

# WARE SOLAR

## WARE PLANNING COMMISSION PLANS

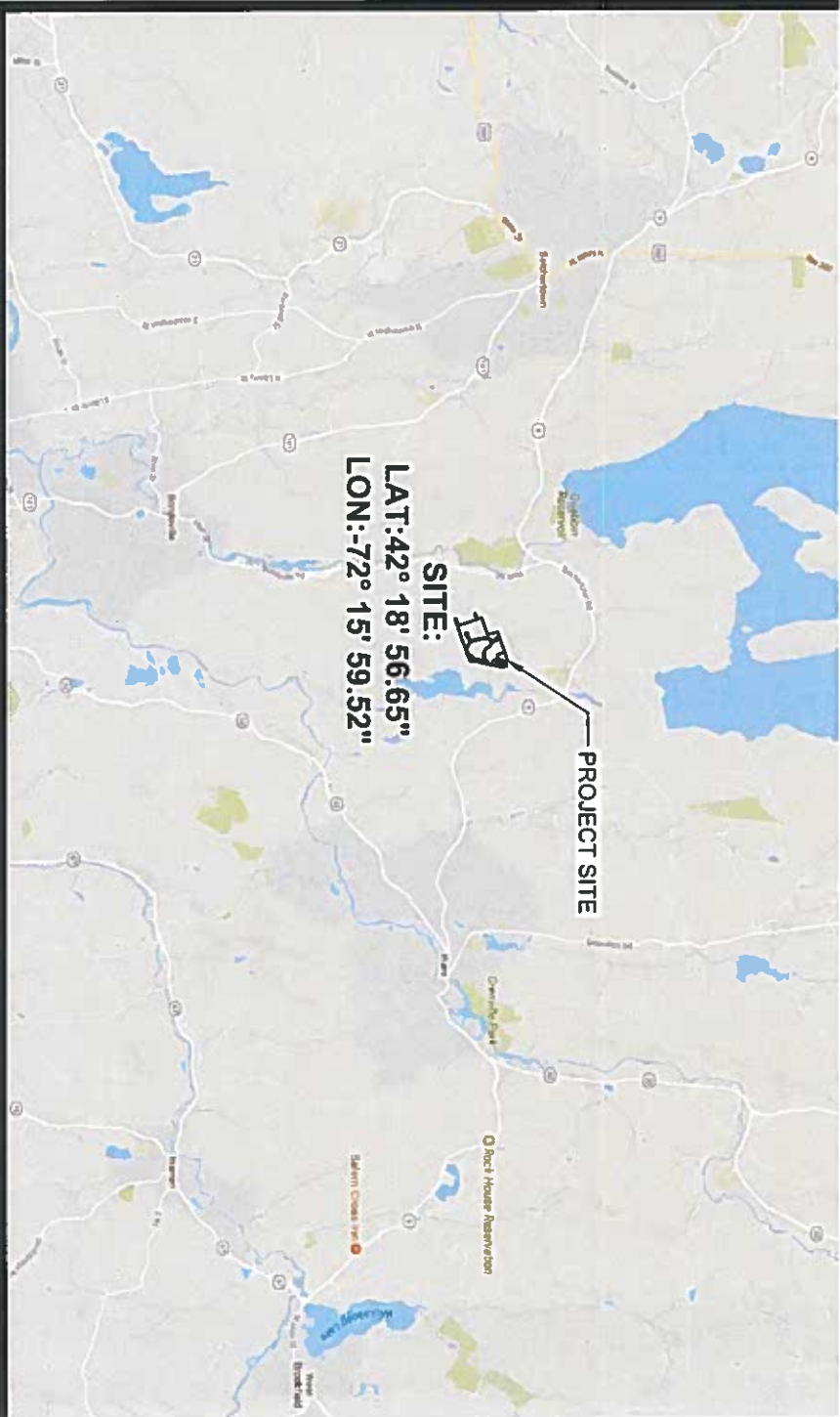
FOR

### Site/Electrical Layout, Grading/Drainage/Erosion Control/Landscaping

IN

### WARE, MASSACHUSETTS

#### LOCATION MAP



SOURCE: MAP DATA ©2017 GOOGLE (NOT TO SCALE)  
CONTACT INFO:

OWNER/DEVELOPER:  
ECOS ENERGY  
222 SOUTH 9TH STREET  
SUITE 1600  
MINNEAPOLIS, MN 55402

CIVIL ENGINEER:  
WESTWOOD PROFESSIONAL  
SERVICES  
12701 WHITewater DRIVE  
SUITE 300,  
MINNETONKA, MN 55343

Sheet List Table	
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WARE SOLAR  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

#### COVER SHEET

PRELIMINARY NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 1

**Westwood**

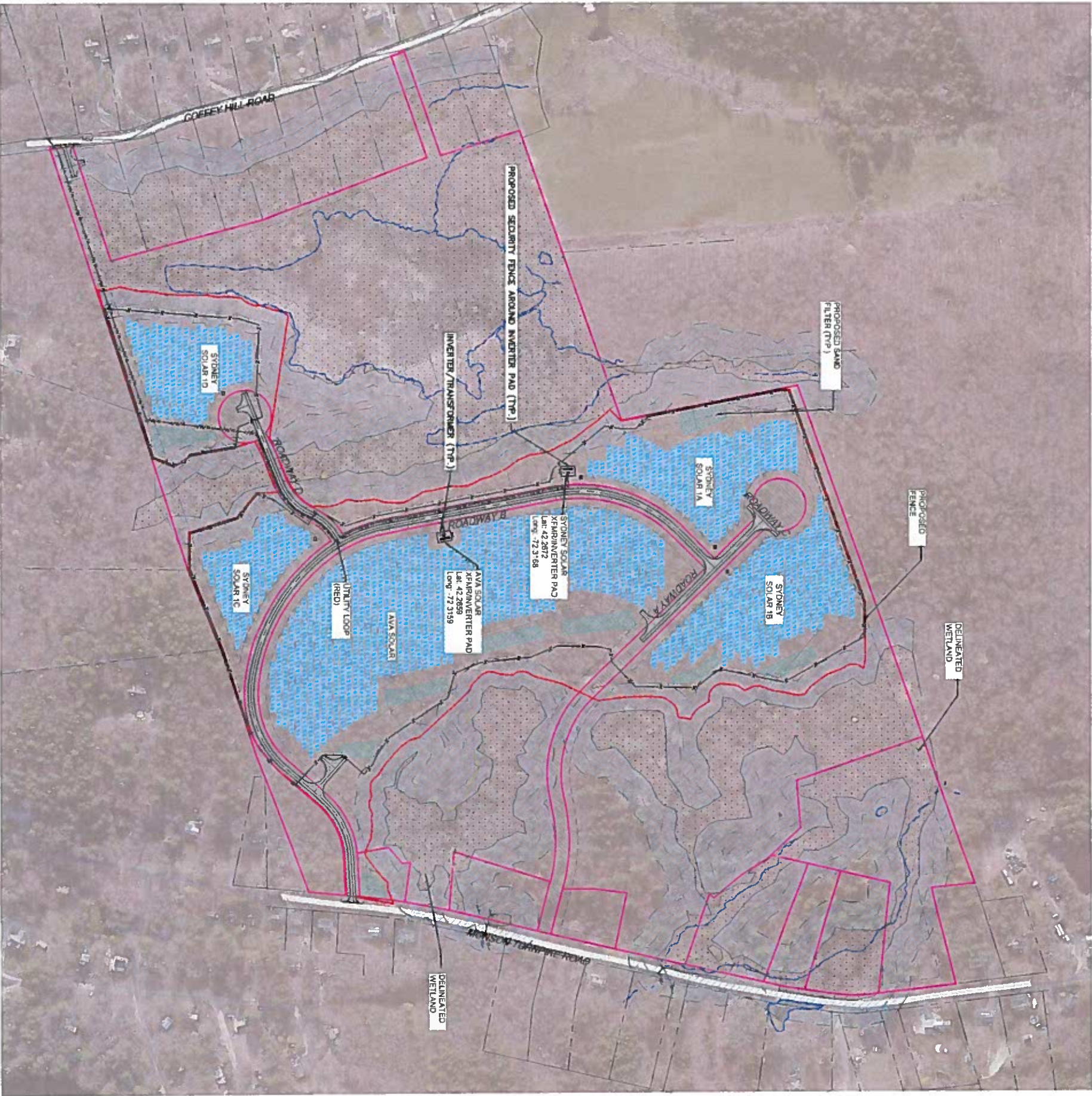
Phone (603) 937-6150 12701 Whitewater Drive, Suite 300  
Minnetonka, MN 55343  
westwood@westwood.com



Drawn	ADC
Checked	ADC
Design	ADC
Revised Drawing Details	
Revised Date	DESCRIPTION
E 02/17/2020	WARE PLANNING SUBMISSION
E 02/14/2020	WARE PLANNING SUBMISSION







LEGEND:

- EXISTING LOT LINE
- PROPOSED LOT LINE
- PROPOSED FENCE
- ACCESS ROAD EASEMENT
- PROPOSED GRAVEL ACCESS ROAD
- WETLAND BUFFER AREA
- WETLAND DELINEATION LINE/AREA
- PROPOSED AC DISTRIBUTION
- 18 x 2 SOLAR MODULE ROW
- MODULE SETBACK LINE
- DISTURBANCE LIMIT
- PROPOSED SAND FILTER

**Westwood**

Phone (920) 831-4150 12751 Westwood Drive, Suite 200  
Westwood, NC 27586  
www.westwood-nc.com



Client	UDG
Contract	ACC
Project	WARE
Drawn	Ware
Checked	Ware
Reviewed	Ware
Approved	Ware
Date	02/14/2020
Description	WARE PLANNING SUBMISSION
Project	WARE PLANNING SUBMISSION
Sheet	WARE PLANNING SUBMISSION



222 SOUTH 11TH STREET  
SUITE 200  
RAVENHILL, VA 23042

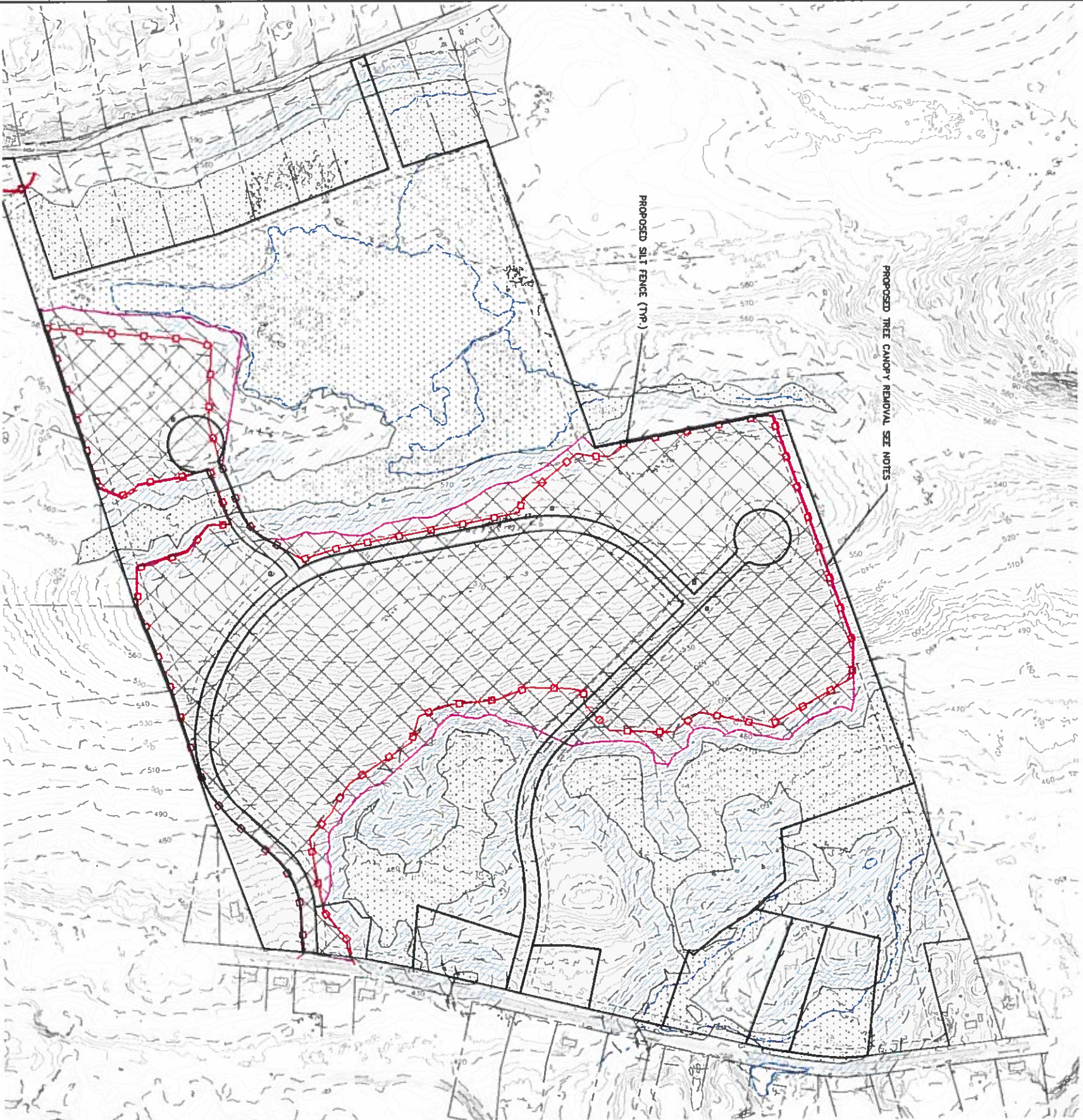


**WARE SOLAR**  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

**OVERALL SITE  
PLAN**

PRELIMINARY NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 2





LEGEND:

- PROPOSED LOT LINE
- 100' WETLAND BUFFER AREA
- WETLAND DELINEATION LINE/AREA
- PROPOSED SILT FENCE
- TREE CANOPY CLEARING
- ACCESS ROAD EASEMENT
- DISTURBANCE LIMIT

CONSTRUCTION SEQUENCING NOTES:

- THE CONTRACTOR SHALL PERFORM ALL TREE REMOVAL ACTIVITIES ON SITE TO ALLOW FOR BMP INSTALLATION. NO GRUBBING IS TO OCCUR DURING TREE REMOVAL. PRIOR TO BMP INSTALLATION.
- ALL BMP'S IDENTIFIED ON THE PLAN SHALL BE STAKED BY A REGISTERED SURVEYOR AND INSTALLED PER PLANS PRIOR TO ANY CONSTRUCTION ACTIVITY.
- AS-BUILT DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF THE PROJECT.

PROJECT FOOTPRINT REMOVAL NOTES

- AREAS WITHIN THE PROJECT FENCELINE LIMITS SHALL BE CLEARED BY THE FOLLOWING METHODS
- TREES AND VEGETATION SHALL BE CLEARED AND GRUBBED

EROSION CONTROL NOTES:

- TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BEFORE ANY SOIL DISTURBANCE.
- THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 14 DAYS SHALL BE STABILIZED.
- MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES.
- WETLAND AREAS AND SURFACE AREAS SHALL BE PROTECTED FROM SEDIMENT OFF-SITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED THROUGH THE PROJECT AREA WITHOUT CAUSING EROSION ON INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
- ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. STABILIZATION MEASURES SUCH AS HYDROSEEDING OR APPLICATION OF HAYMULCH OR SOIL NETTING SHALL BE APPLIED PRIOR TO REMOVAL OF TEMPORARY EROSION MEASURES AND INSPECTED WEEKLY UNTIL STABILIZATION IS COMPLETE. TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED ONCE STABILIZATION OF ALL SITE SOILS HAS BEEN ACHIEVED AND WRITTEN AUTHORIZATION TO DO SO HAS BEEN PROVIDED BY THE STORMWATER AUTHORITY. TRAPPED SEDIMENT SHALL BE REMOVED IMMEDIATELY WITH TEMPORARY EROSION CONTROL METHODS AND LAWFULLY DISPOSED OF OFF-SITE. OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN THIRTY DAYS.
- DEVELOPER TO OBTAIN AN NPDES PERMIT PRIOR TO CONSTRUCTION.



DATE	DESCRIPTION
02/14/2020	WARE PLANNING SUBMISSION
02/14/2020	WARE PLANNING SUBMISSION



WARE SOLAR  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

REMOVAL AND  
EROSION  
CONTROL PLAN











- PROPOSED LOT LINE
- EXISTING OVERHEAD POWERLINE
- ACCESS ROAD EASEMENT
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED SILT FENCE
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED FENCE
- 18 x 2 SOLAR MODULE BLOCK
- BUFFER AREA
- EXISTING GROUND SLOPE
- PROPOSED GROUND SLOPE
- WETLAND DELINEATION LINE/AREA
- MODULE SETBACK LINE
- DISTURBANCE LIMIT
- PROPOSED DRAINAGE CHANNEL
- PROPOSED SAND FILTER
- PROPOSED TEMPORARY LANDOWN YARD
- PROPOSED RIP RAP
- PROPOSED CULVERT/TRAPE
- PROPOSED WATER BAR
- PROPOSED BERM
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED LOW WATER CROSSING
- PROPOSED BIO-ROLL
- PROPOSED CHECK DAM

NOTES  
1. SILT FENCES ADJACENT TO OR WITHIN WETLAND BUFFERS SHOULD BE WIREBACKED AND HAYBALE REINFORCED.

KEY MAP



**Westwood**

Phone (860) 382-8150 12701 Westwood Drive, Suite 200  
Westwood, CT 06092  
westwood@wc.com



Designed	WPC
Checked	ADC
Drawn	WPC
Revised/Revised by/Date	
Revised/Date	DESCRIPTION
E. 02/14/2020	WARE PLANNING REVISION
F. 02/14/2020	WARE PLANNING REVISION
Prepared for	



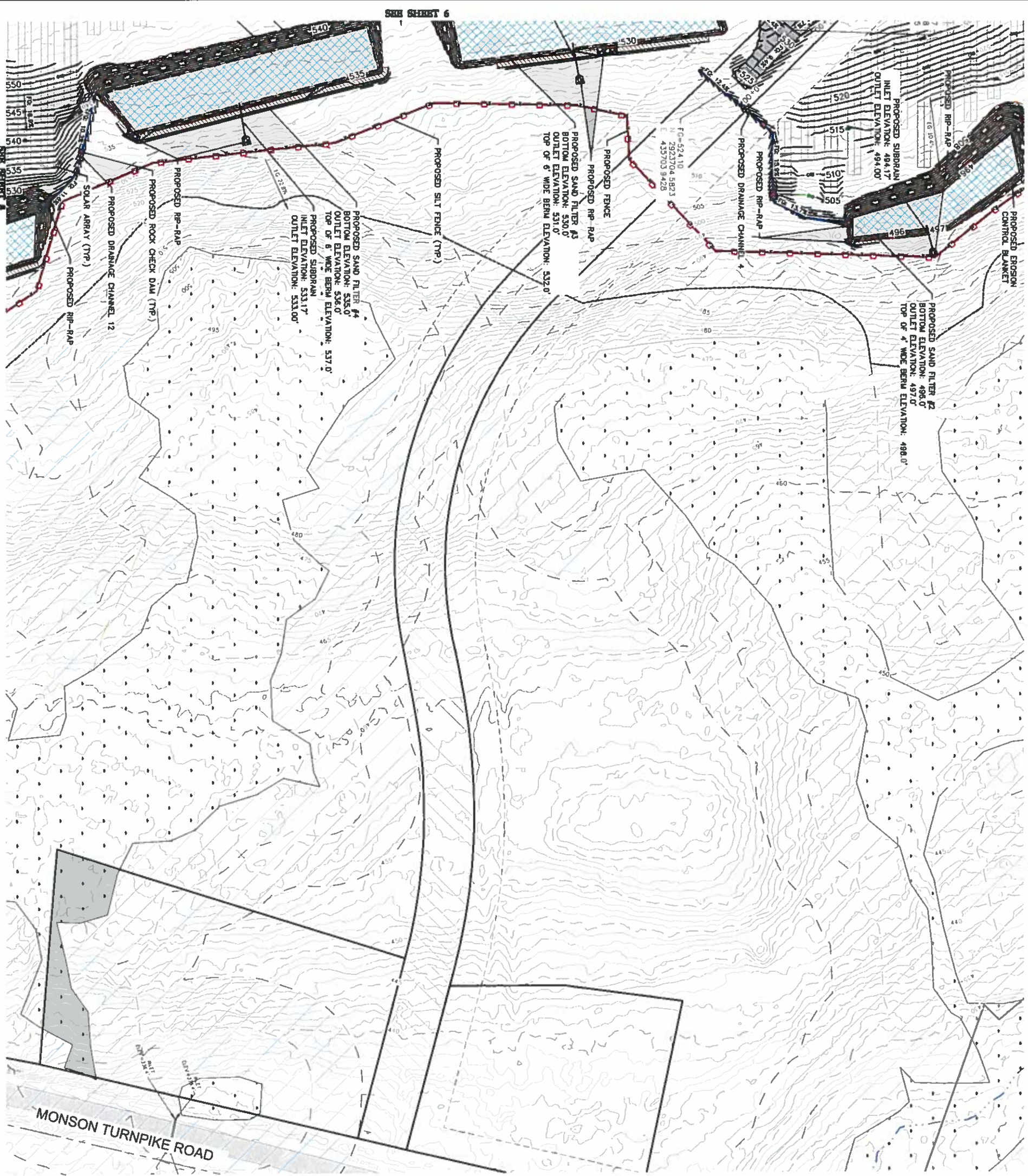
**WARE SOLAR**  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

**SITE & GRADING  
PLAN - 2**

PRELIMINARY, NOT FOR CONSTRUCTION

DATE: 02/14/2020  
SHEET: 6



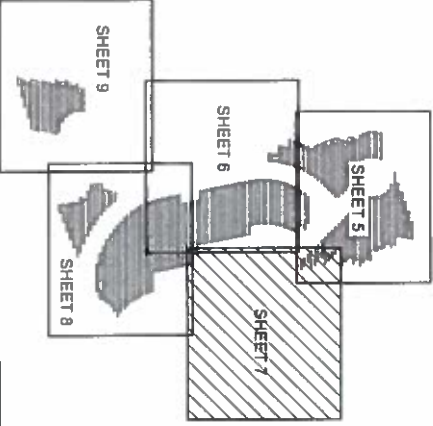


LEGEND:

- PROPOSED LOT LINE
- EXISTING OVERHEAD POWERLINE
- ACCESS ROAD EASEMENT
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED SILT FENCE
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED FENCE
- 16 x 2 SOLAR MODULE BLOCK
- BUFFER AREA
- EXISTING GROUND SLOPE
- PROPOSED GROUND SLOPE
- WETLAND DELINEATION LINE/AREA
- PROPOSED UNDERGROUND COLLECTOR
- MODULE SETBACK LIMIT
- DRAINAGE LIMIT
- PROPOSED DRAINAGE CHANNEL
- PROPOSED SAND FILTER
- PROPOSED TEMPORARY LAYDOWN YARD
- PROPOSED RIP-RAP
- PROPOSED CULVERT/PIPE
- PROPOSED WATER BAR
- PROPOSED BERM
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED LOW WATER CROSSING
- PROPOSED RIG ROLL
- PROPOSED CHECK DAM

NOTES  
1. SILT FENCES ADJACENT TO OR WITHIN WETLAND BUFFERS SHOULD BE WIREBACKED AND HAVE RAIL REINFORCED

KEY MAP



WARE SOLAR

MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

SITE & GRADING  
PLAN - 3

PRELIMINARY-NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 7

Westwood

Phone: (508) 937-4100 1200 Westwood Drive, Suite 200  
Westwood, MA 01883  
westwood@westwood.com



Revised Date	Description
02/14/2020	WARE PLANNING SUBMISSION
02/14/2020	WARE PLANNING SUBMISSION

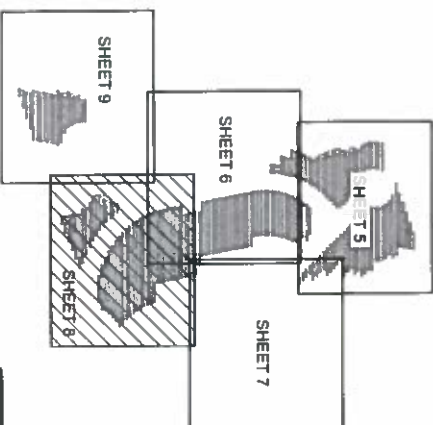
Revised Date	Description
02/14/2020	WARE PLANNING SUBMISSION
02/14/2020	WARE PLANNING SUBMISSION



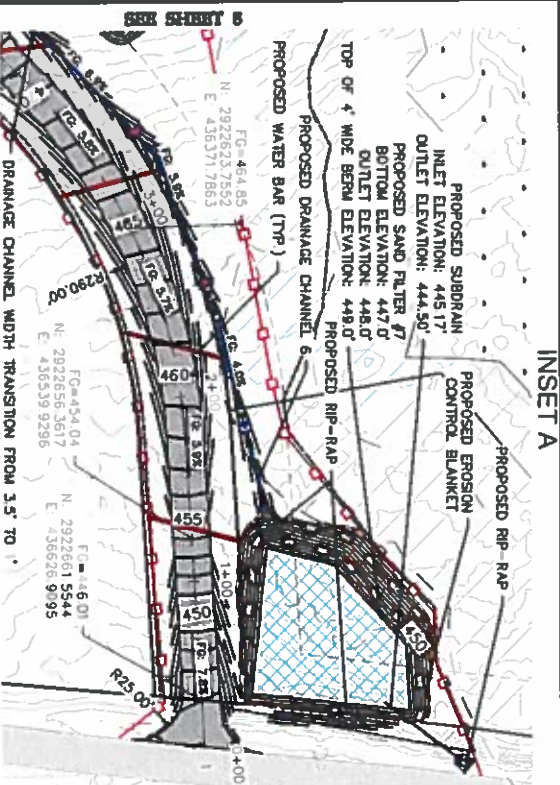


- PROPOSED LOT LINE
- PROPOSED OVERHEAD POWER LINE
- EXISTING ROAD EASEMENT
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED SILT FENCE
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED 10' CONTOUR
- 18 x 2 SOLAR MODULE BLOCK
- BUFFER AREA
- EXISTING GROUND SLOPE
- PROPOSED GROUND SLOPE
- WETLAND DELINEATION LINE/AREA
- PROPOSED UNDERGROUND COLLECTION
- MODULE SETBACK LINE
- PROPOSED DRAINAGE CHANNEL
- PROPOSED SAND FILTER
- PROPOSED TEMPORARY LANDFILL
- PROPOSED RIP-RAP
- PROPOSED CULVERT PIPE
- PROPOSED WATER BAR
- PROPOSED BERM
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED LOW WATER CROSSING
- PROPOSED CHECK DAM

KEY MAP



INSET A



WARE SOLAR  
MONSON TURNPIKE ROAD  
WARE MA  
HAMPSHIRE COUNTY

SITE & GRADING  
PLAN - 4

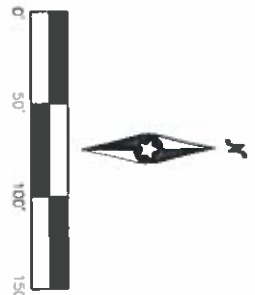
PRELIMINARY NOT FOR CONSTRUCTION

DATE 02/14/2020

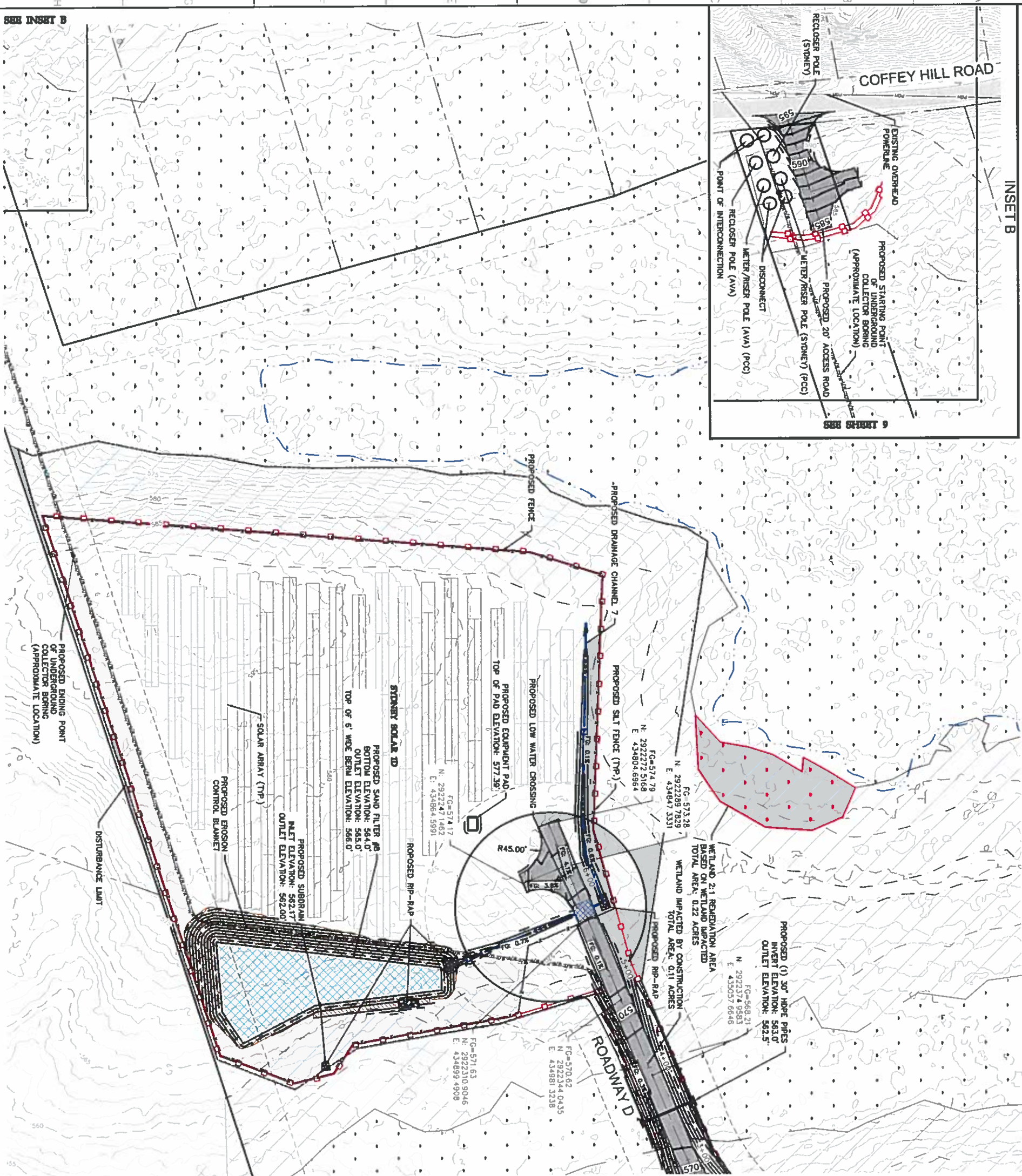
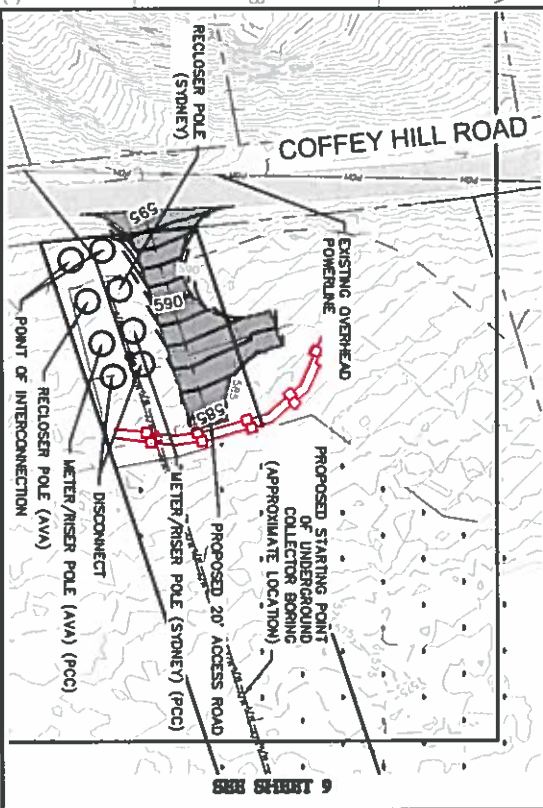
SHEET 8

Westwood

1841 821-4110  
117 Westwood Drive, Suite 200  
Westwood, MA 01581  
www.westwoodma.com







- PROPOSED LOT LINE
- EXISTING OVERHEAD POWERLINE
- ACCESS ROAD EASEMENT
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED SILT FENCE
- PROPOSED FENCE
- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED FENCE
- 18 x 2 SOLAR MODULE BLOCK
- BUFFER AREA
- EXISTING GROUND SLOPE
- PROPOSED GROUND SLOPE
- WETLAND DELINEATION LINE/AREA
- PROPOSED UNDERGROUND COLLECTOR
- MODULE SETBACK LINE
- DISTURBANCE LIMIT
- PROPOSED DRAINAGE CHANNEL
- PROPOSED SAND FILTER
- PROPOSED TEMPORARY LANDFILL PAD
- PROPOSED RIP-RAP
- PROPOSED CULVERTPIPE
- PROPOSED WATER BAR
- PROPOSED BERM
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED LOW WATER CROSSING
- PROPOSED CHECK DAM



WARE SOLAR  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

SITE & GRADING  
PLAN - 5

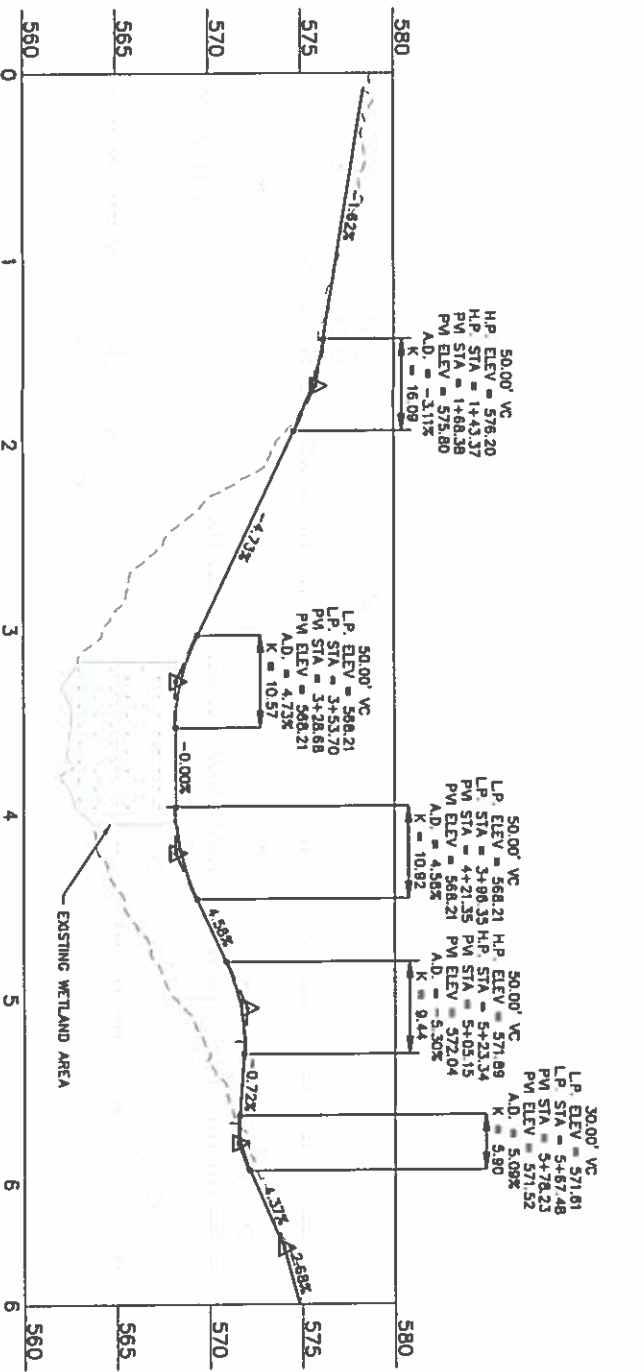
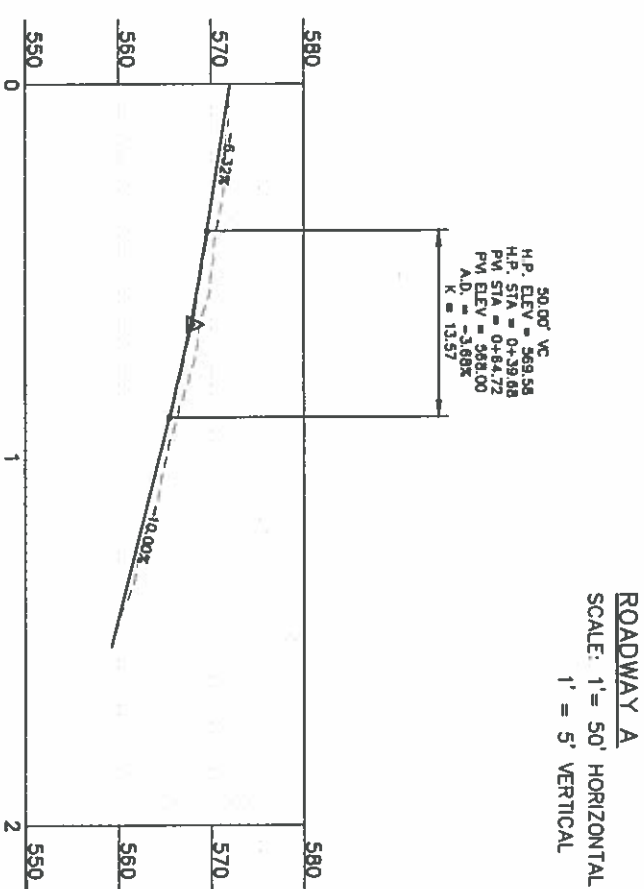
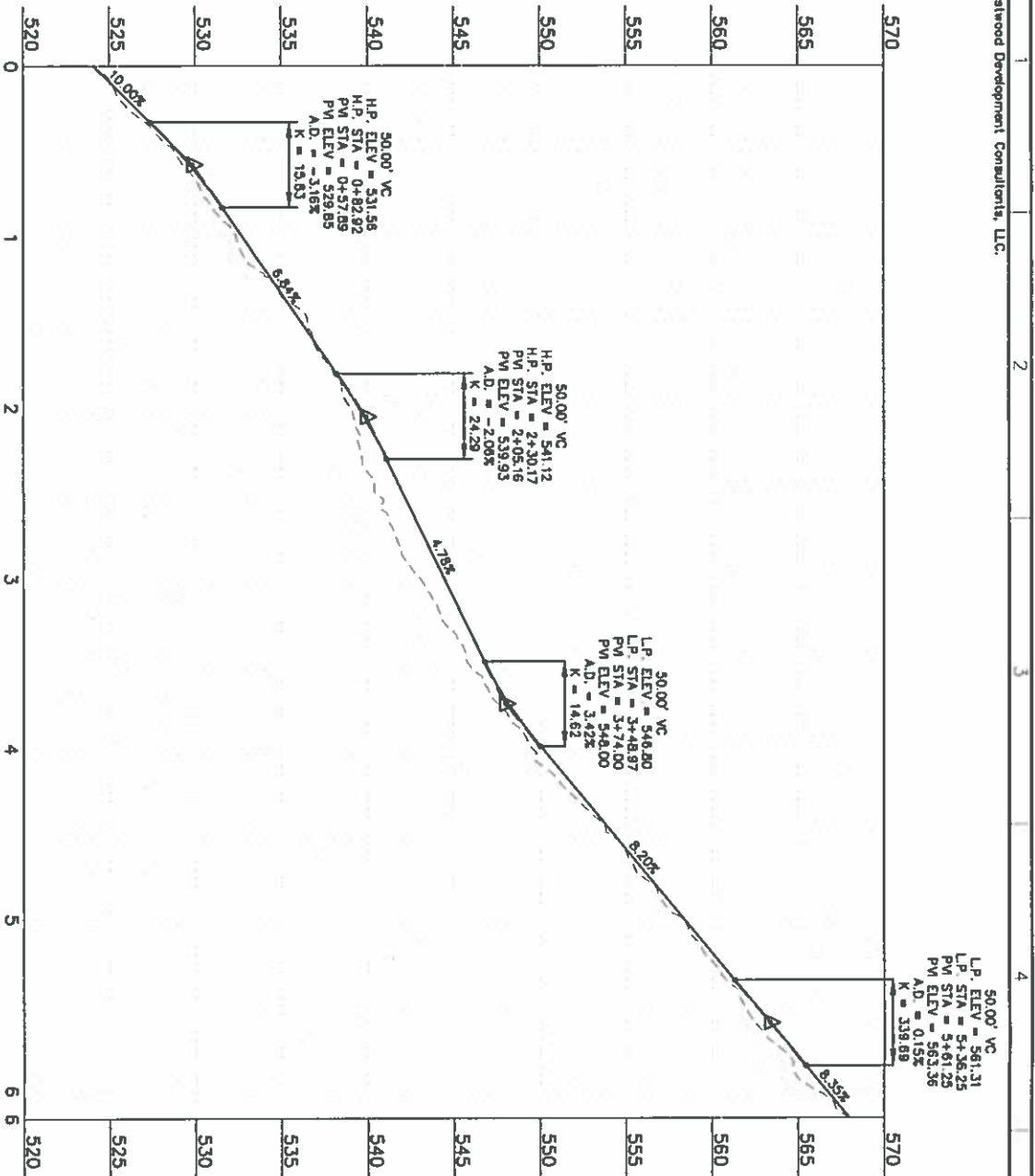
PRELIMINARY-NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 9

Westwood

12101 Westwood Drive, Suite 100  
Westwood, MA 01883  
westwoodma.com







**Westwood**

Project: 021917-0102 11701 Westwood Drive, Suite 300  
Westwood, MA 01981  
www.westwood-ct.com

*Signature*  
02-19-2020

Design	LAND
Checked	AOC
Drawn	LAND
Report Design by/for	
1. DATE	DESCRIPTION
2. DATE	WARE PLANNING SUBMISSION
3. DATE	WARE PLANNING SUBMISSION
4. DATE	WARE PLANNING SUBMISSION
5. DATE	WARE PLANNING SUBMISSION
6. DATE	WARE PLANNING SUBMISSION
7. DATE	WARE PLANNING SUBMISSION
8. DATE	WARE PLANNING SUBMISSION
9. DATE	WARE PLANNING SUBMISSION
10. DATE	WARE PLANNING SUBMISSION

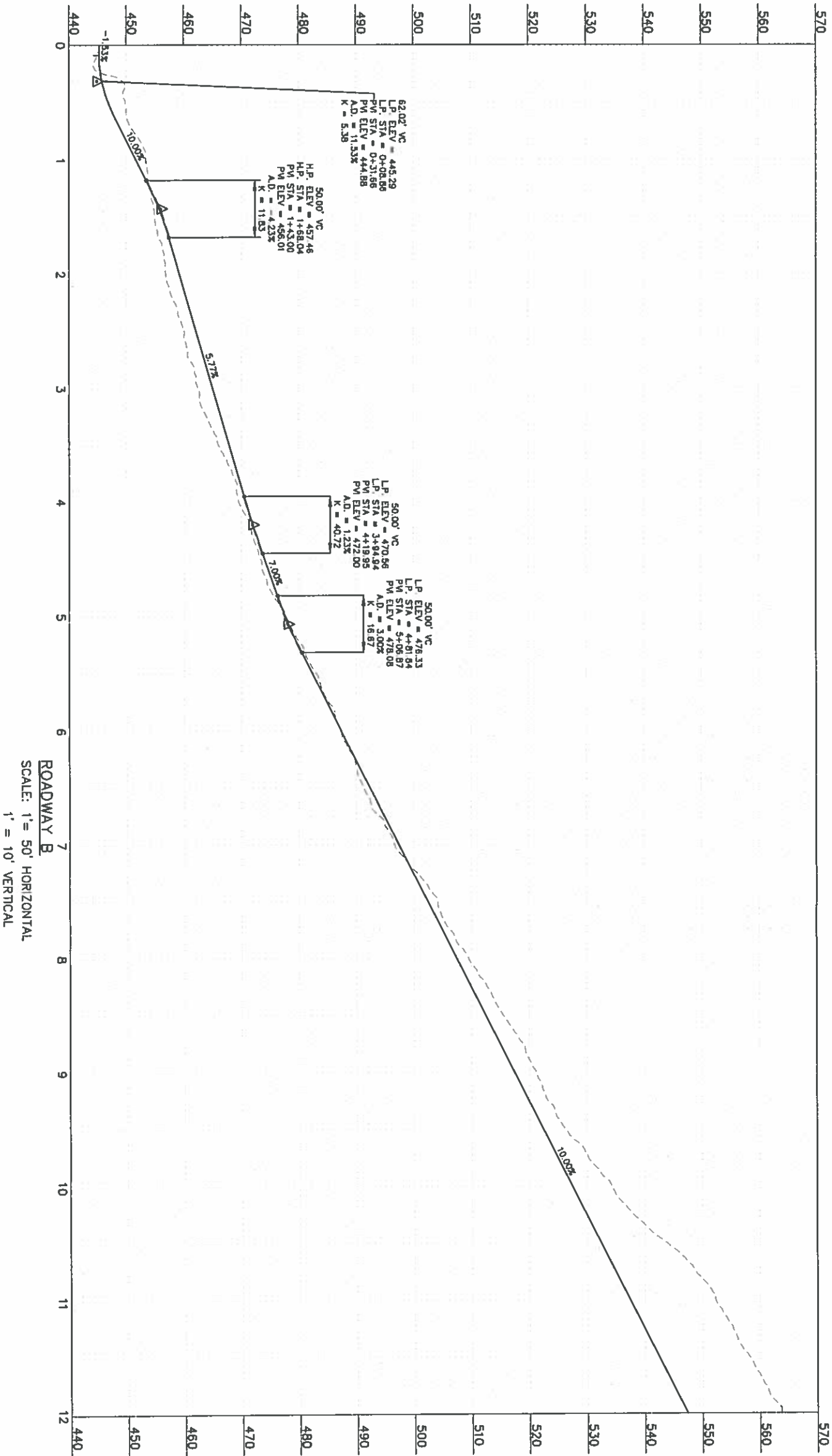


**WARE SOLAR**  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

ROAD PROFILE - 1

PRELIMINARY-NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 10





**Westwood**

Project: 03631912-0102 11701 Westwood Drive Suite 300  
Westwood, MA 01981  
westwoodma.com



Designed	LMG
Checked	AOC
Drawn	WRS
Record Drawn/Revised	
Project No.	03631912-0102
Date	02/14/2020
Description	WARE PLANNING SUBMISSION
Project Name	WARE PLANNING SUBMISSION

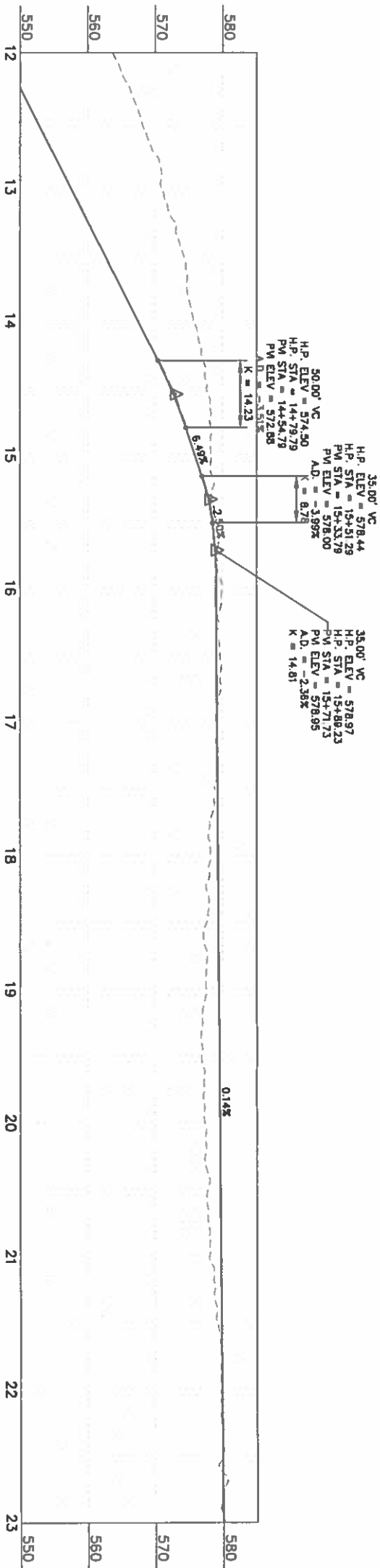


**WARE SOLAR**  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

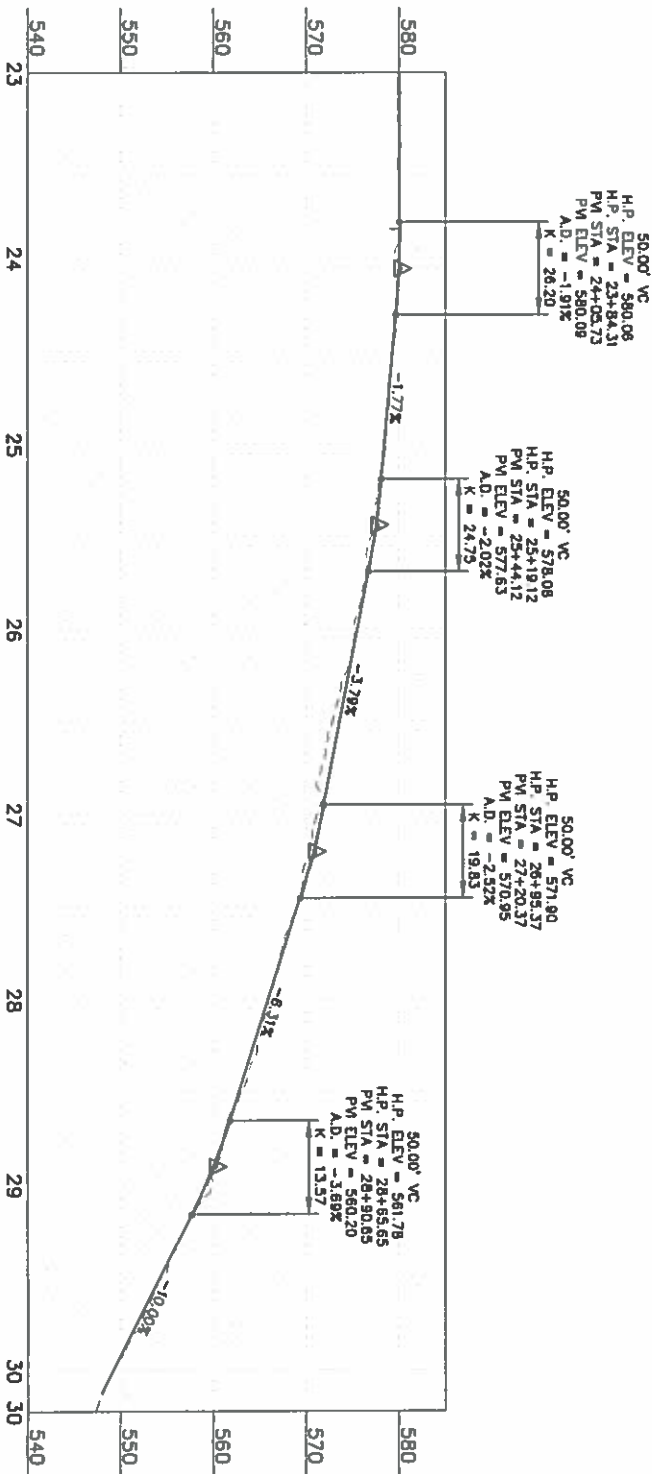
ROAD PROFILE - 2

PRELIMINARY-NOT FOR CONSTRUCTION  
DATE: 02/14/2020  
SHEET: 11

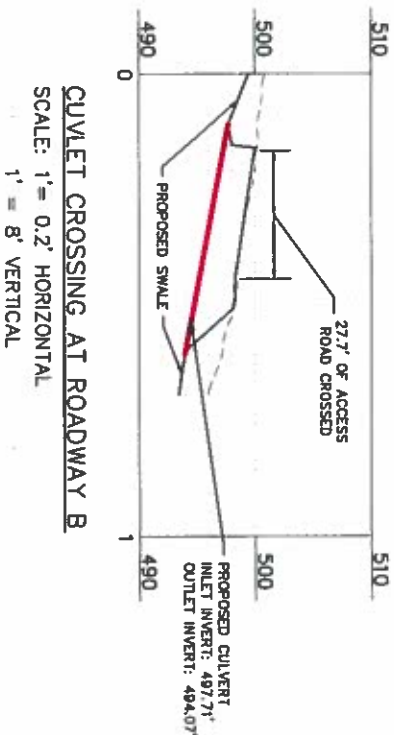




ROADWAY B (CONTINUED)  
SCALE: 1' = 50' HORIZONTAL  
1' = 10' VERTICAL



ROADWAY B (CONTINUED)  
SCALE: 1' = 50' HORIZONTAL  
1' = 10' VERTICAL



**Westwood**

Project: 18011 831-9116 17201 Westwood Drive, Suite 200  
Westwood, MA 01883  
Westwood@ecosenergy.com



Designed	LMG
Checked	AOC
Drawn	LMG
Revised/Deleted/Added	
Permitted Date	DESCRIPTION
E 01/12/2020	WARE PLANNING SUBMISSION
F 02/14/2020	WARE PLANNING SUBMISSION



**WARE SOLAR**  
MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

ROAD PROFILE - 3

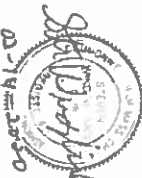


SEEDING NOTES:

1. THE CONTRACTOR SHALL PROPOSED AT D. REED AREAS ASSOCIATE WITH THE PROPOSED ROADWAY AND ROADWAY AREAS. SEEDING SHALL BE APPROVED BY THE TOWN ENGINEER AND THE TOWN BOARD.
2. THE TOTAL PROPOSED SEEDING AREA IS APPROXIMATELY 0.87 ACRES. THE SEEDING SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF WARE, MA. THERE IS NO LARDC EXPOSED AREAS OUTSIDE OF THE GRASSING FOOTPRINT.

ALL AREAS UNDER THE PROPOSED ARRAY SHALL RECEIVE WOOD CHIPS OR MULCH FROM CLEARING AND GRUBBING TO REDUCE EROSION POTENTIAL.

HYDROSEED AREA TO BE APPLIED TO ALL DISTURBED & GRADED AREAS (SEEDING IN WETLAND & BUTTER AREA TO ADHERE TO PERMITTING REQUIREMENTS)



UNO	UNO
ADC	ADC
UNO	UNO

DATE	DESCRIPTION
02/17/2020	WARE PLANNING SLAB SHOW
02/17/2020	WARE PLANNING

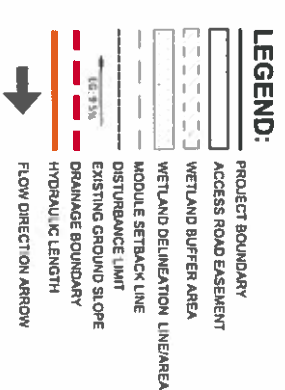


**WARE SOLAR**  
**MONSON TURNPIKE ROAD**  
**WARE, MA**  
**HAMPSHIRE COUNTY**

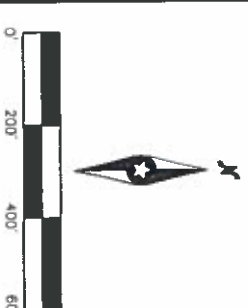
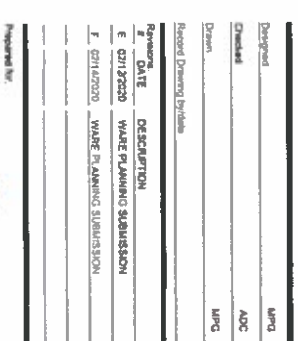
**OVERALL**  
**LANDSCAPE PLAN**

PRELIMINARY-NOT FOR CONSTRUCTION  
DATE 02/14/2020  
SHEET: 13





**Phone** (781) 837-0180  
13701 Winchester Drive, Suite 2000  
Beverly Hills, CA 91643  
westliveops.com

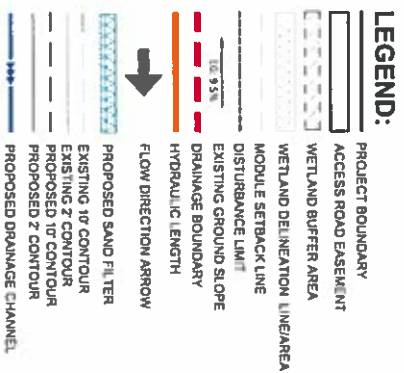


## DRAINAGE PLAN

**PRELIMINARY-NOT FOR CONSTRUCTION**

DATE: 02/14/2020  
SHEET: 14





	200'	400'	600'
Q'			



**PRELIMINARY-NOT FOR CONSTRUCTION**

DATE: 02/14/2020  
SHEET: 15



Prepared	Month
Checked	AOC
Drawn	Using
Report Drawing System	
Revised	
DATE	DESCRIPTION
E 02/12/2020	WAKE PLANNING SUBMISSION
F 02/14/2020	WAKE PLANNING SUBMISSION

Prepared by: \_\_\_\_\_







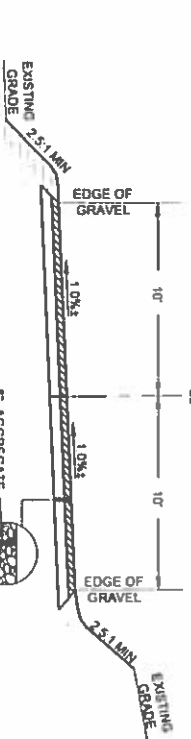




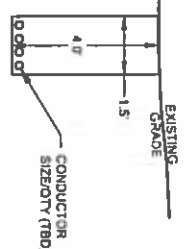
**EcoEnergy**  
222 SOUTH 7TH STREET  
SUITE 100  
MINNEAPOLIS, MN 55401

NOTES:

1. CONTRACTOR TO SUBCUT ROADWAY TO EXISTING GRADE ELEVATION TO MAINTAIN EXISTING SITE DRAINAGE PATTERN WHEREVER POSSIBLE.
2. IN FILL LOCATIONS CONTRACTOR TO GRADE TO 0% SLOPE TO EXISTING GRADE AND MAINTAIN NATURAL DRAINAGE PATTERNS.
3. IN CUT LOCATIONS CONTRACTOR TO CREATE DRAINAGE CHANNEL ON DOWNSTREAM SIDE. REFER TO GRADING PLANS FOR DETAILS.
4. CONTRACTOR TO COMPACT AGGREGATE TO 95% MAXIMUM DRY DENSITY.



4. CONTRACTOR TO COMPACT AGGREGATE TO 85% MAXIMUM DRY DENSITY  
5. THE DITCH SHOWN ABOVE IS LOCATED AT ROADWAY B FROM STATION 7+40 TO 15+31



1. ROADWAY INSPECTOR AND SURVEYOR SHALL REMOVE STORM DEBRIT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC DRAINAGE.
2. REMOVED SEDIMENT SHALL BE STORED IN A CONTAINER THAT WILL NOT CONTRIBUTE TO POLLUTION AND BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE MAINTAINED TO MAINTAIN POLLUTION EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WEAPOINED UP-SLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "FOOTING"

A cross-sectional diagram of a trench used for road repair. The trench is filled with stones. Labels indicate the following specifications:

- EXISTING PAVED ROADWAY**: The surface above the trench.
- 15" RADIUS**: The curved transition at the top of the trench walls.
- GEOTEXTILE LINER**: A layer lining the bottom and sides of the trench.
- 12" MINIMUM DEPTH**: The depth of the trench.
- 15" MINIMUM WIDTH**: The width of the trench at the bottom.
- 50' MINIMUM LENGTH**: The length of the trench.
- 3" OR GREATER AND 1" OR LESS WASHED ROCK**: The size specification for the stones used to fill the trench.

SOD RUNOFF SPREADER  
SOD LAD PERPENDICULAR TO  
FLOW ON TOP OF BLANKET

END OF UPPER BLANKET TO  
OVERLAP BOTTOM

WOOD FIBER BLANKET  
MULCH

SLOPE 3:1 AND STEEPER

10' MIN

3"

END OF BLANKET  
BURIED IN 6" DEEP VERTICAL  
TRENCH

STANDARD  
HYDROSEED  
MULCH OR  
ROADWAY

EROSION CONTROL BLANKET INSTALLATION ON AN IN-SLOPE  
(WHEN REQUIRED)

CATEGORY	SLOPE	VELOCITY
1	FLAT	< 5.0 fpm
2	3:1	< 9.0 fpm
3	4:1	< 12.0 fpm
4	2:1	< 12.0 fpm

CATEGORY	ACCEPTABLE TYPES
1	STRAW RD 15, WOOD FIBER RD 15
2	STRAW RD 15, WOOD FIBER 15
3	STRAW RD 25, WOOD FIBER RD 25
4	STRAW RD 25, WOOD FIBER HN 25

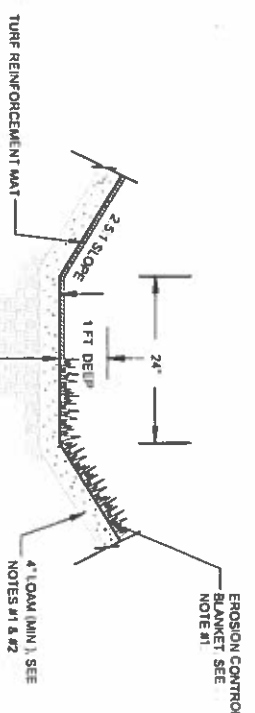
THE LETTERING DESIGNATION ON THIS SHEET SHALL BE DEFINED AS FOLLOWS:

15 - NETTING ON ONE SIDE  
RD - RAPIDLY DEGRADABLE  
HN - HIGH VELOCITY SIDES  
HV - HIGH VELOCITY

NOTE:  
ROLLING DIP AND WATERBAR WILL REQUIRE MAINTENANCE FOLLOWING  
RAINFALL EVENTS TO ENSURE FUNCTIONALITY REMOVE SEDIMENT FROM

SLOPE (%)	SPACING (FT)
<5	125
5-10	100
10-20	75

1. CONDUCTOR CLEARANCES DEPENDENT ON GEOTECHNICAL PARAMETERS AND ELECTRICAL DESIGN
2. CONDUCTOR SIZING AND QUANTITIES PER TRENCH DEPENDENT ON FINAL ELECTRICAL DESIGN TRENCH DIMENSIONS



1 DRAINAGE CHANNEL TO SAND FILTERS SHALL BE:  
1'0" DEEP, 2' WIDE BOTTOM 2 1/2' SIDE SLOPES

Drainage Channel	Sheet Streets (lb/ft <sup>2</sup> )	Unit/ing
Upper 200 feet of Drainage Channel 2	7.81 Turf Reinforcement Mat	
Lower Part of Drainage Channel 2	0.50 Grass	
Upper 20 feet of Drainage Channel 3	10.87 Turf Reinforcement Mat	
Last 130 feet of Drainage Channel 3	3.31 Turf Reinforcement Mat	
Last 130 feet of Drainage Channel 4	2.18 Turf Reinforcement Mat	
Middle 30 feet of Drainage Channel 4	4.65 Turf Reinforcement Mat	
Lower 50 feet of Drainage Channel 4	1.93 Turf Reinforcement Mat	
Upper 30 feet of Drainage Channel 5	4.23 Turf Reinforcement Mat	
Lower 300 feet of Grade 5	0.20 Grass	
First 180 feet of Upper Drainage Channel 6	0.54 Grass	
180 feet to end of Upper Drainage Channel 6	0.75 Grass	
460 feet to end of Upper Drainage Channel 6	0.81 Grass	
Middle Drainage Channel 6 between proposed culverts	3.49 Turf Reinforcement Mat	
Lower Drainage Channel 6	4.04 Turf Reinforcement Mat	
Drainage Channel 7 first 40 feet and last 40 feet	0.06 Grass	
Drainage Channel 7 middle 360 feet	0.22 Grass	
Drainage Channel 8 first 200 feet	0.18 Grass	
Drainage Channel 8 middle 150 feet	0.37 Grass	
Drainage Channel 8 last 150 feet	2.29 Turf Reinforcement Mat	
Drainage Channel 9 (roadside)	2.37 Turf Reinforcement Mat	
Drainage Channel 10 first 150 feet	0.21 Grass	
Drainage Channel 10 from 150 feet to 520 feet	1.98 Turf Reinforcement Mat	
Drainage Channel 11	1.07 Turf Reinforcement Mat	
Drainage Channel 12	2.12 Turf Reinforcement Mat	
Drainage Channel 13	1.09 Turf Reinforcement Mat	
Drainage Channel 14	5.31 Turf Reinforcement Mat	

The diagram illustrates a cross-section of a Type IV fabric structure. A horizontal line at the top represents the water surface, with an arrow labeled "FLOW" pointing to the right. Below the surface, a sloped line represents the fabric. Two points, "POINT A" and "POINT B", are marked on this sloped line. A horizontal dashed line connects these two points, and the distance between them is labeled "L". To the right of the sloped line, there is a vertical line segment labeled "L" and a horizontal line segment labeled "L". Below the sloped line, there is a horizontal line labeled "TYPE IV FABRIC".

MONSON TURNPIKE ROAD  
WARE, MA  
HAMPSHIRE COUNTY

**PRELIMINARY-NOT FOR CONSTRUCTION**

DATE: 02/14/2020  
SHEET: 17



Registered forBUILT 1989  
MIDWINTER-PLUS, MIN 55432

## HAMPSHIRE COUNTY

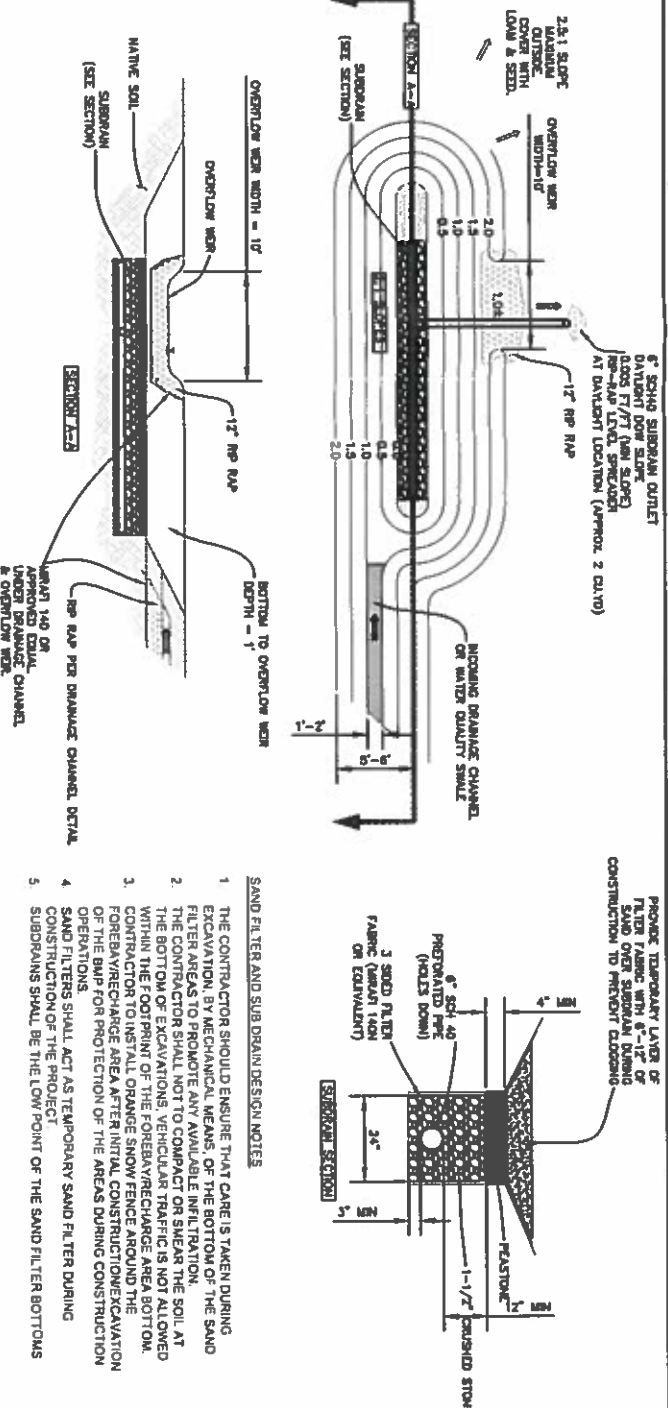
## CIVIL DETAILS

**PRELIMINARY-NOT FOR CONSTRUCTION**

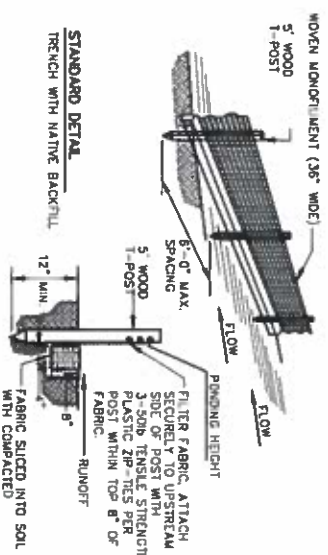
DATE: 02/14/2020

SHEET: 18

## SAND-FILLER AND SUBDRAIN DETAILS

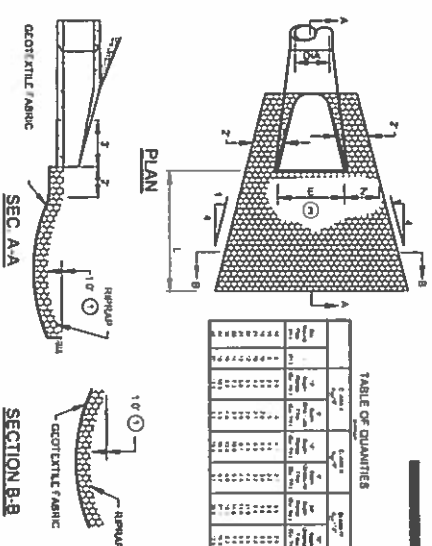


# WIREBACKED WITH HAYBALE SILI FENCE



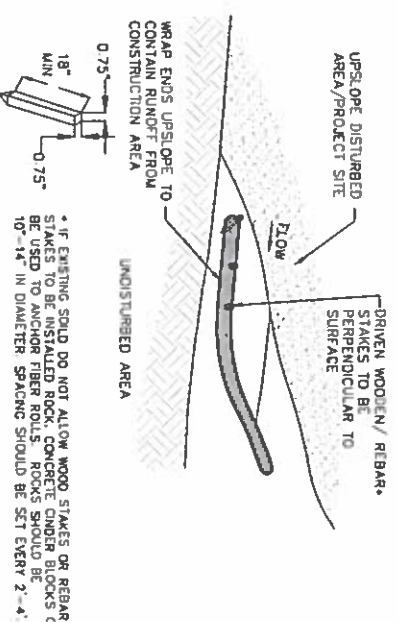
- NOTE: BRACKETED
1. RESPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/2 THE HEIGHT OF THE FABRIC OR MORE.
  2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
  3. SILT FENCE SHALL BE PLACED ON SLOPE CONDITIONS TO MAXIMIZE PONDING EFFICIENCY.
  4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT."

# SIL1 FENCE



- NOTE:**  
 ① FOR PIPE'S OR FLOOR OR EQUAL TO 30" USE 1 1/2"  
 ② THE CONTRACTOR SHALL PLACE RAMP PLATE REINFORCED TOPSOIL BED AND MOORE-SMIR  
 ROWLAND UNDERLATH AFTER PIPE IS INSTALLED. EXTEND AREA TO MATCH UNDERLATH  
 ③ JOINTS IN T FLOOR 1/4" INSIDE WIDTH OF APPROX  
 ④ RAMP PLATE SHALL BE 2" ASS 3" SIZE (SEE 23 OTHER PAGES NOTED ON PLANS)

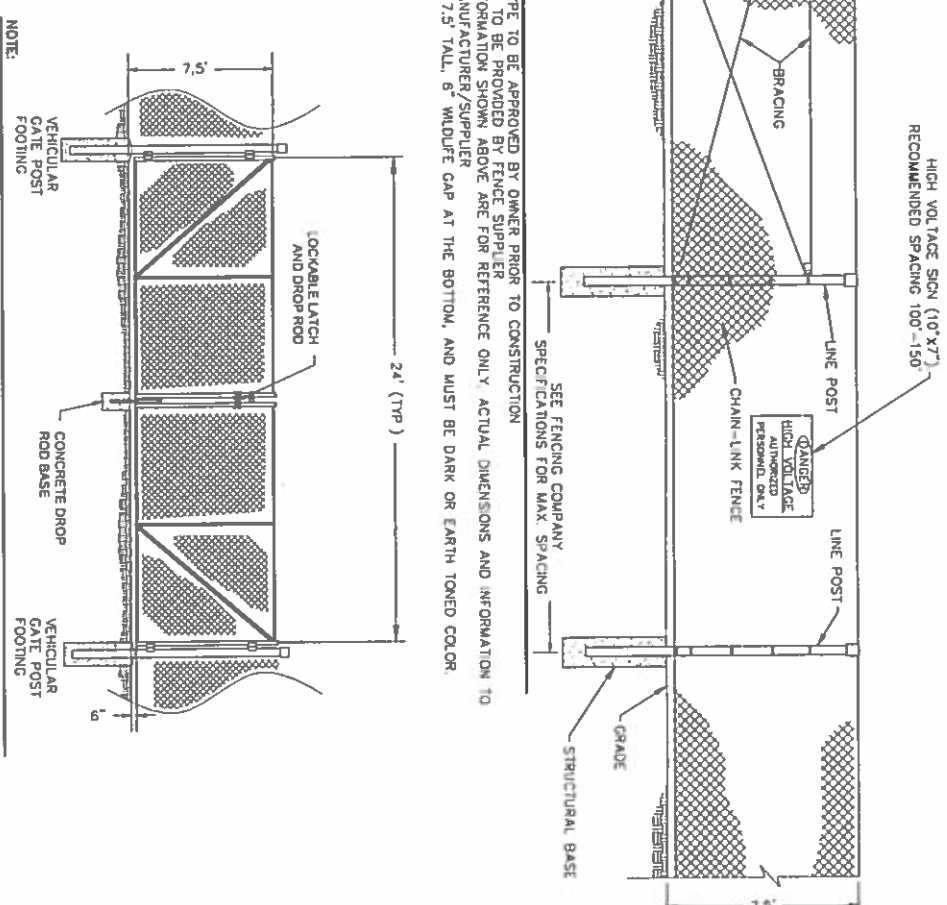
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- 12 REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS
- 13 SEGMENT THAT ACCUMULATES DEPOSIT OF THE BUMP SHOULD BE PERIODICALLY REMOVED
- 14 IN ORDER TO MAINTAIN BUMP EFFECTIVENESS, SEGMENT SHOULD BE REMOVED WHEN SEGMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEGMENT STORAGE DEPTHT
- 15 ROLLS OR GUILTS MAY BELONG TO ROW FOLLOWING MAJOR STOP EVENTS WHEN RUNOFF WAS DEVELOPED THE FIBER ROLLS, THESE ROLLS OR GUILTS SHOULD BE PROMPTLY REPAIRED

## TYPICAL FIBER ROLLS FOR PERIMETER CONTROL OF CONSTRUCTION AREA LIMITS

## PERIMETER CHAIN-LINK FENCE/GATE DETAILS



- NOTE:
1. FENCE AND GATE TYPE TO BE APPROVED BY OWNER PRIOR TO CONSTRUCTION
  2. STRUCTURAL DESIGN TO BE PROVIDED BY FENCE SUPPLIER
  3. DIMENSIONS AND INFORMATION SHOWN ABOVE ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND INFORMATION TO BE PROVIDED BY MANUFACTURER/SUPPLIER
  4. FENCE/GATE TO BE 7'5" TALL, 6" WILDLIFE GAP AT THE BOTTOM, AND MUST BE DARK OR EARTH TONED COLOR.