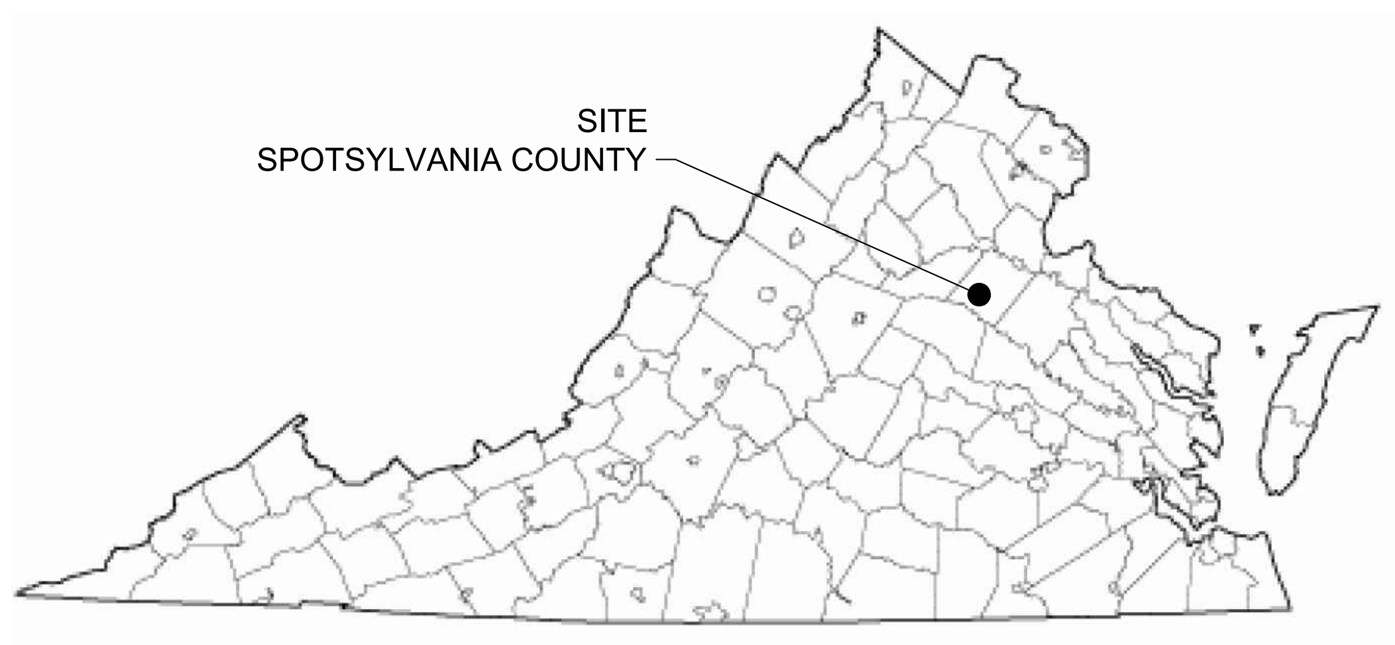
GENERALIZED DEVELOPMENT PLANS

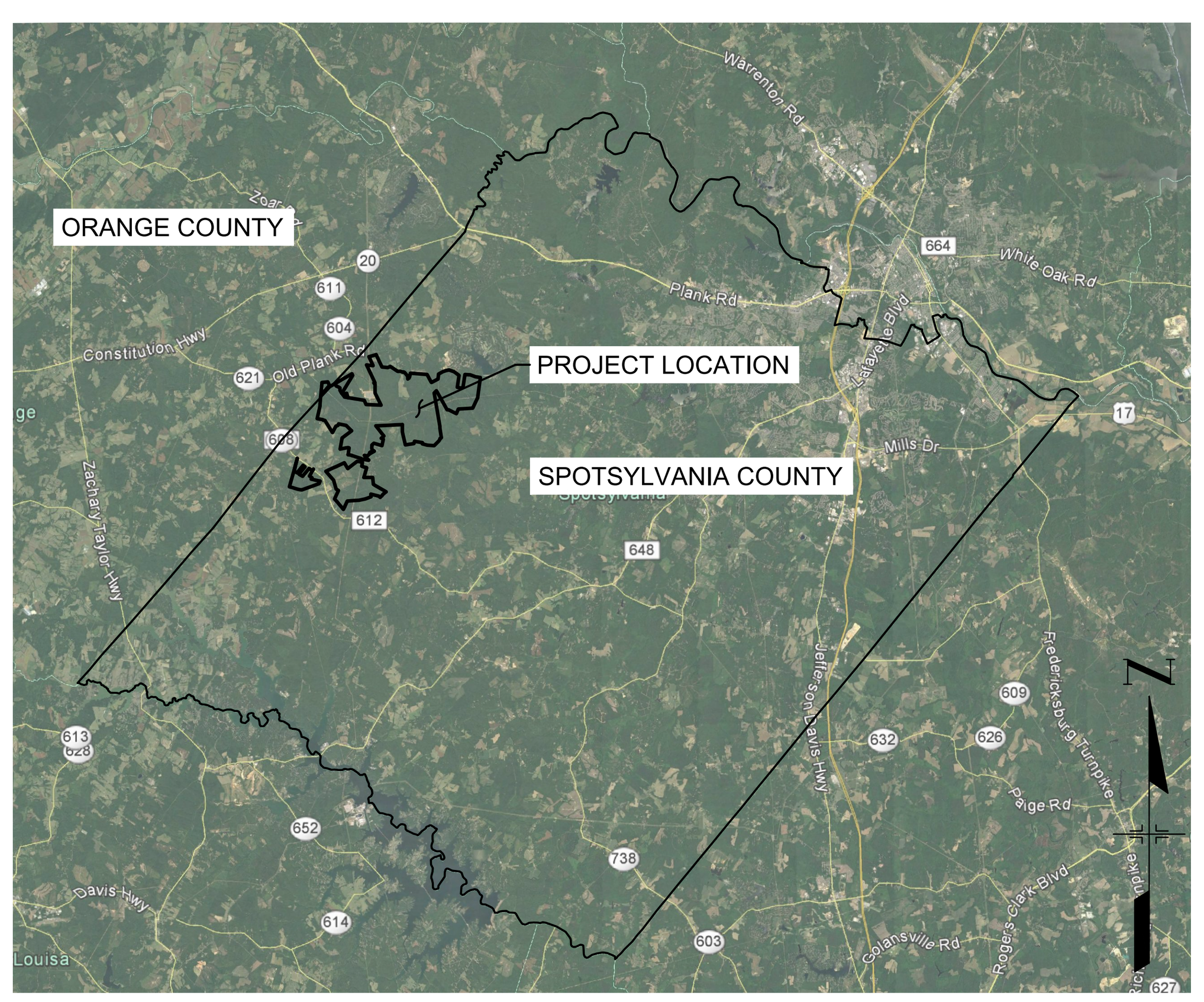
SPOTSYLVANIA SOLAR ENERGY CENTER C

SPECIAL USE PERMIT - SUP 18-0003

LIVINGSTON MAGISTERIAL DISTRICT

SPOTSYLVANIA COUNTY, VA



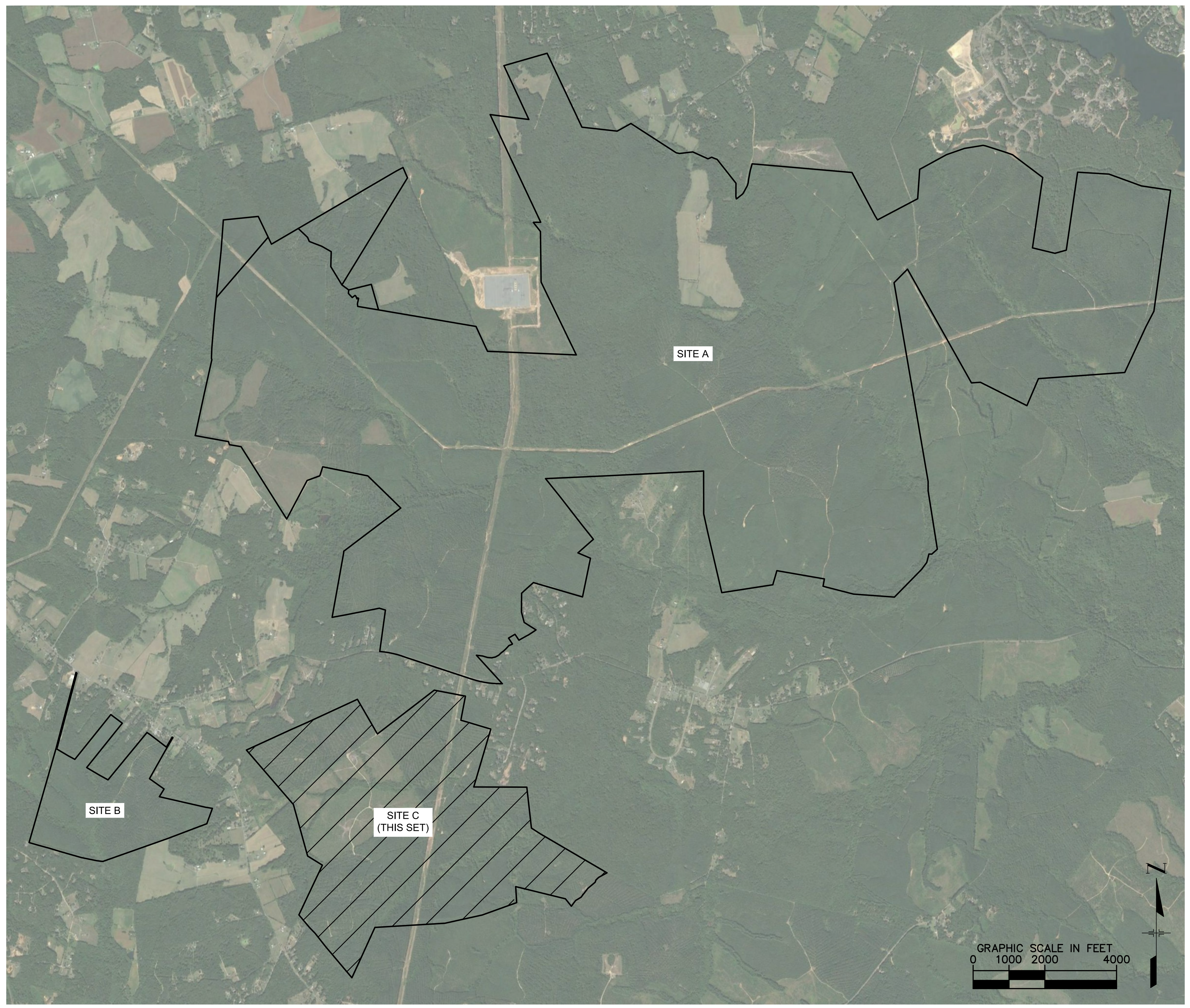


VICINITY MAP - SPOTSYLVANIA COUNTY, VA
1" = 30,000'

SPOTSYLVANIA SOLAR ENERGY CENTER	
OWNER	sPOWER
EXISTING AND PROPOSED ZONING	AGRICULTURE 3 (A-3)
EXISTING USE	SILVICULTURE
PROPOSED USE	SOLAR ENERGY FACILITY
TOTAL POWER TO BE GENERATED	500 MEGAWATTS AC (MWac)
OVERALL PROJECT SITE DATA:	
PROPERTY AREA	6,350 ACRES
DISTURBED AREA	3,500 ACRES
POWER GENERATED	500 MWac
SITE A DATA:	
PROPERTY AREA	5,200 ACRES
DISTURBED AREA	2,800 ACRES
POWER GENERATED	400 MWac
SITE B DATA:	
PROPERTY AREA	245 ACRES
DISTURBED AREA	200 ACRES
POWER GENERATED	30 MWac
SITE C DATA:	
PROPERTY AREA	905 ACRES
DISTURBED AREA	500 ACRES
POWER GENERATED	70 MWac

OWNER/APPLICANT
sPOWER
2180 SOUTH 1300 EAST, SUITE 600
SALT LAKE CITY, UT 84106
PHONE: 801-679-3513
CONTACT: DANIEL MENAHEM
EMAIL: DMENAHEM@SPOWER.COM

CIVIL ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC.
11400 COMMERCE PARK DRIVE, SUITE 400
RESTON, VA 20191
PHONE: 703-674-1337
CONTACT: SEAN MILLOT, P.E.
EMAIL: SEAN.MILLOT@KIMLEY-HORN.COM



VICINITY MAP - PROJECT LIMITS
1" = 2,000'

Sheet List Table	
Sheet No.	Sheet Title
C-01	GENERALIZED DEVELOPMENT PLAN COVER
EX-3-1	GENERALIZED DEVELOPMENT PLAN
EX-3-2	GENERALIZED DEVELOPMENT PLAN - 2
EX-3-3	PRESERVATION AREA PLAN
EX-3-4	LANDSCAPE AND BUFFER AREA PLAN
EX-3-5	ACCESS ROAD SERVICE AREAS
EX-3-6	COUNTY TRAIL OVERLAY PLAN
CD-1	CIVIL DETAILS
SHEETS 1-17	ALTA SURVEY

PROJECT INFORMATION - SITE C			
OWNER INFORMATION			
OWNER	TAX MAP PARCEL NUMBER		
RIVEROAK TIMBERLAND INVESTMENTS LLC	43-A-3		
RIVEROAK TIMBERLAND INVESTMENTS LLC	29-A-7		
NO KNOWN AIRPORTS WITHIN 5-MILE RADIUS OF SITE C.			
CULTURAL RESOURCES			
NO KNOWN HISTORIC BUILDINGS OR FEATURES WITHIN PROXIMITY OF SITE.			
TRAFFIC INFORMATION			
• VOLUMES SUBJECT TO CHANGE BASED ON TRAFFIC IMPACT STUDY RESULTS • SEE TRAFFIC IMPACT ANALYSIS AND EXHIBITS FOR ADDITIONAL TRAFFIC DISTRIBUTION AND RECOMMENDATIONS • PROPOSED CONSTRUCTION TRAFFIC: 300 VEHICLES PER DAY			
IMPERVIOUS AREAS*			
	TOTAL	AREA (SF)	AREA (AC)
SOLAR PANEL POST** (0.11 SF EACH)	38094	4190	0.10
INVERTER PAD (40' X 10')	22	8800	0.20
GRAVEL DRIVES (12' WIDTH)	29336 LF	352035	8.08
TOTAL IMPERVIOUS ACRES			8.38
TOTAL IMPERVIOUS % OF SITE			0.92%
*IMPERVIOUS AREAS SHOWN FOR THE SITE ARE FOR PRELIMINARY USE ONLY, NOT TO BE USED FOR DESIGN PURPOSES. **PER DEQ REGULATIONS, ONLY POLE MOUNTINGS FOR THE SOLAR PANELS ARE TO BE USED TO CALCULATE IMPERVIOUS AREA. ASSUMED SPACING OF 15' SUBJECT TO FINAL ENGINEERING.			
WATER QUALITY (VRRM)***			
TP LOAD REDUCTION REQUIRED (LB/YR)			19.61
ACRES PLACED IN CONSERVATION AREA			224.11
***WATER QUALITY VALUES SHOWN FOR THE SITE ARE FOR PRELIMINARY USE ONLY, NOT TO BE USED FOR DESIGN PURPOSES.			

SOLID WASTE DISPOSAL CALCULATIONS FOR CONSTRUCTION
FOR SITES A, B, AND C

Step 3: Identification of Collection Method

Container Type (Compactors, Roll Off, Dumpsters, Carts)	Size (Cubic Yards)	Number of Containers	Number of Pickups Per Week	Material (Trash or Recycle)
Dumpsters	40 YD	2	1	Trash
Dumpsters	40 YD	8	2	Recycle

Spotsylvania County
Non Residential Waste Generation Report

The purpose of this report is to calculate the annual waste stream generated from a proposed project and to ensure adequate collection service is provided.

Step 1: Determination of Annual Waste Generation

Complete the table for the proposed project being submitted. In the column labeled "Floor Area" enter the amount of square feet being occupied by each use. Multiply each square footage figure by the corresponding value in the "Annual Waste Generation Rate" column, and then list the value in "Annual Tonnage" column. Add all values in the "Annual Tonnage" column and enter the total next to "Combined Annual Waste Stream."

Building Use	Floor Area (square feet)		Annual Waste Generation Rate (tons/sq ft)		Annual Waste Generation Rate (Tons)
Office	2500	X	0.0013	=	3.25
Industrial		X	0.0016	=	0
Food/Retail		X	0.0057	=	0
Public Facility		X	0.00105	=	0
Institution/School		X	0.00105	=	0
Warehouse		X	0.00155	=	0
Combined Annual Waste Stream					3.25

Step 2: Determination of Minimum Storage Capacity

Determination of Minimum Storage Container and/or Dumpster Size (With Onsite Recycle Program)

Combined Annual Waste Stream		Cubic Yards Per Ton		Number of Annual Collections *(Minimum 52)*		Number of Containers *(Minimum 2)*		Minimum Size of Each Storage Container or Dumpster (Cubic Yards)
3.25	X	4.44	÷	52	÷	2	=	0.14

Determination of Minimum Storage Container and/or Dumpster Size (Without Recycle Program)

Combined Annual Waste Stream		Cubic Yards Per Ton		Number of Annual Collections *(Minimum 52)*		Number of Containers *(Minimum 1)*		Minimum Size of Each Storage Container or Dumpster (Cubic Yards)
3.25	X	4.44	÷	52	÷	1	=	0.28

Per design standard the project must provide accommodation for future onsite recycling. Sufficient area shall be provided at the collection center to accommodate a minimum of two (2) containers or more, of equal capacity, with 1/2 of the total capacity used for refuse collection and 1/2 of the total capacity used for recycle collection.

Step 3: Identification of Collection Method

Container Type (Compactors, Roll Off, Dumpsters, Carts)	Size (Cubic Yards)	Number of Containers	Number of Pickups Per Week	Material (Trash or Recycle)
Dumpster	10	1	0.5	Trash

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APPROVAL

COMMONWEALTH OF VIRGINIA
SEAN MILLOT
Lic. No. 0402052332
11/20/2018
PROFESSIONAL ENGINEER

KHA PROJECT	116626000
DATE	11/20/2018
SCALE	AS SHOWN
DESIGNED BY	JRB
DRAWN BY	JRB
CHECKED BY	SMM

SUP 18-0003
GENERALIZED DEVELOPMENT PLAN
COVER

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR
S-POWER

SPOTSYLVANIA COUNTY VIRGINIA

SHEET NUMBER
C-01

NORTH

GRAPHIC SCALE IN FEET
0 150 300 600

LEGEND

- PROPERTY LINE
- INTERNAL PROPERTY LINE
- BUILDABLE AREA
- DELINEATED WETLANDS
- EXISTING OVERHEAD ELECTRIC
- EXISTING OHE EASEMENT
- PROPOSED 10' - 16' ACCESS ROAD
- PROPOSED EASEMENT CROSSING
- PROPOSED WETLAND CROSSING
- MINIMUM 50' SETBACK/ALLOWING NATURAL REGROWTH
- PROPOSED 50' BUFFER/SETBACK. REFERENCE BUFFER PLAN FOR DETAILS
- PROPOSED CHAIN LINK FENCE
- PROPOSED PROJECT ACCESS POINT
- POTENTIAL STORMWATER CATCHMENT POND
- FEMA 100-YEAR FLOODPLAIN
- SOLAR PANEL ARRAY AND INVERTER

W CATHARPIN ROAD

W Catharpin Rd

SITE A

ENTRANCE #5

TEMPORARY PARKING, CONSTRUCTION TRAILER, AND SOLID WASTE CONTAINER AREA

DANIELVILLE DRIVE

CATHARPIN RUN

SEE SHEET EX-3-2 FOR CONTINUATION

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SUP 18-0003 GENERALIZED DEVELOPMENT PLAN

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR
S-POWER
SPOTSYLVANIA COUNTY VIRGINIA

SHEET NUMBER
EX-3-1

SEE SHEET EX-3-1 FOR CONTINUATION

CATHARPIN RUN

TEMPORARY PARKING, CONSTRUCTION TRAILER, AND SOLID WASTE CONTAINER AREA

TEMPORARY PARKING, CONSTRUCTION TRAILER, AND SOLID WASTE CONTAINER AREA

POST OAK ROAD

ENTRANCE #6

CHEWING PLACE

POST OAK ROAD

ENTRANCE #7

NORTH

GRAPHIC SCALE IN FEET
0 150 300 600

LEGEND

- PROPERTY LINE
- INTERNAL PROPERTY LINE
- BUILDABLE AREA
- DELINEATED WETLANDS
- OHE — EXISTING OVERHEAD ELECTRIC
- EXISTING OHE EASEMENT
- PROPOSED 10' - 16' ACCESS ROAD
- PROPOSED EASEMENT CROSSING
- PROPOSED WETLAND CROSSING
- MINIMUM 50' SETBACK/ALLOWING NATURAL REGROWTH
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- PROPOSED CHAIN LINK FENCE
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- POTENTIAL STORMWATER CATCHMENT POND
- FEMA 100-YEAR FLOODPLAIN
- SOLAR PANEL ARRAY AND INVERTER

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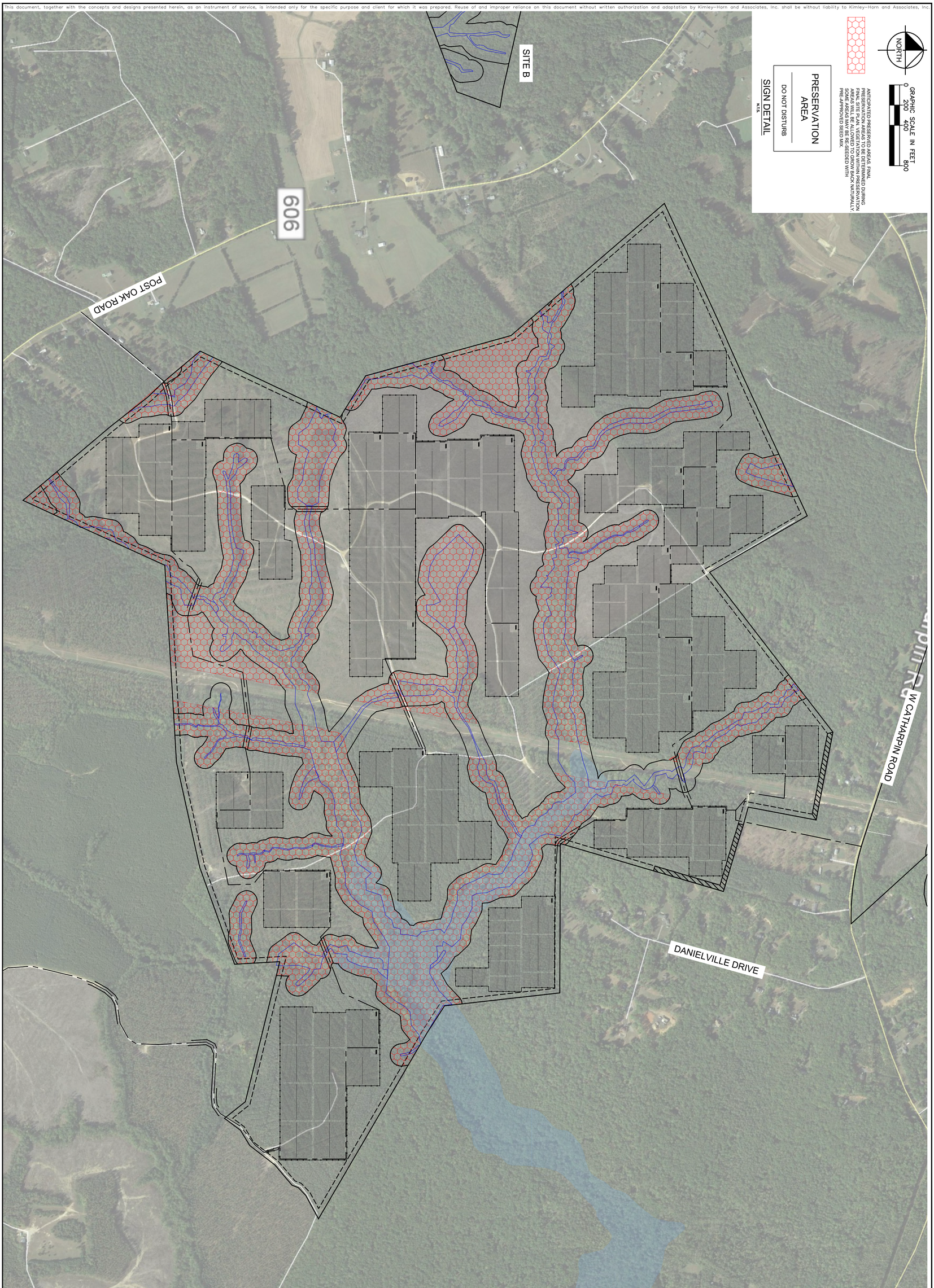
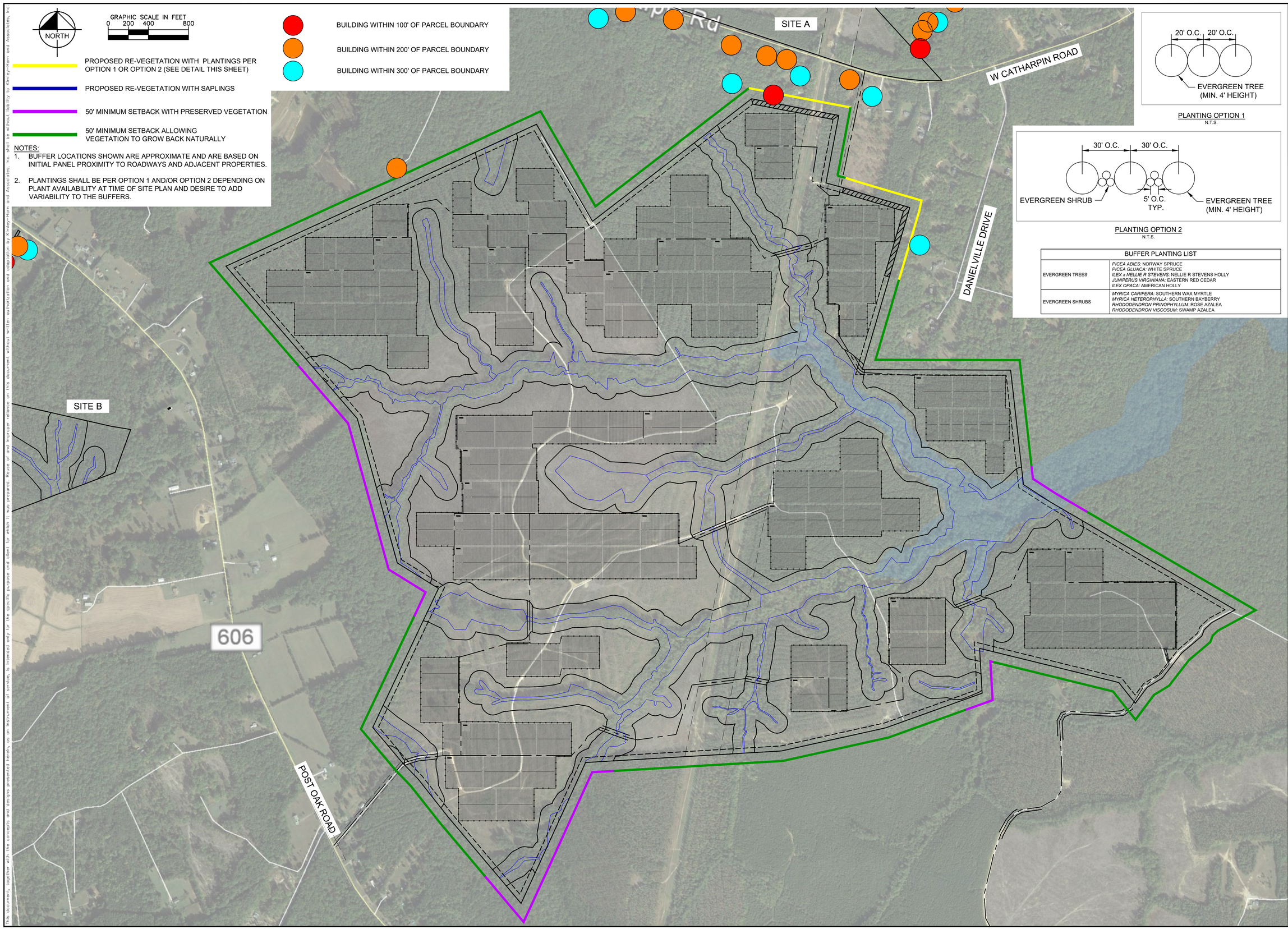
SUP 18-0003 GENERALIZED DEVELOPMENT PLAN - 2

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR S-POWER
SPOTSYLVANIA COUNTY VIRGINIA

SHEET NUMBER
EX-3-2



SHEET NUMBER EX-3-3	SPOTSYLVANIA SOLAR ENERGY CENTER C PREPARED FOR S-POWER	SUP 18-0003 PRESERVATION AREA PLAN	KHA PROJECT 116626000 DATE 10/26/2018 SCALE AS SHOWN DESIGNED BY JRB DRAWN BY JRB CHECKED BY SMM	COMMONWEALTH OF VIRGINIA SEAN MILLOT Lic. No. 040202622 PROFESSIONAL ENGINEER	APPROVAL	Kimley»Horn © 2018 KIMLEY-HORN AND ASSOCIATES, INC. 11400 COMMERCE PARK DR., SUITE 400 RESTON, VA 20191 PHONE: 703-674-1300 WWW.KIMLEY-HORN.COM	S·POWER An AES and AIMCo Company 2180 SOUTH 1300 EAST, SUITE 600 SALT LAKE CITY, UT 84106 PHONE: 801-679-3500 FAX: 801-679-3501 WWW.SPOWER.COM



PLANTING OPTION 1
N.T.S.

PLANTING OPTION 2
N.T.S.

BUFFER PLANTING LIST	
EVERGREEN TREES	*PICEA ABIES:* NORWAY SPRUCE *PICEA GLUACA:* WHITE SPRUCE *ILEX x NELLIE R STEVENS:* NELLIE R STEVENS HOLLY *JUNIPERUS VIRGINIANA:* EASTERN RED CEDAR *ILEX OPACA:* AMERICAN HOLLY
EVERGREEN SHRUBS	*MYRICA CARIFERA:* SOUTHERN WAX MYRTLE *MYRICA HETEROPHYLLA:* SOUTHERN BAYBERRY *RHODODENDRON PRINOPHYLLUM:* ROSE AZALEA *RHODODENDRON VISCOSUM:* SWAMP AZALEA

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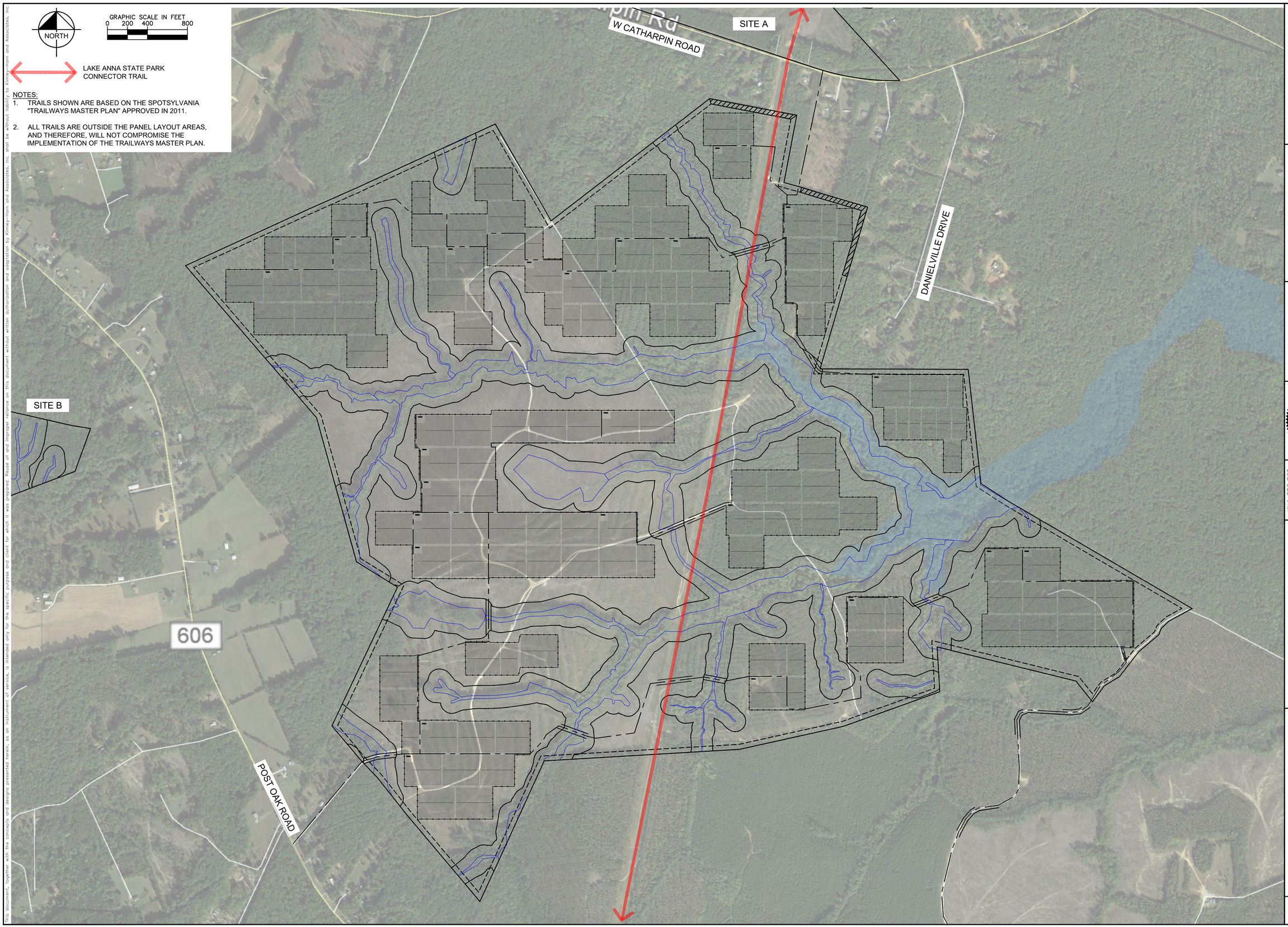
CHECKED BY	SMM

SUP 18-0003 LANDSCAPE AND BUFFER AREA PLAN

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR
S-POWER

SHEET NUMBER
EX-3-4



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SUP 18-0003
COUNTY TRAIL OVERLAY PLAN

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR
S-POWER

SHEET NUMBER
EX-3-6

NORTH

GRAPHIC SCALE IN FEET
0 250 500 1000

LEGEND

- PROPERTY LINE
- BUILDABLE AREA
- DELINEATED WETLANDS
- EXISTING OVERHEAD ELECTRIC
- EXISTING OHE EASEMENT
- PROPOSED 10' - 16' ACCESS ROAD
- PROPOSED EASEMENT CROSSING
- PROPOSED WETLAND CROSSING
- MINIMUM 50' SETBACK/ALLOWING NATURAL REGROWTH
- PROPOSED 50' BUFFER/SETBACK. REFERENCE BUFFER PLAN FOR DETAILS
- PROPOSED CHAIN LINK FENCE WITH BARBED WIRE
- MAIN ACCESS ROAD ROUTE
- PROPOSED PROJECT ACCESS POINT
- SOLAR PANEL ARRAY AND INVERTER

W CATHARPIN ROAD

W Catharpin Rd

SITE A

ENTRANCE #5

DANIELVILLE DRIVE

AREA SERVED BY ENTRANCE #5

AREA SERVED BY ENTRANCE #5

AREA SERVED BY ENTRANCE #5

AREA SERVED BY ENTRANCE #5

PROPOSED ELECTRIC EASEMENT TO CONNECT SITE B TO SITE C

AREA SERVED BY ENTRANCE #6,7

AREA SERVED BY ENTRANCE #6,7

AREA SERVED BY ENTRANCE #6,7

CATHARPIN RUN

AREA SERVED BY ENTRANCE #6,7

AREA SERVED BY ENTRANCE #6,7

606

POST OAK ROAD

ENTRANCE #6

CHEWING PLACE

POST OAK ROAD

ENTRANCE #7

612

ACCESS ROAD DETAILS

ENTRANCE #	EASEMENT WIDTH	ROAD WIDTH	ESTIMATED TRANSPORTATION LOAD	VEHICLE ACCESS
5	50'	20'	HEAVY	ALL
6	50'	20'	HEAVY	ALL
7	50'	20'	HEAVY	ALL

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12/17/2018

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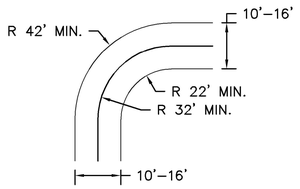
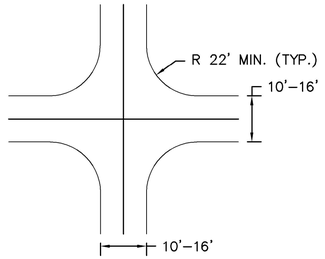
SUP 18-0003
ACCESS ROAD SERVICE AREAS

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR
S-POWER
SPOTSYLVANIA COUNTY VIRGINIA

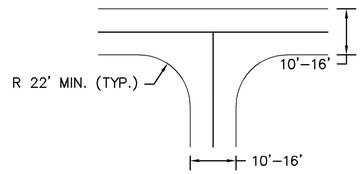
SHEET NUMBER
EX-3-5



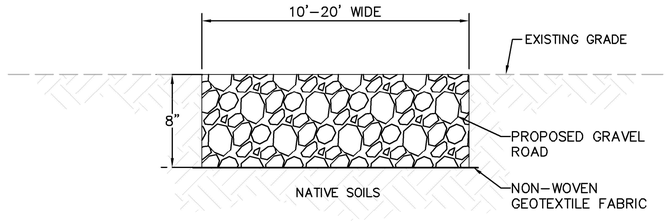
TYPICAL SITE ACCESS ROAD 90° TURN
N.T.S.



TYPICAL SITE ACCESS ROAD 4-WAY INTERSECTION
N.T.S.

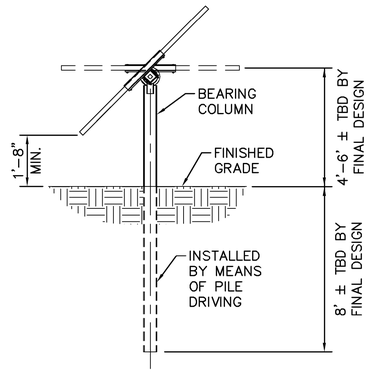


TYPICAL SITE ACCESS ROAD "T" - INTERSECTION
N.T.S.

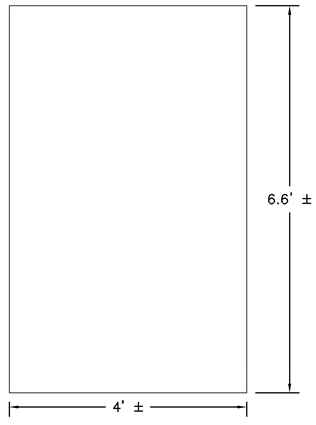


NOTES:
1. REMOVE ALL GRASSES AND ORGANICS WITHIN ACCESS ROAD AREA.
2. SCARIFY, MOISTURE CONDITION, AND RE–COMPACT EXISTING NATIVE SOILS TO 90% OF THE MATERIAL'S ASTM D–1557 MAXIMUM DRY DENSITY.
3. COMPACTION SHALL BE VERIFIED BY TESTING BY THE GEOTECHNICAL CONSULTANT.

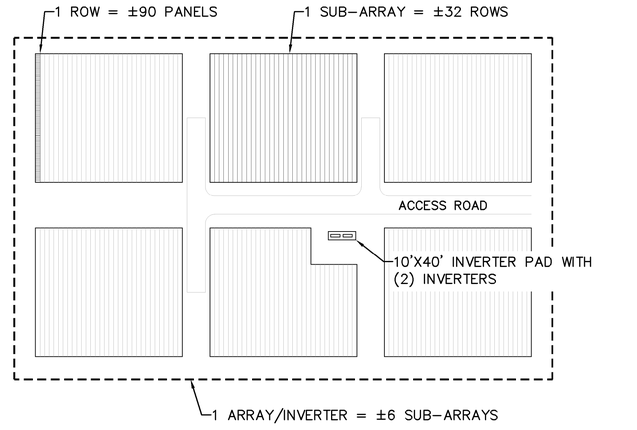
TYPICAL SITE ACCESS ROAD - GRAVEL ROAD SECTION
N.T.S.



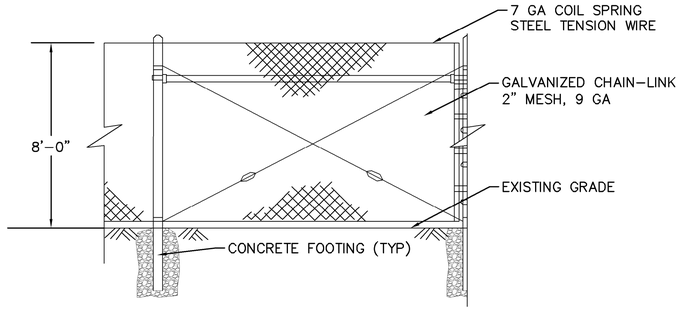
TRACKER RACK AND FOUNDATION DETAIL
N.T.S.
NOTE: ACTUAL CONSTRUCTION DETAIL OF TRACKER RACK AND FOUNDATION MAY VARY FROM THIS DETAIL.



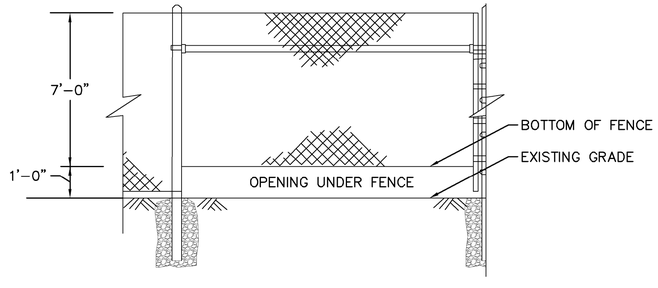
MODULE DETAIL
N.T.S.
NOTE: ACTUAL CONSTRUCTION DETAIL OF MODULE MAY VARY FROM THIS DETAIL.



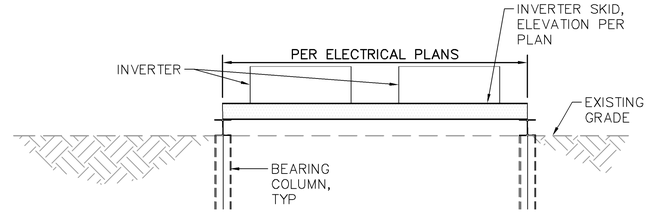
INVERTER BLOCK EXAMPLE
N.T.S.
NOTE: INVERTER PAD APPROXIMATELY 10'X40' WITH (2) 9'LX5.5'WX7.5'H INVERTERS SUBJECT TO FINAL ENGINEERING.



CHAIN LINK SECURITY FENCE
N.T.S.



WILDLIFE FENCE
N.T.S.
NOTE: WILDLIFE FENCE WILL SPACED EVERY 2000 FEET ALONG FENCE LINE SUBJECT TO ENGINEERING AND SITE DESIGN.



INVERTER DETAIL
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NOTE: INVERTER PAD APPROXIMATELY 10'X40' WITH (2) 9'LX5.5'WX7.5'H INVERTERS SUBJECT TO FINAL ENGINEERING.

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APPROVAL

COMMONWEALTH OF VIRGINIA
SEAN MILLOT
Lic. No. 0402052332
PROFESSIONAL ENGINEER
11/20/2018

KHA PROJECT	116626000
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SUP 18-0003
CIVIL DETAILS

SPOTSYLVANIA SOLAR ENERGY CENTER C
PREPARED FOR S-POWER
SPOTSYLVANIA COUNTY VIRGINIA

SHEET NUMBER
CD-1