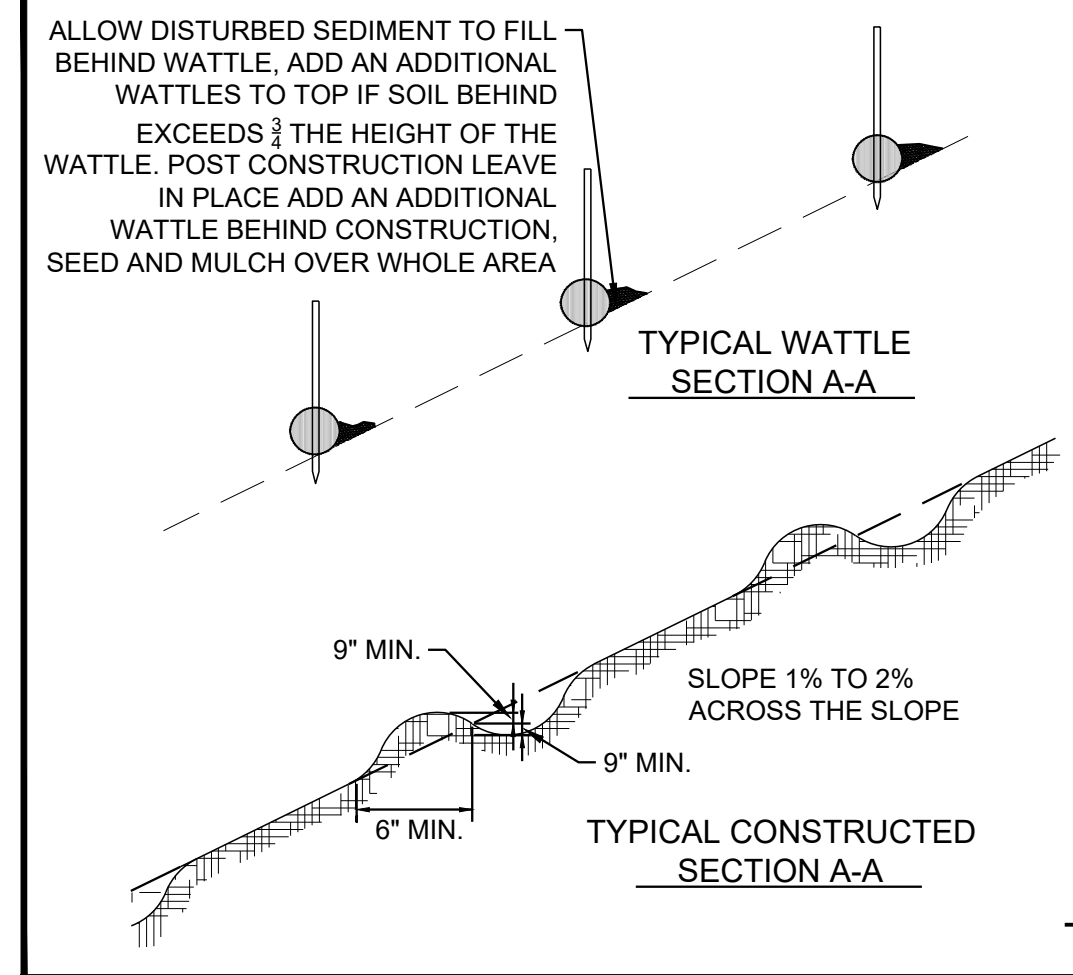
- NOTES**
- ACCEPTABLE EPSC MEASURE DETAILS ARE PROVIDED BELOW.
  - AT A MINIMUM, EPSC MEASURES MEET VT DEC STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
  - LIMITS OF DISTURBANCE (OR "CONSTRUCTION DEMARCATION") SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
  - BARRIER TAPE/ROPE: FOR USE WHERE PROPOSED DISTURBANCE BORDERS NON-WOODED, VEGETATED AREAS MORE THAN 100 FT FROM THE NEAREST WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.). BARRIER TAPE IS HIGH VISIBILITY FIBERGLASS TAPE, MINIMUM 3" IN WIDTH COMMONLY USED IN SKI AREAS FOR DEMARCATING CLOSED AREAS. BARRIER TAPE AND ROPE SHOULD BE ATTACHED TO STAKES, AT A MINIMUM HEIGHT OF 4 FT FROM THE GROUND.
  - MINIMUM 1 TO 2 ROWS OF MESH BARRIER TAPE TO BE INSTALLED ALONG CONSTRUCTION PERIMETER.
  - EACH ROW OF BARRIER TAPE TO BE 3" WIDE MINIMUM.
  - BARRIER TAPE TO BE ORANGE.
  - SECURE BARRIER TAPE TO STAKES OR EXISTING TREE TRUNKS WITH BOTTOM ROW AT 4' DISTANCE FROM GROUND SURFACE (MINIMUM).
  - MAINTAIN AND REPLACE AS NEEDED. REMOVE AT COMPLETION OF PROJECT PER OSPC.
  - IN EVENT THE OSPC DETERMINES BARRIER TAPE IS NOT SUFFICIENT, REPLACE WITH ORANGE CONSTRUCTION FENCE OR SNOW FENCE.

**TYPICAL CONSTRUCTION LIMIT BARRIER**  
N.T.S.

- CONSTRUCTION STORMWATER DISCHARGE PERMIT INFORMATION**
- THIS PROJECT PROPOSES 32.09 ACRES OF SOIL DISTURBANCE ON SITE.
  - THE PROPOSED PROJECT HAS BEEN SCORED USING THE STATE OF VERMONT APPENDIX-A RISK EVALUATION. THE PROJECT WILL APPLY FOR A MODERATE RISK OR INDIVIDUAL CONSTRUCTION STORMWATER DISCHARGE PERMIT.
  - THE MAXIMUM AREA OF EARTH DISTURBANCE AT ANY ONE TIME SHALL NOT EXCEED 10 ACRES.
  - ALL AREAS OF EARTH DISTURBANCE MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED IN ADVANCE OF ANY RUNOFF PRODUCTION EVENT, WITH THE FOLLOWING EXCEPTION:  
ii. STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E., NO OUTLET FOR STORMWATER) WITH A DEPTH OF 2 FEET OR GREATER (E.G., UNDERGROUND LINE INSTALLATION).
  - PROJECT DOES NOT PROPOSE WINTER CONSTRUCTION. WINTER CONSTRUCTION NOTES ARE INCLUDED.
  - ALL TEMPORARY EPSC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY EPSC MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED AND APPROVED IN WRITING BY THE OWNER.
  - SOIL STABILIZATION SHALL BE ACHIEVED BY SEED AND MULCH, HYDROSEEDING WITH MULCH TACKIFIER, SOD, STONE, AND/OR ROLLED EROSION CONTROL PRODUCTS (E.G., EROSION CONTROL BLANKET). MULCH SHALL BE COMPRISED OF STRAW, HAY, COMPOST, WOODCHIPS, WOOD STUMP GRINDINGS, AND/OR EROSION CONTROL MIX.
  - APPROPRIATE SEED MIX SHALL BE APPLIED TO DESIGNATED AREAS PER THIS EPSC PLAN AND SEED SPECIFICATIONS.



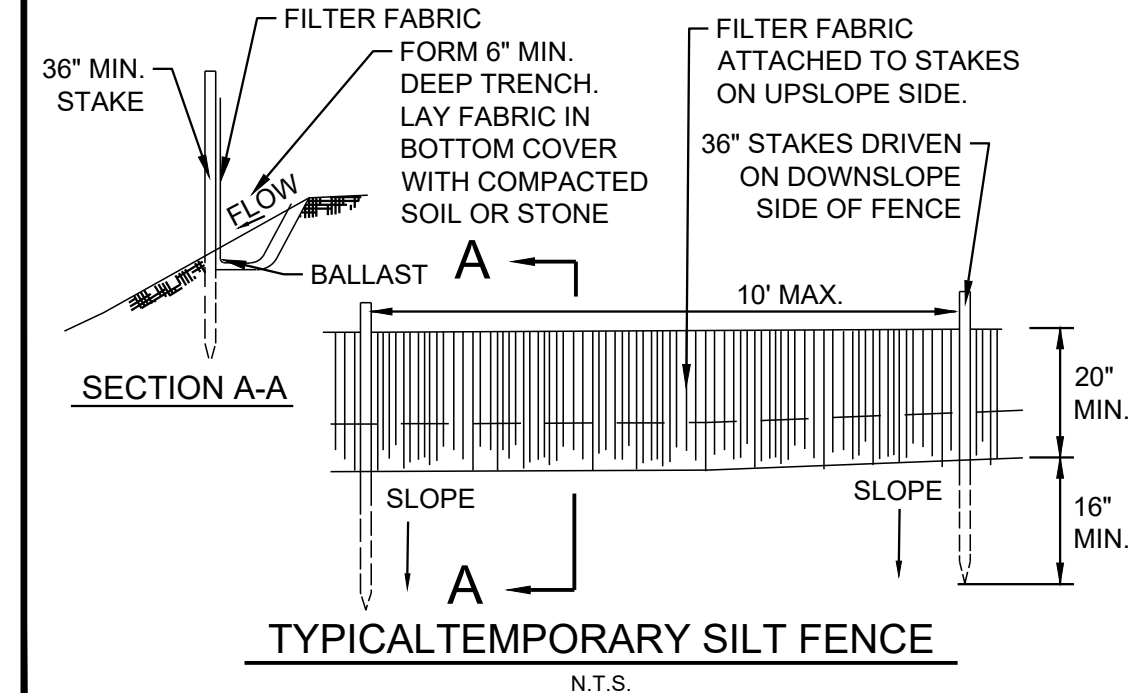
**STABILIZED CONSTRUCTION ENTRANCE**  
N.T.S.



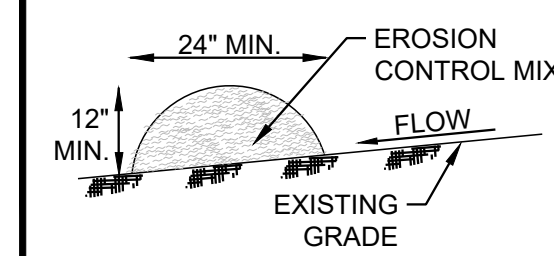
- NOTES**
- AT A MINIMUM, EPSC MEASURES MEET VT DEC STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
  - PERIMETER CONTROLS SHALL BE UTILIZED IN SMALL AREAS < 1 ACRE. IN AREAS > 1 ACRE, TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS ARE TO BE UTILIZED.
  - PERIMETER CONTROLS SHALL BE INSTALLED ON DOWNSLOPE SIDE OF PLANNED EARTH DISTURBANCE.
  - PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES WITHIN UPSLOPE CONTRIBUTING AREA.
  - SILT FENCE SHALL NOT BE USED AS CONSTRUCTION DEMARCATION.
  - SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER. SEE DETAIL.
  - IF SILT FENCE IS INSTALLED WHEN GROUND IS FROZEN, A GRAVEL, SHOT ROCK, OR SAND BALLAST MUST BE USED.

**SILT FENCE SPACING CHART**

SLOPE	SPACING
5% TO 10%	50 FT. OR LESS
10% TO 20%	25 FT. OR LESS
> 20%	15 FT. OR LESS

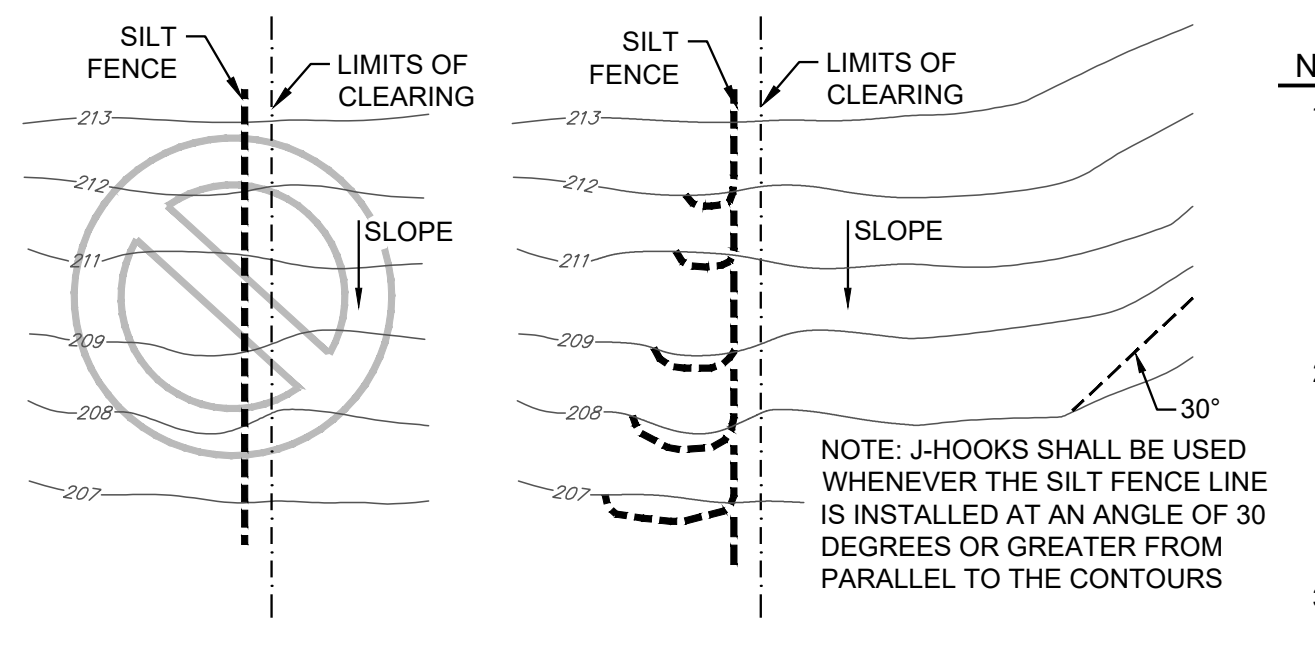


- NOTES**
- CONTRACTOR SHALL STABILIZE CONSTRUCTION ENTRANCE AS REQUIRED TO PREVENT TRACKING OF SEDIMENT OFF-SITE.
  - CONTRACTOR TO USE MIRAFI 500X UNDER STONE FOR TEMPORARY CONSTRUCTION ROADS.
  - CRUSHED STONE SHALL BE ADDED OR REPLACED WHEN 80% OF THE VOIDS ARE FILLED WITH SEDIMENT.
  - STONE SIZE SHALL BE 1-4".
  - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES IS ALLOWED.

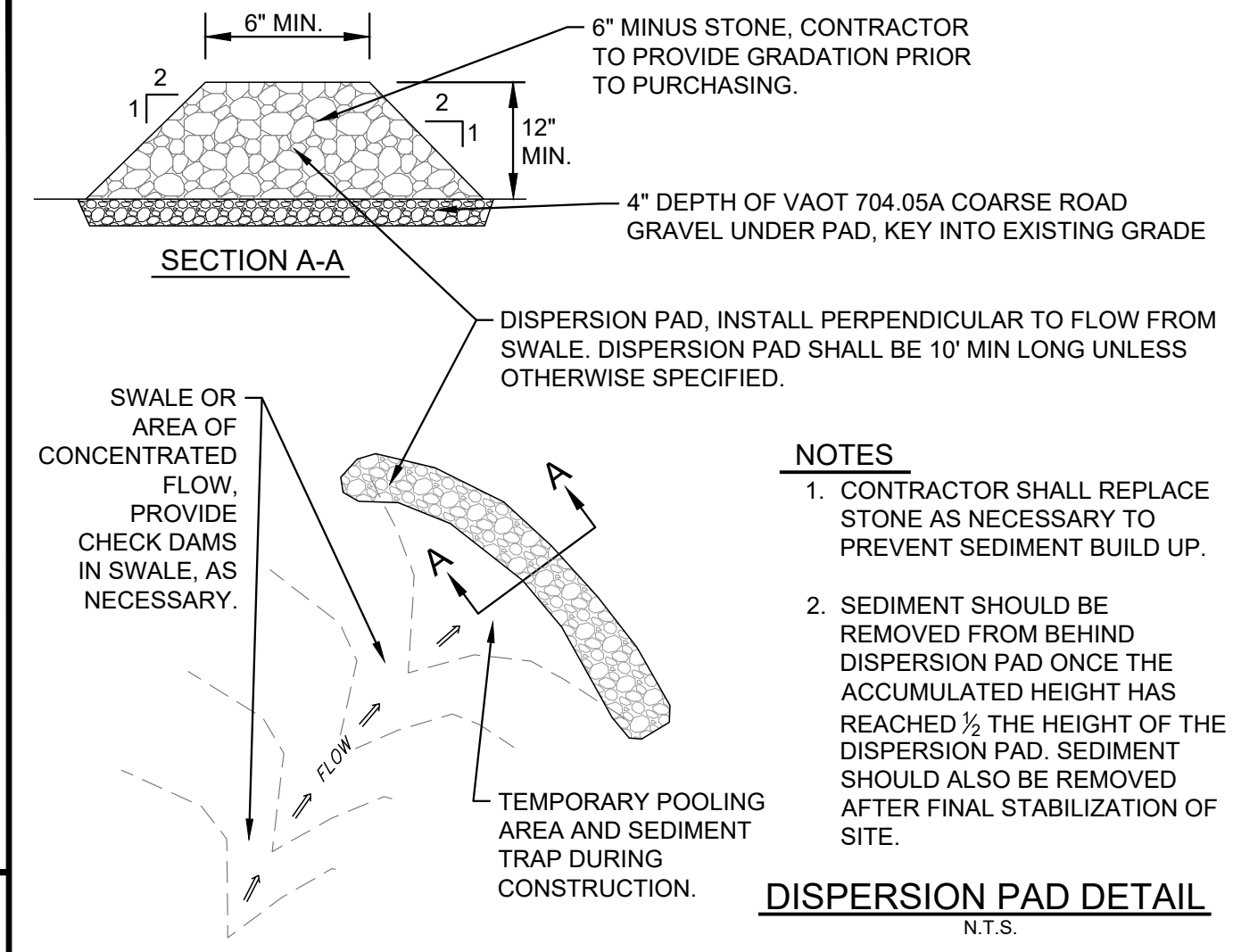
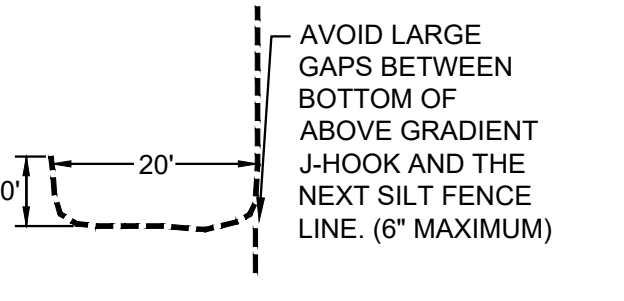


- COMPOSITION:**
- EROSION CONTROL MIX BERM SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH THE MAINE DEPT. OF EROSION CONTROL AND SEDIMENT CONTROL BMP, B-1 SEDIMENT BARRIERS. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED WOOD AND BARK CHIPS AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE. ALL MATERIALS USED TO MANUFACTURE THE EROSION CONTROL MIX SHALL BE NATIVE VERMONT MATERIALS.
- NOTES**
- THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
  - EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER LIES NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
  - ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UP HILL SIDE OF THE BARRIER, AND A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
  - EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER END SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH OSPC APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. IN WETLAND BUFFER AREAS EROSION CONTROL MIX MAY BE USED ONLY IN THE SPECIFIC AREAS THAT HAVE RECEIVED REGULATORY APPROVAL FOR DISTURBANCE FROM EITHER THE STATE OF VERMONT WETLANDS PROGRAM OR THE U.S. ARMY CORPS OF ENGINEERS. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS.

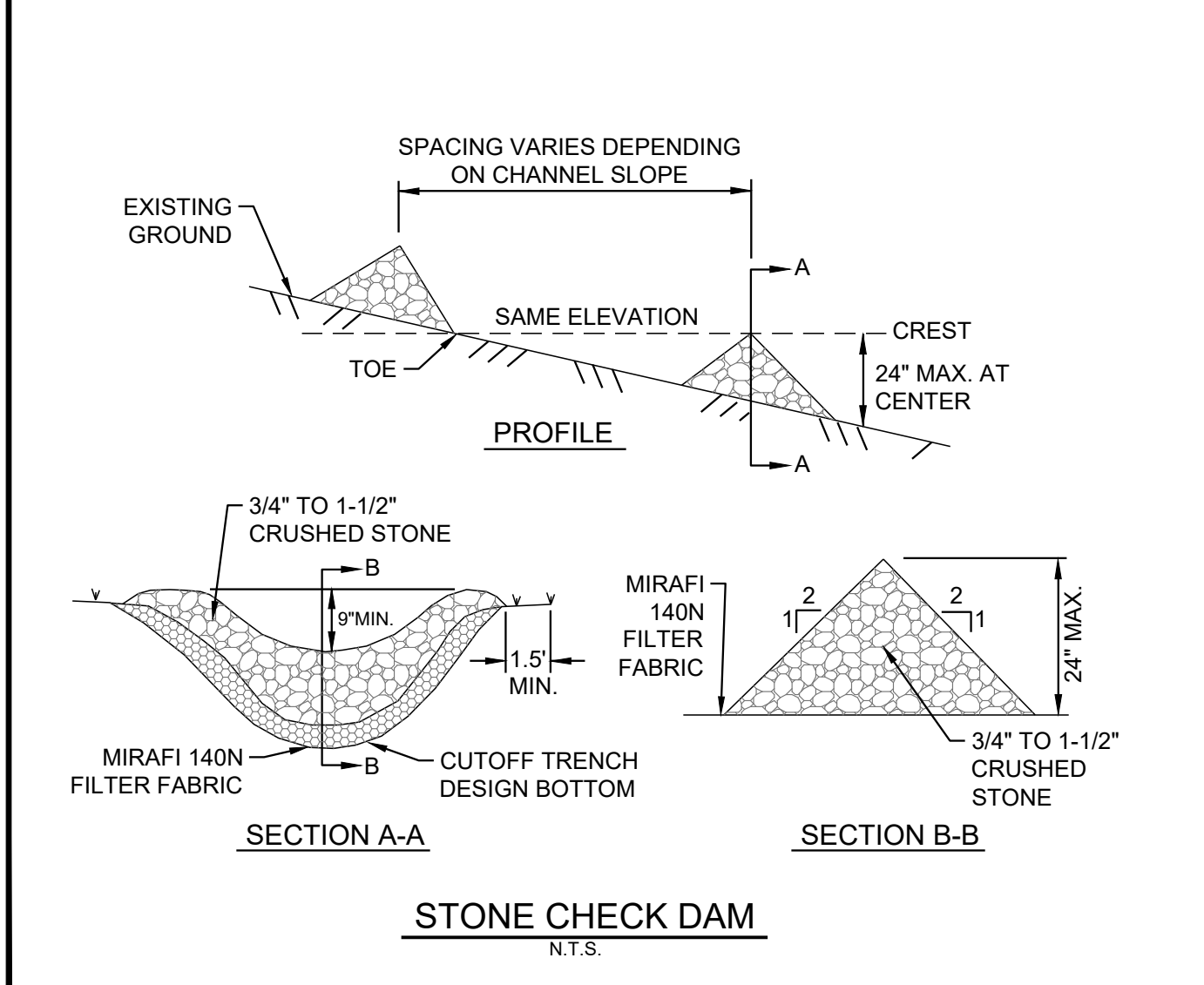
**TYPICAL EROSION CONTROL MIX BERM**  
N.T.S.



SLOPE STEEPNESS	MAXIMUM SPACING BETWEEN SILT FENCE J-HOOKS (FT.)
2:1 SLOPE (50%)	25
3:1 SLOPE (33%)	50
4:1 SLOPE (25%)	75
5:1 SLOPE OR FLATTER (50%)	100



- NOTES**
- STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
  - SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
  - EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
  - PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
  - ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.



# NORTHLAND SOLAR PROJECT

VT Route 100  
Lowell, Vermont

## Northland Solar LLC

PO Box 1204  
Manchester Center, VT 05255  
www.nhtgester.com

**KREBS & LANSING**  
CONSULTING ENGINEERS

164 Main Street, Suite 201  
Colchester, Vermont 05446

P: (802) 878-0375  
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**SOURCE DATA LEGEND**

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Civil Engineering:  
Krebs and Lansing Consulting Engineers, Inc.  
164 Main Street, Suite 201  
Colchester, Vermont 05446

## Proposed Solar Array

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

**EROSION PREVENTION AND SEDIMENT CONTROL DETAILS**

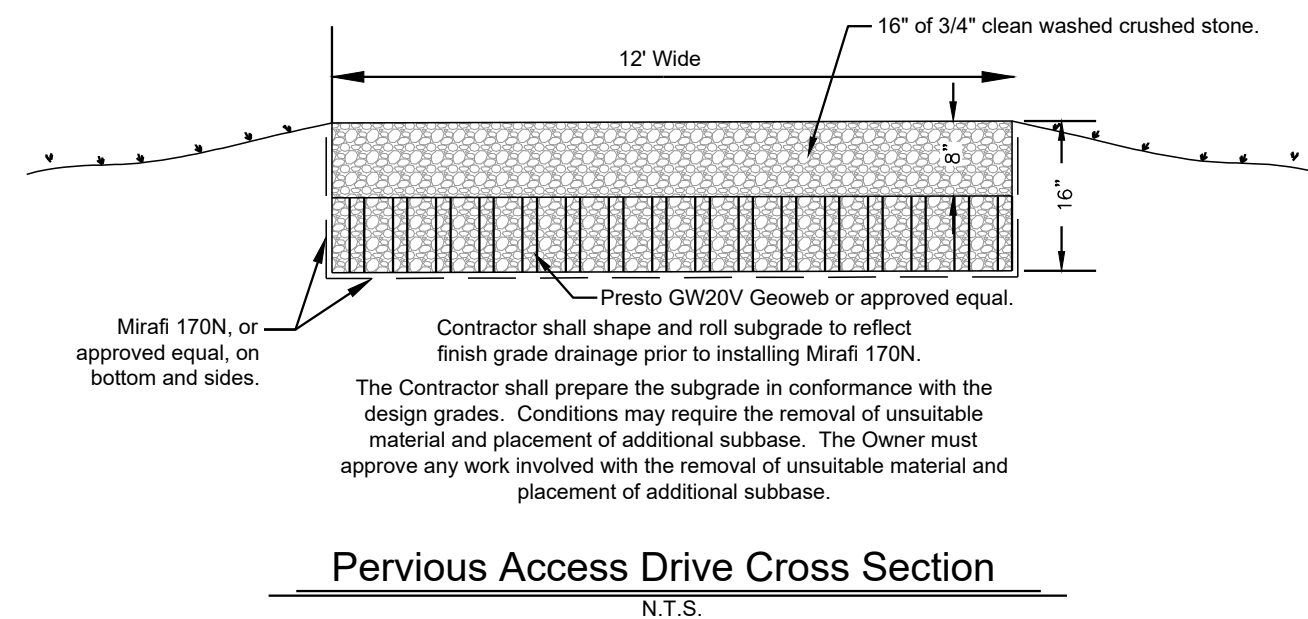
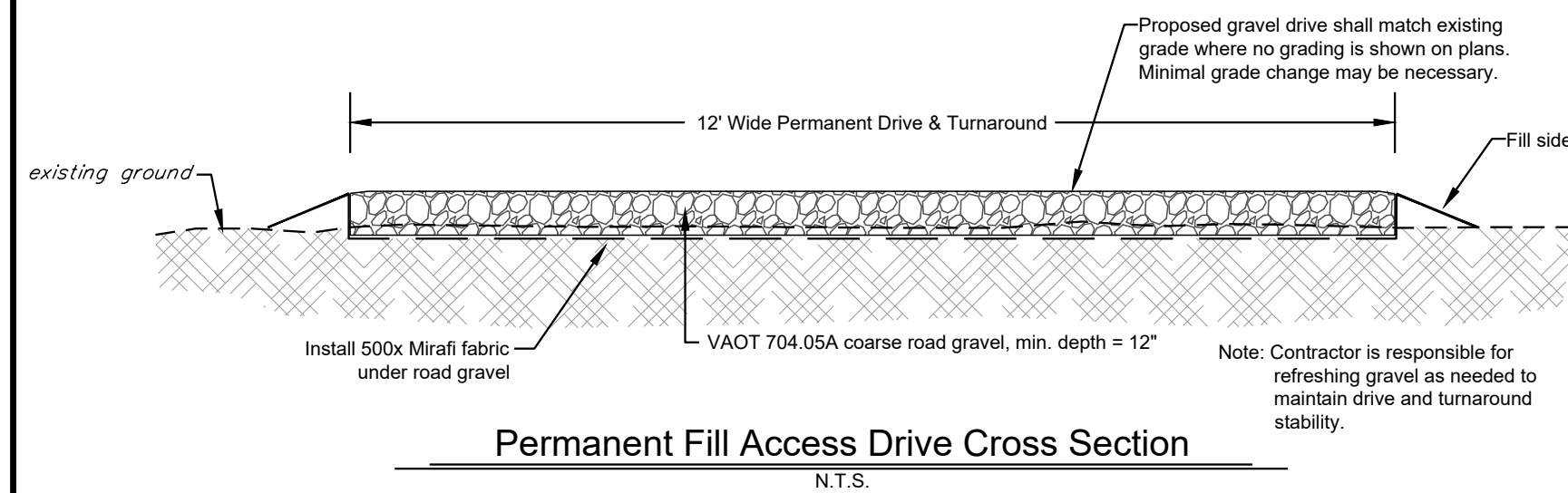
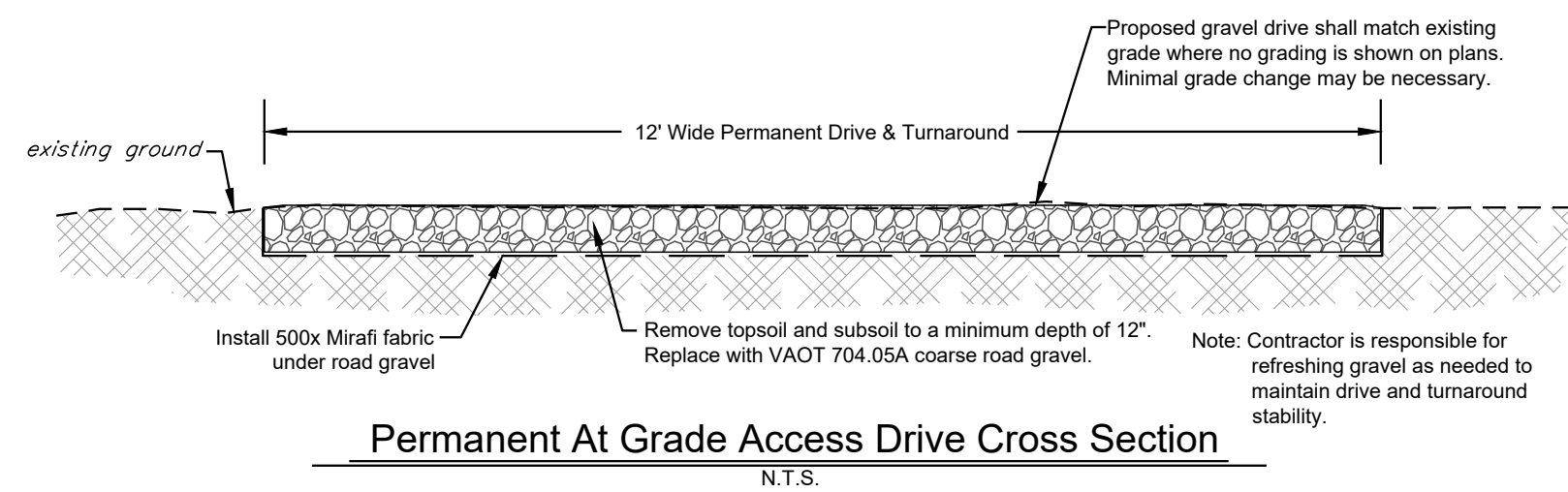
DATE of Issue: 09/22/24

Drawn by: SDG Checked by: GJD

Project No.: 25222 Scale: N.T.S.

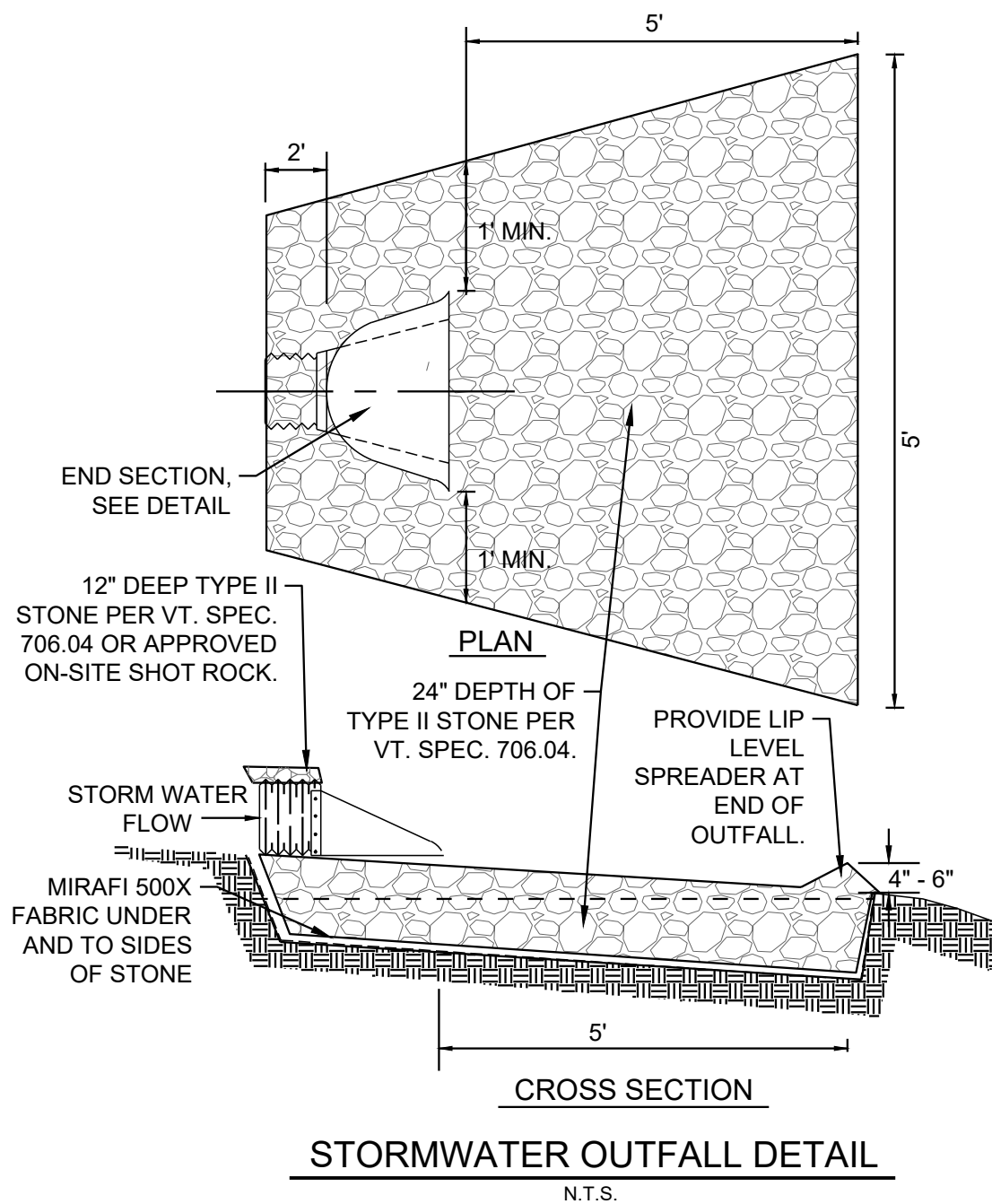
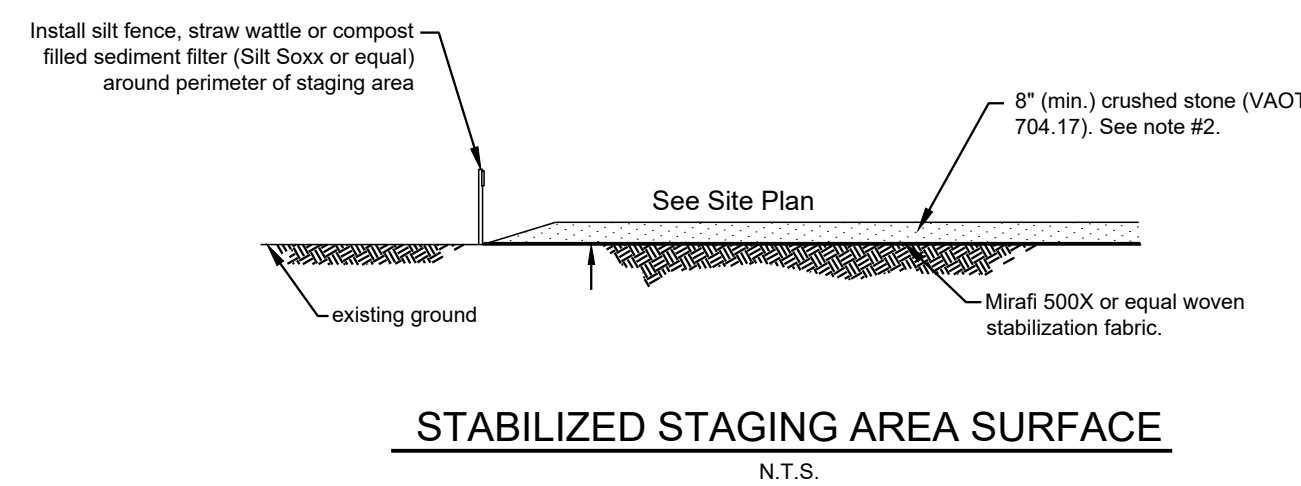
Drawing No.: Rev No.:





**NOTES**

- Perimeter sediment controls to be installed before construction of staging area is installed.
- Install minimum 8" thick crushed stone (VAOT 704.17) and Mirafi 500x stabilization fabric directly over topsoil to create stable staging area where construction vehicle traffic is anticipated or has been disturbed. Contractor is responsible for all stone necessary for proper stabilization.
- Install and maintain stabilized construction entrance, see detail.
- At the end of construction remove and dispose of stone, scarify or till subsoils to 4 inches of depth or to depth needed to achieve a total depth of 8 inches of uncompacted soil after calculated amount of amendment is added. Except for within the drip line of existing trees, the entire surface shall be disturbed by scarification; Amend soil to meet organic content requirements.  
 PRE-APPROVED RATE: Place 1 inch of composted material with an organic matter content between 40 and 65% and rototill into 3 inches of soil, or  
 CALCULATED RATE: Place calculated amount of composted material or approved organic material and rototill into depth of soil needed to achieve 4 inches of settled soil at 4% organic content. \*Contractor to provide calculation and site sketch indicating areas used for calculations.  
 Rake beds to smooth and remove surface rocks larger than 2 inches in diameter; Water or roll to compact soil in turf areas to 85% of maximum dry density.
- Contractor is responsible for refreshing crushed stone as needed to maintain stability of stabilized staging area and prevent offsite sediment tracking.



**EROSION CONTROL BLANKET**  
(To be used on all slopes 3H:1V or greater)

**NOTE:** WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO UNCOMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPUN DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 2" (5cm) OVERLAP. STAPLE THROUGH OVERLAP AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

**NOTE: BLANKET SHALL BE USED ON SLOPES 3:1 OR STEEPER**

**NOTE:**  
 \*\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725  
 USA 1-800-772-2040 CANADA 1-800-448-2040  
 www.nagreen.com

**CHANNEL INSTALLATION**

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDING BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO UNCOMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SLOPE MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
- IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

**CRITICAL POINTS**  
 A. OVERLAPS AND SEAMS  
 B. UNDETECTED WATER LINE  
 C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

**NOTE:**  
 \*\* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.  
 \*\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725  
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 www.nagreen.com

**EROSION CONTROL BLANKET**  
(To be used on all slopes 3H:1V or greater)

**NORTH AMERICAN GREEN S75BN**

**MATERIAL SPECIFICATIONS:**

- EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 100% AGRICULTURAL STRAW.
- THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING HAVING AN APPROXIMATE 1/2" X 1" MESH AND BE SEWN TOGETHER WITH BIODEGRADABLE THREAD.
- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:

**MATERIAL CONTENT:**

- STRAW: 100% (0.50 lbs/sq.yd.) (0.27 kg/m<sup>2</sup>)
- NETTING: ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (APPROX. WEIGHT 9.3 lbs./100 sq. ft.)
- THREAD: BIODEGRADABLE

**PHYSICAL SPECIFICATIONS (ROLL):**

- WIDTH: 6.67 feet (2.03 m)
- LENGTH: 108 feet (32.92 m)
- WEIGHT: 46.4 lbs. ± 10% (21.05 kg)
- AREA: 80 sq. yd. (50 m<sup>2</sup>)

**NORTHLAND SOLAR PROJECT**

VT Route 100  
Lowell, Vermont

**Northland Solar LLC**

PO Box 1204  
Manchester Center, VT 05255  
www.nhsolar.com

**KREBS & LANSING CONSULTING ENGINEERS**

164 Main Street, Suite 201  
Colchester, Vermont 05446

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www.krebsandlansing.com

**ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION**

**SOURCE DATA LEGEND**  
 MAPPING SOURCE DATA USED FOR PLAN COMPILATION  
 Civil Engineering:  
 Krebs and Lansing Consulting Engineers, Inc.  
 164 Main Street, Suite 201  
 Colchester, Vermont 05446

**Proposed Solar Array**

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

**DETAILS**

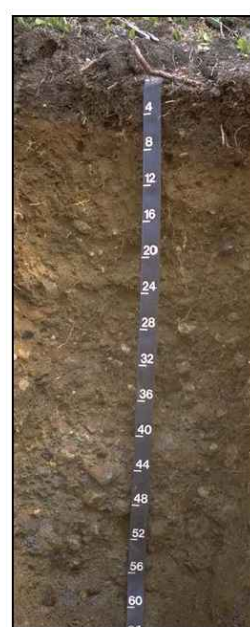
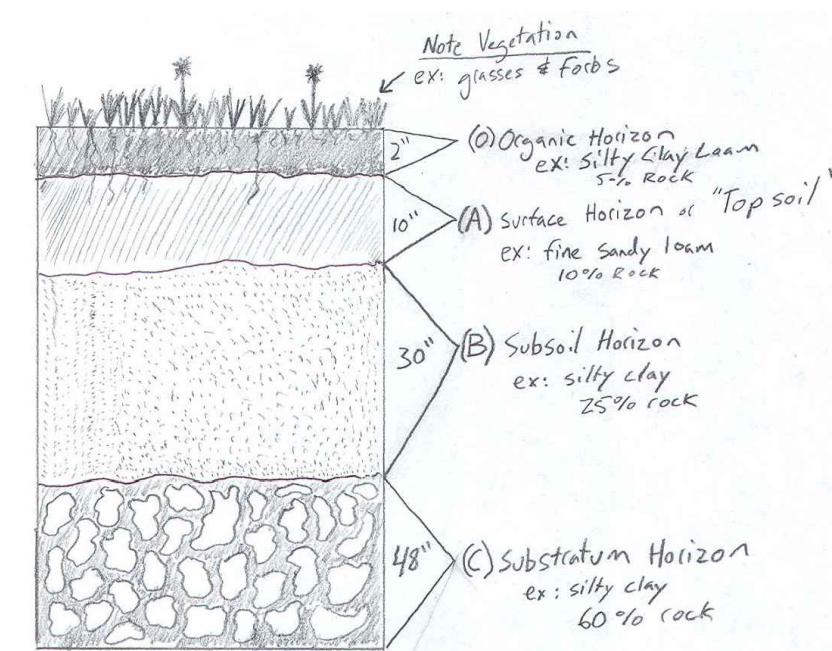
DATE of Issue: 09/22/24  
 Drawn by: SDG Checked by: GD  
 Project No.: 25222 Scale: N.T.S.  
 Drawing No.: Rev No.:

**Act 250 Procedure:**  
**Reclamation of Vermont Agricultural Soils**  
Revised 10/20/2014 by the Vermont Agency of Agriculture, Food and Markets, with assistance from USDA Natural Resources Conservation Service (NRCS) and Ben Waterman, soils consultant.

The reclamation of Agricultural Soils is technically feasible from the Agency of Agriculture's perspective. However, to ensure that the soil is returned to a physical and biological state that is comparable to the soil quality prior to activities of potential adverse impact, the following parameters should be addressed in the site reclamation plan.

**Part 1. Pre-disturbance phase:**

- 1) Prepare a pre-disturbance General Site Characteristics report, including:
  - a) Maps: 1) a map showing the existing site topography, 2) an NRCS soil map showing the distribution of all NRCS soil survey map units and their acreage, 3) an NRCS soil map showing areas with a farmland classification rating of prime, statewide importance or local importance on the site and their acreage, 4) a map showing the extent of the proposed disturbance. For purposes of this document a "disturbance" is any activity that involves excavation, modification of soils or potential compaction of soils with heavy equipment. The NRCS soil maps can be either GIS-generated or from Web Soil Survey. Scale should be a minimum 1:2,000 or as large as necessary to delineate all soil map units.
  - b) An additional map (labeled "Agricultural Soil Reclamation Map") that identifies the proposed location of the soil stockpiles, the area to be reclaimed, and the final topography if soil will be different than existing. A narrative that outlines the proposed reclamation map should be provided. Scale should be large enough to delineate all relevant areas.
  - c) Information on the existing site soil conditions:
    - i) For areas to be excavated: One on-site soil profile description representing the area to be disturbed. If the area to be disturbed spans more than one NRCS soil survey map unit, at least one profile description should be completed for every map unit to represent all impacted areas. The description(s) should include depths to and thickness of A, E, B and/or C horizons, USDA texture class, soil structure and moist consistency ratings for samples within each horizon. Soil profiles should be at least 48" deep. For profile description protocols, refer to: The Field Book for Describing and Sampling Soils, version 3.0 (Soil Surveyors, Wysocki, Beatty, and Soil Survey Staff, 2012), available online and in print at USDA-NRCS service centers.
    - ii) For areas to be excavated and/or compacted, one representative soil sample from each map unit impacted and subject to reclamation shall be submitted to measure



For this profile: surface organic material and loamy dark brown topsoil (A horizon) goes to about 8 inches, brownish loamy subsoil (B horizon) goes to about 30 inches or so, then lighter colored gravelly substratum (C horizon) starting at 30 inches...

- pre-disturbance soil productivity using the Cornell Soil Health Assessment Package testing service (<http://soilhealth.cals.cornell.edu/extension/test.htm>)
- iii) For areas to be excavated and/or potentially compacted with heavy equipment: Soil compaction status should be measured for impacted areas, with at least one measurement for each NRCS soil map unit. Compaction can be measured by performing a soil bulk density test for the topsoil (A horizon). Alternatively, to measure surface and subsurface hardness, penetrometer readings can be taken using a field penetrometer with field penetration resistance measured in psi.
  - iii) For areas to be excavated, soil pH should be measured before disturbance with at least one test for each NRCS soil map unit using University of Vermont or other Cooperative Extension or professional soil testing labs and protocols.

**Part 2. Soil removal and stockpiling phase:**

- a) Soil material and woody material, if present, should be stockpiled into several distinct piles:
  - i) Surface organic soil material (if present) and the dark topsoil material (A horizon) in one pile.
  - ii) Loamy brownish subsoil material (B horizon) in a separate pile.
  - iii) Unconsolidated bedrock, such as bank-run gravel or un-weathered soil parent material (BC or C horizon) in a separate pile. (Note: In Vermont aside from recently-formed floodplain soils, it is uncommon in shallow disturbances to reach the C horizon; however, in the event this layer is disturbed, it should not be mixed with other subsoil. This will enable subsoil layers to be restored to their original order in the soil profile to the extent possible.)
  - iv) Woody stumps (where present) should be removed and stockpiled in a separate pile. If woody stumps have not been chipped, soil that is attached to the roots will eventually dry out and fall off the roots. To speed up this process, use an excavator to shake the roots clean. This is some of the best topsoil and should be added to the stockpiled topsoil. The stumps can then be chipped or ground and added to the woody stockpile, or used in the re-planting process.
- b) Stockpiling of the soil and woody material is to be in predetermined locations that can be monitored over the life of the excavation and reclamation.
- c) To minimize potential for erosion, soil stockpiles should be seeded or temporarily stabilized with application of straw mulch or other erosion control matting to maintain a uniform cover until soil is backfilled and restored. If stockpiles are to be kept in place throughout the winter and soil disturbance is completed by October 15, they should be stabilized with seeding of winter rye. Additional cover such as hay straw mulch or erosion control matting should be installed if seeding of rye can't be accomplished before September 15. For sites with earth disturbance occurring after October 15<sup>th</sup>, Vermont Agency of Natural Resources guidelines for winter erosion control on construction sites should be followed. (see [http://www.nrs.state.vt.us/doc/water/water/water/water/docs/construction/low\\_risk\\_site\\_handbook.pdf](http://www.nrs.state.vt.us/doc/water/water/water/water/docs/construction/low_risk_site_handbook.pdf))

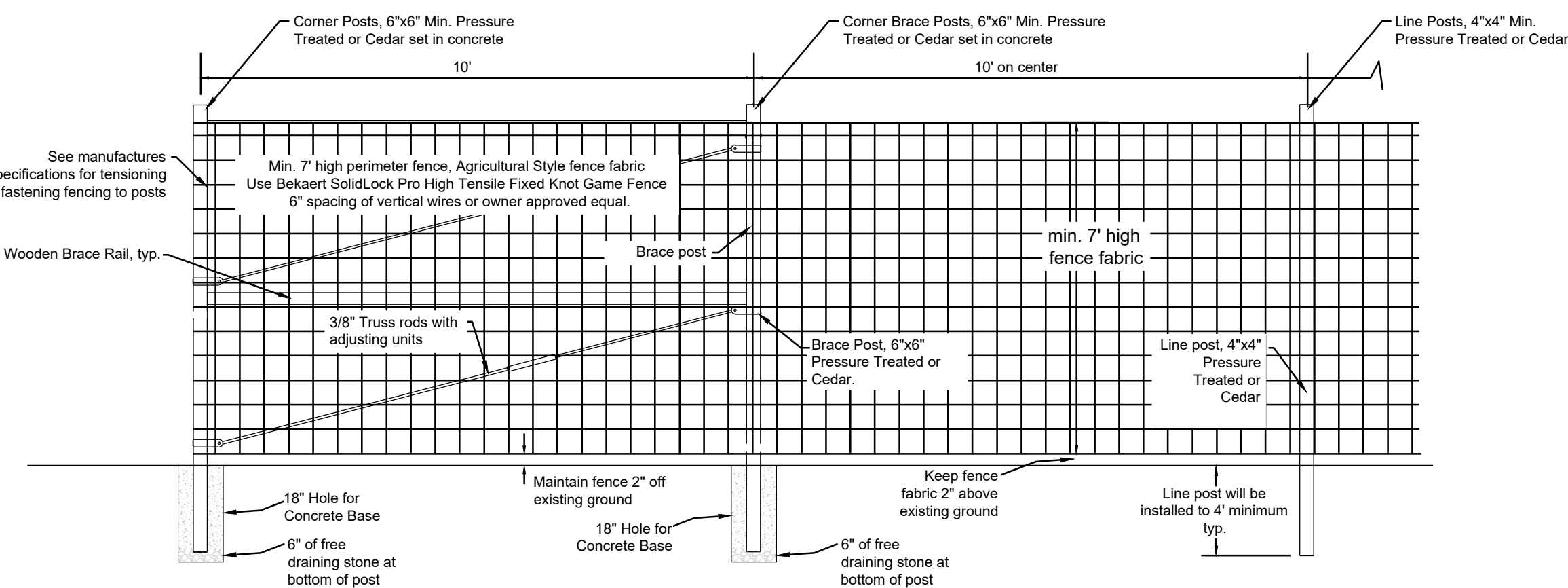
**Part 3. Reclamation phase:**

- 1) In areas where soils with a NRCS farmland classification of prime, statewide or local importance are to be reclaimed, the final site topography should have slopes less than 15 percent. It is preferred that level to slightly convex areas, with slopes between 0% and 8% slopes, are created, with no concave areas where water may pool.

- 2) Soil stockpiles should be layered in the following sequence:
  - a) Soil that was originally deepest in the soil profile should be placed first, directly above the re-graded base material and graded to the final slope contours.
  - b) Soil that was originally shallow layers of subsoil replaced before topsoil and re-graded.
  - c) The topsoil material is then placed on top of the re-graded subsoil material.
  - d) The thickness of topsoil material (covering subsoil layer(s)) should approximate the pre-disturbance thickness.
  - e) One representative soil sample from each map unit subject to reclamation shall be submitted to measure post-reclamation soil productivity using the Cornell Soil Health Assessment Package testing service to verify that soils have been effectively reclaimed in all impacted areas (<http://soilhealth.cals.cornell.edu/extension/test.htm>).
  - f) Exposed soil should be seeded and mulched as soon as possible after final grading to prevent erosion and allow for the establishment of vegetation. In cases where a farmer or landowner intends to cultivate or plow the area within two weeks of completion of the soil reclamation and final grading, the area does not need to be seeded. The selection of the seed cover can include input of the landowner based on pre-construction land use and land cover to ensure that introduced grass or vegetative species do not adversely impact future soils productivity for hay, pasture or crops. Seed can be selected for soil stabilization qualities, its likelihood for successful establishment given soils and time of year, and its compatibility with adjacent land uses. For guidelines and information on erosion control and seed stabilization practices see <http://efots.nrs.usda.gov/references/soil/soil/vt/vt506.pdf> or [http://www.nrs.state.vt.us/doc/water/water/water/water/docs/construction/low\\_risk\\_site\\_handbook.pdf](http://www.nrs.state.vt.us/doc/water/water/water/water/docs/construction/low_risk_site_handbook.pdf) or [http://ftp.fpl-fsc.usda.gov/VT/TECH/TechnicalReferences/ConsPlanning/Veg\\_Gray\\_Phs.pdf](http://ftp.fpl-fsc.usda.gov/VT/TECH/TechnicalReferences/ConsPlanning/Veg_Gray_Phs.pdf).
  - g) Final soil productivity testing should be performed on the same areas tested prior to soil disturbance. Results should be similar to the original, pre-disturbance measured readings. If bulk density is higher than tested originally, subsiding, plowing or other methods of decompaction should be employed to alleviate soil compaction. Soil material should not be spread or driven on by heavy machinery when it is very wet, otherwise, soil compaction could be severe. Reclaimed topsoil layers should have a pH within 0.5 points of the pre-disturbance readings. Lime can be applied at rates recommended by soil test labs to raise soil pH if necessary. If soil test indicates the pH is lower than 6.0, in most cases unless specifically requested by a farmer, lime can be applied at the recommended rate to bring the pH up to within the range of 6.0-7.0.

**ATTACHMENT A**

Examples of a Soil Profiles:



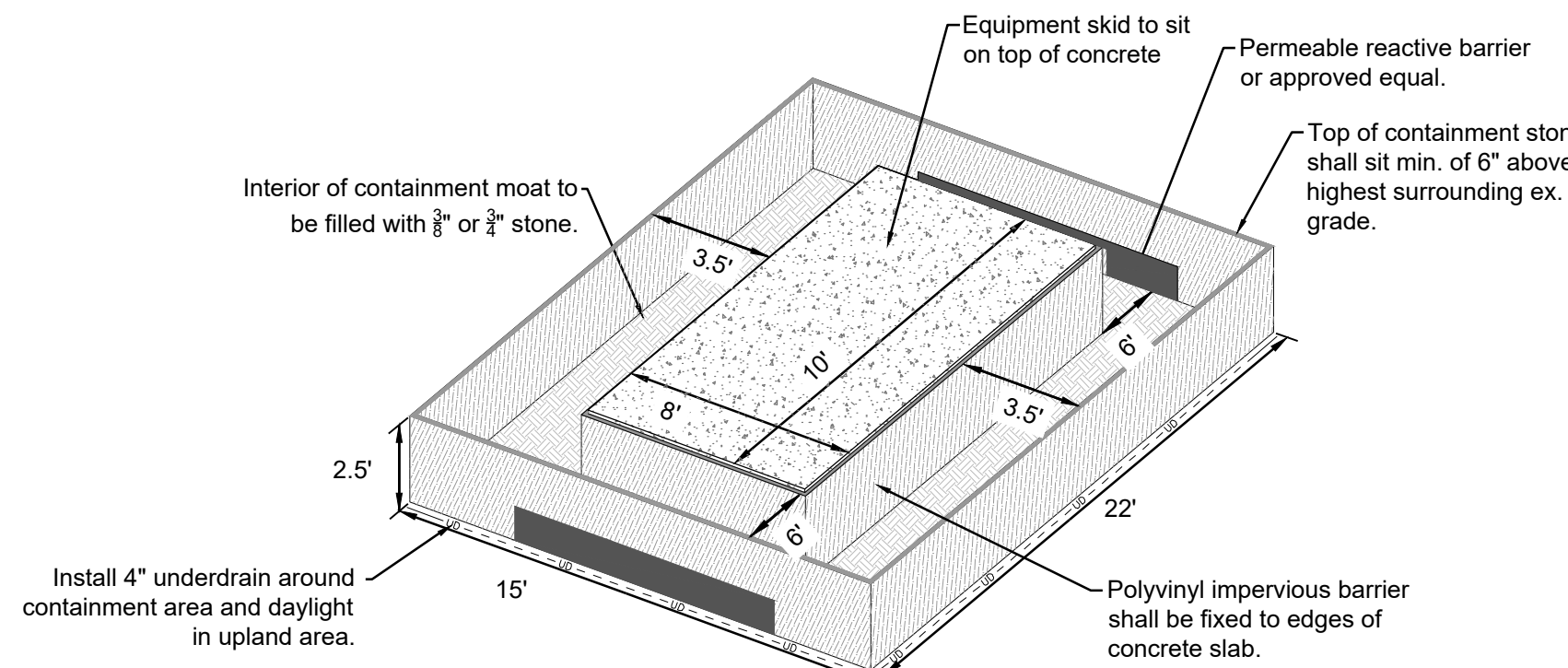
**Typical Agricultural Fence**  
N.T.S.

Note:  
-Agricultural style fence requires strong corner brace post assemblies, posts for corner assemblies and at gates shall be set in concrete as shown on this detail, see Bekert for additional specifications  
-Additional bracing may be required on longer fence runs. Contractor to add additional bracing when contractor observes corner post deflection during fence tensioning/fastening  
-All posts to be pressure treated or cedar.  
-Fabric to be fastened with manufacturer approved corrosion resistant staples  
-Fabric to be Bekert SolidLock Pro High Tensile Fixed Knot Game Fence  
-Height: min. height 84", Vertical Spacing of Wires: 6" or owner approved equal

**CAB ABOVE GRADE WIRE MANAGEMENT SYSTEM DETAIL**  
N.T.S.

DETAIL REMOVED

**BCI AGENT BARRIER BOOM SPECIFICATIONS**



**Secondary Oil Containment Design for 2,800 kVA Transformer**  
n.t.s.

NOTE: CONTRACTOR SHALL CONFIRM TRANSFORMER EQUIPMENT PAD DIMENSIONS AND TRANSFORMER OIL VOLUME PRIOR TO ORDERING. IF VOLUME OR DIMENSIONS DO NOT MATCH THE DESIGN CONTACT ENGINEER TO UPDATED DESIGN.

**VOLUME CALCULATIONS:**

Required Capacity:  
110% of the 720 Gallons of Transformer Oil = 792 gal. = 105.9 c.f.

Required minimum freeboard (5" or 0.42')  
Containment Area = 22' x 15' = 330 s.f.  
Volume of freeboard required = 330 s.f. x 0.42 ft. = 138.6 c.f.

Total Capacity Required = 105.9 c.f. + 138.6 c.f. = 244.5 c.f.

Capacity Provided in Secondary Oil Containment System:  
Area of containment = (22'x15') - (10'x8') = 250 s.f.  
Volume of Containment = 250 s.f. x 2.5' of depth = 625 c.f.  
When filled with stone with 40% void ratio = 625 c.f. \* 0.4 = 250.0 c.f.  
Total Capacity Provided = 250.0 c.f. > 244.5 c.f. required

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ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**SOURCE DATA LEGEND**

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

**Civil Engineering:**

Krebs and Lansing Consulting Engineers, Inc.  
164 Main Street, Suite 201  
Colchester, Vermont 05446

**Proposed Solar Array**

REV. NO.	REVISIONS/COMMENTS	DATE
A	Remove single axis tracker detail.	5/12/26

Drawing Title:

**DETAILS**

DATE of Issue: 09/18/24

Drawn by: SDG

Checked by: GTD

Project No.: 25222

Scale: N.T.S.

Drawing No.:

Rev No.:

**C-107**

**A**

**NOTES:**

1. The O&M Firm will review the installation for safety and code compliance (by the appropriate qualified licensed mechanical and electrical professionals), accurate and up to date reporting information and updates required. Please note that Krebs and Lansing Consulting Engineers, Inc. work pertains to the stormwater controls only. The safety and code compliance portion of the design and review shall be completed by the appropriate licensed mechanical and electrical professionals (Engineers) hired by the O&M firm prior to construction of the project. Any appropriate code or safety modifications dictated by that review shall be incorporated into O&M protocols for the site prior to construction commencing.

2. All penetrations through the concrete base of the transformer pad will be sealed.

3. This design is for a 2,800 kVA pad mount transformer with 720 gallons of oil sitting on a 8' x 10' concrete pad. Containment is sized to hold 110% of the oil volume plus 5" of freeboard.