DICKINSON WRIGHT PLLC

150 E. GAY STREET, 24TH FLOOR
COLUMBUS, OH 43215-3192
TELEPHONE: (614) 744-2936
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http://www.dickinsonwright.com

WILLIAM V. VORYS
WVorys@dickinsonwright.com

January 8, 2017

Ms. Barcy F. McNeal, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215

Re: Case Nos. 09-479-EL-BGN, 11-3446-EL-BGA, 16-469-EL-BGA, and 16-2404-EL-BGA
In the Matter of the Application of Hardin Wind Energy LLC for a Certificate of Environmental Compatibility and Public Need for the Hardin Wind Farm.
Notice of Compliance with Certificate Condition #57—Issued for Construction Drawings for Substation and Point of Interconnection

Dear Ms. McNeal:

Hardin Wind Energy LLC ("Applicant") is certified to construct a wind-powered electric generation facility in Hardin County, Ohio, in accordance with the orders issued by the Ohio Power Siting Board ("OPSB") in the above-referenced cases.

The Applicant is providing this letter to notify the OPSB that the Applicant has provided the attached Issued for Construction drawings for the Hardin Wind Substation and Point of Interconnection in accordance with Condition 57 of the OPSB's order in Case No. 09-479-EL-BGN.

We are available to answer any questions you may have.

Respectfully submitted,

/s/William V. Vorys

William V. Vorys (0093479)
Christine M.T. Pirik (0029759)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
Phone: (614) 744-2936
Email: wvorys@dickinsonwright.com
cpirik@dickinsonwright.com

Attorneys for Hardin Wind Energy LLC

Enclosures

COLUMBUS 39579-20 82049v3

DWG. NO. COVER

Issued For Construction

OCTOBER 04, 2017

AEP OHIO TRANSMISSION COMPANY

CIVIL/SITE DRAWINGS

DRAWING NO.	REV.	ISSUE DATE	DRAWING TITLE
E-1304	0	10/04/17	SITE DIMENSION PLAN; OVERALL STATION LAYOUT
E-1305	0	10/04/17	SITE DIMENSION PLAN; OVERALL ACCESS ROAD
E-1306	0	10/04/17	SITE DIMENSION PLAN; SWITCH STATION LAYOUT
E-1307	0	10/04/17	SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT
E-1308	0	10/04/17	SITE GRADING PLAN; OVERALL STATION LAYOUT
E-1309	0	10/04/17	SITE GRADING PLAN; MAIN ACCESS ROAD
E-1310	0	10/04/17	SITE GRADING PLAN; SWITCH STATION LAYOUT
E-1311	0	10/04/17	SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT
E-1312	0	10/04/17	SITE GRADING PLAN; DETENTION POND
E-1313	0	10/04/17	SITE GRADING SECTIONS; ACCESS ROADS
E-1314	0	10/04/17	SITE GRADING SECTIONS; SWITCH STATION
E-1315	0	10/04/17	SITE GRADING SECTIONS; COLLECTION SUBSTATION
E-1316	0	10/04/17	SITE GRADING SECTIONS; DETENTION POND & LANDOWNER PONDS
E-1317	0	10/04/17	GRADING DETAILS; CIVIL DETAILS
E-1318	0	10/04/17	GRADING DETAILS; EROSION MATTING DETAILS
E-1319	0	10/04/17	PROPERTY PLAT; LEGAL DESCRIPTION
E-3380	0	10/04/17	FENCE & SIGN DETAILS; SIGN LOCATION PLAN & ELEVATION
E-3381	0	10/04/17	SIGN STANDARD; DANGER, STICK FIGURE, COPPER-CLAD, STATION, AEP OHIO, PHASE MARKERS

REFERENCE DRAWINGS (FOR REFERENCE ONLY - NOT FOR CONSTRUCTION)

DRAWING NO.	REV.	ISSUE DATE	DRAWING TITLE
E-1300	0P	10/04/17	ONE LINE DIAGRAM
E-2301	0A	10/04/17	ELECTRICAL ASSEMBLY; GENERAL ARRANGEMENT
E-3371	0A	10/04/17	MANUFACTURER'S DRAWING; TRENCH PLAN & DETAILS

STANDARD DRAWINGS

DRAWING NO.	REV.	ISSUE DATE	DRAWING TITLE
1LPX001U SH.A	12	10/26/15	FENCE DETAILS; 8'-0" HIGH FENCE, GATES, DRIVE IN GATE HINGE, GATE LATCH, GATE STOP
6GRX063U SH.I	04	12/06/16	GROUNDING DETAILS; FENCE DETAILS

HARDIN SWITCH STATION

13699 TOWNSHIP ROAD 65
BELLE CENTER, OH 43310-9636
LAT: 40.63236087°
LONG: -83.79310263°

SITE GRADING - FENCING PACKAGE

GENERAL CONSTRUCTION
W.O. # 42190512
PVID: 36671
BPID # P09106001

PROJECT MANAGER: MARK BUELTMANN
PROJECT LEAD: SETH OSWALD

KATE McDEVITT
(406) 259-9933

GILBERTO ORTEGA
(602) 997-9933

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED PROFESSIONAL ENGINEER
(6-4-17)

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY
HARDIN SWITCH STATION
KENTON OHIO
345KV
COVER SHEET
SITE GRADING - FENCING PACKAGE

SCALE: NONE	DR: DRD/ECI	ENG: KLM/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/17
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. COVER	REV. 0	

L:\EPC Services\EPCS INVENERGY - HARDIN SWYD\CADD\Working\Civil\SITE-GRADING COVER SHEET.DGN

PLOTTED 10/3/2017 4:09:43 AM STATION PROJECTS ENGINEERING

AEP G (30 X 46)

CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

HARDIN SWITCH STATION

AMERICAN ELECTRIC POWER

STATION ADDRESS: 13699 TOWNSHIP ROAD 65
BELLE CENTER, OH 43310-9636
LAT: 40.63236087°
LONG: -83.79310263°
DRAWING STATUS ISSUE: Issued for Construction
ISSUE TYPE: Site Grading - Fencing

GENERAL CONSTRUCTION
W.O. 42190512
PVID: 36671
BPID # P09106001

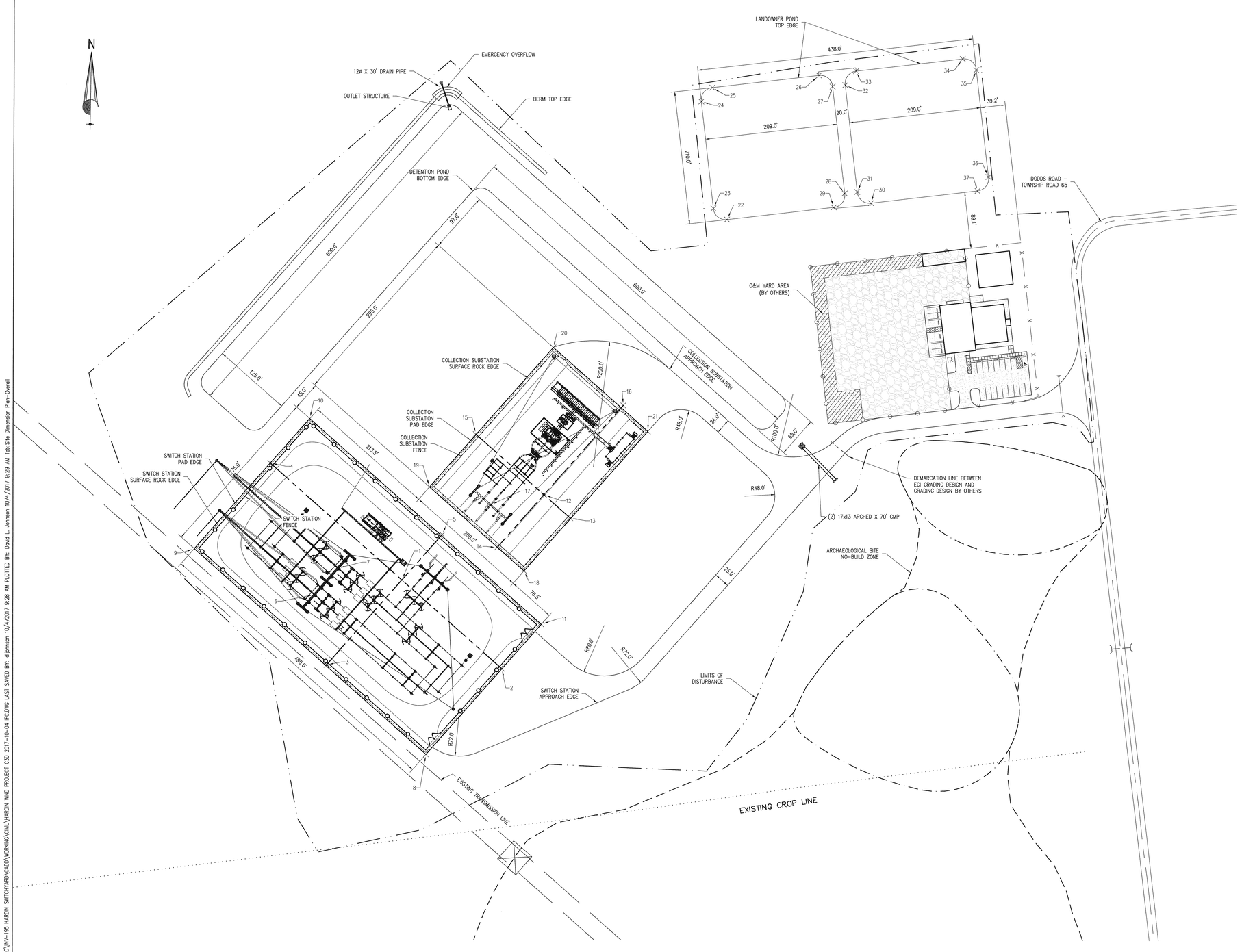
NOTES:
PROJECTS THAT ARE ENGINEERED BY AN OEC:
1) FOR PHYSICAL DETAILED DESIGN ISSUES, CONTACT THE OEC STATION LEAD, COPY THE AEP SE LEAD.
2) FOR P&C DETAILED DESIGN ISSUES, CONTACT THE OEC P&C LEAD, COPY THE AEP PCE & SE LEADS.
3) FOR OTHER ISSUES THAT IMPACT COST OR SCHEDULE, CONTACT THE AEP PROJECT MANAGER, COPY THE AEP SE LEAD.

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-14-21

	OUTSOURCE ENGINEERING COMPANY (OEC) NAME	NAME	WORK PHONE	CELL PHONE	EMAIL
OEC PROJECT MANAGER	ELECTRICAL CONSULTANTS, INC.	VINCE KOPRIVA	(602) 997-9933	(480) 261-3221	VINCE.KOPRIVA@ECIPHX.COM
OEC STATION LEAD	ELECTRICAL CONSULTANTS, INC.	GILBERTO ORTEGA	(602) 997-9933	(480) 316-2243	GILBERTO.ORTEGA@ECIPHX.COM
OEC P&C LEAD	ELECTRICAL CONSULTANTS, INC.	GILBERTO ORTEGA	(602) 997-9933	(480) 316-2243	GILBERTO.ORTEGA@ECIPHX.COM
OEC CIVIL LEAD	ELECTRICAL CONSULTANTS, INC.	KATE McDEVITT	(406) 869-2141	(406) 672-2295	KATE.MCDEVITT@ECIBLGS.COM
OEC STATION DESIGNER	ELECTRICAL CONSULTANTS, INC.	DREW DAVIS	(602) 997-9933	(937) 707-4102	DREW.DAVIS@ECIPHX.COM
OEC P&C DESIGNER	ELECTRICAL CONSULTANTS, INC.	PAM FOUT	(602) 997-9933	N/A	PAMELA.FOUT@ECIPHX.COM

	COMPANY NAME	NAME	WORK PHONE	CELL PHONE	EMAIL
PROJECT MANAGER	AEP	MARK BUELTMANN	(614) 552-1609	N/A	MTBUELTMANN@AEP.COM
STATION ENGINEERING (SE) LEAD	AEP	SETH OSWALD	(614) 552-2144	(614) 286-6619	SMOSWALD@AEP.COM
PROTECTION & CONTROL ENGINEERING (PCE) LEAD	AEP	TYLER BERTON	(614) 552-1724	N/A	TJBERTON@AEP.COM
CIVIL ENGINEERING LEAD	AEP	MATT PANZITTA	(614) 552-1197	(614) 284-9786	MJPANZITTA@AEP.COM
SCADA LEAD	AEP	N/A			
TELECOM LEAD	EASi	BRIAN M. MASON	(614) 552-3050	N/A	BMMASON@AEP.COM
T-LINE LEAD	AEP	RICK OLESKY	(614) 552-1181	N/A	RROLESKY@AEP.COM
TCR					

CONTACT SHEET



NORTHING/EASTING POINT TABLE

Point #	Description	Easting	Northing
1	AXIS LINE INTERSECTION	1609634.50	354386.29
2	AXIS LINE END	1609792.88	354246.12
3	AXIS LINE END	1609515.60	354251.95
4	AXIS LINE END	1609425.95	354570.87
5	AXIS LINE END	1609698.03	354458.07
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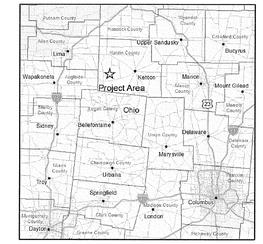
7	CENTER OF DEAD END	1609533.47	354404.92
8	YARD PAD CORNER	1609672.92	354110.57
9	YARD PAD CORNER	1609305.99	354435.32
10	YARD PAD CORNER	1609488.25	354641.25
11	YARD PAD CORNER	1609855.18	354316.50
12	BASELINE INTERSECTION	1609858.97	354521.47
13	BASELINE END	1609900.61	354484.62
14	BASELINE END	1609785.00	354437.89
15	BASELINE END	1609750.78	354617.22
16	BASELINE END	1609984.23	354663.00
17	CENTER OF DEAD END	1609774.58	354505.33
18	YARD PAD CORNER	1609827.71	354400.90
19	YARD PAD CORNER	1609677.95	354533.45
20	YARD PAD CORNER	1609873.46	354754.36
21	YARD PAD CORNER	1610023.23	354621.81
22	EDGE OF LANDOWNER POND	1610147.59	354957.22
23	EDGE OF LANDOWNER POND	1610125.92	354974.84
24	EDGE OF LANDOWNER POND	1610106.34	355143.71
25	EDGE OF LANDOWNER POND	1610123.41	355165.82
26	EDGE OF LANDOWNER POND	1610292.27	355185.40
27	EDGE OF LANDOWNER POND	1610313.95	355167.78
28	EDGE OF LANDOWNER POND	1610333.53	354998.91
29	EDGE OF LANDOWNER POND	1610316.46	354976.80
30	EDGE OF LANDOWNER POND	1610375.07	354983.60
31	EDGE OF LANDOWNER POND	1610353.39	355001.22
32	EDGE OF LANDOWNER POND	1610333.81	355170.09
33	EDGE OF LANDOWNER POND	1610350.88	355192.20
34	EDGE OF LANDOWNER POND	1610519.75	355211.78
35	EDGE OF LANDOWNER POND	1610541.42	355194.16
36	EDGE OF LANDOWNER POND	1610561.00	355025.29
37	EDGE OF LANDOWNER POND	1610543.94	355003.17



VICINITY MAP

LEGEND:

- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308
2. COORDINATES ARE NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL ACCESS ROAD.....E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT.....E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT.....E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT.....E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD.....E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT.....E-1310
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SITE GRADING PLAN; DETENTION POND.....E-1312
SITE GRADING SECTIONS; ACCESS ROADS.....E-1313
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SITE GRADING SECTIONS; DETENTION POND.....E-1316
GRADING DETAILS-CIVIL DETAILS.....E-1317
GRADING DETAILS-EROSION MATTING DETAILS.....E-1318
PROPERTY PLAT, LEGAL DESCRIPTION.....E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED PROFESSIONAL ENGINEER
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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

SITE DIMENSION PLAN

OVERALL STATION LAYOUT

SCALE: 1" = 60'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1304	REV. 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

FILE LOCATION: L:\WVDENSRS' WIND, LLC\WV-195 HARDIN SWITCH\ASD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 IFC.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:29 AM Tab:Site Dimension Plan-Overall

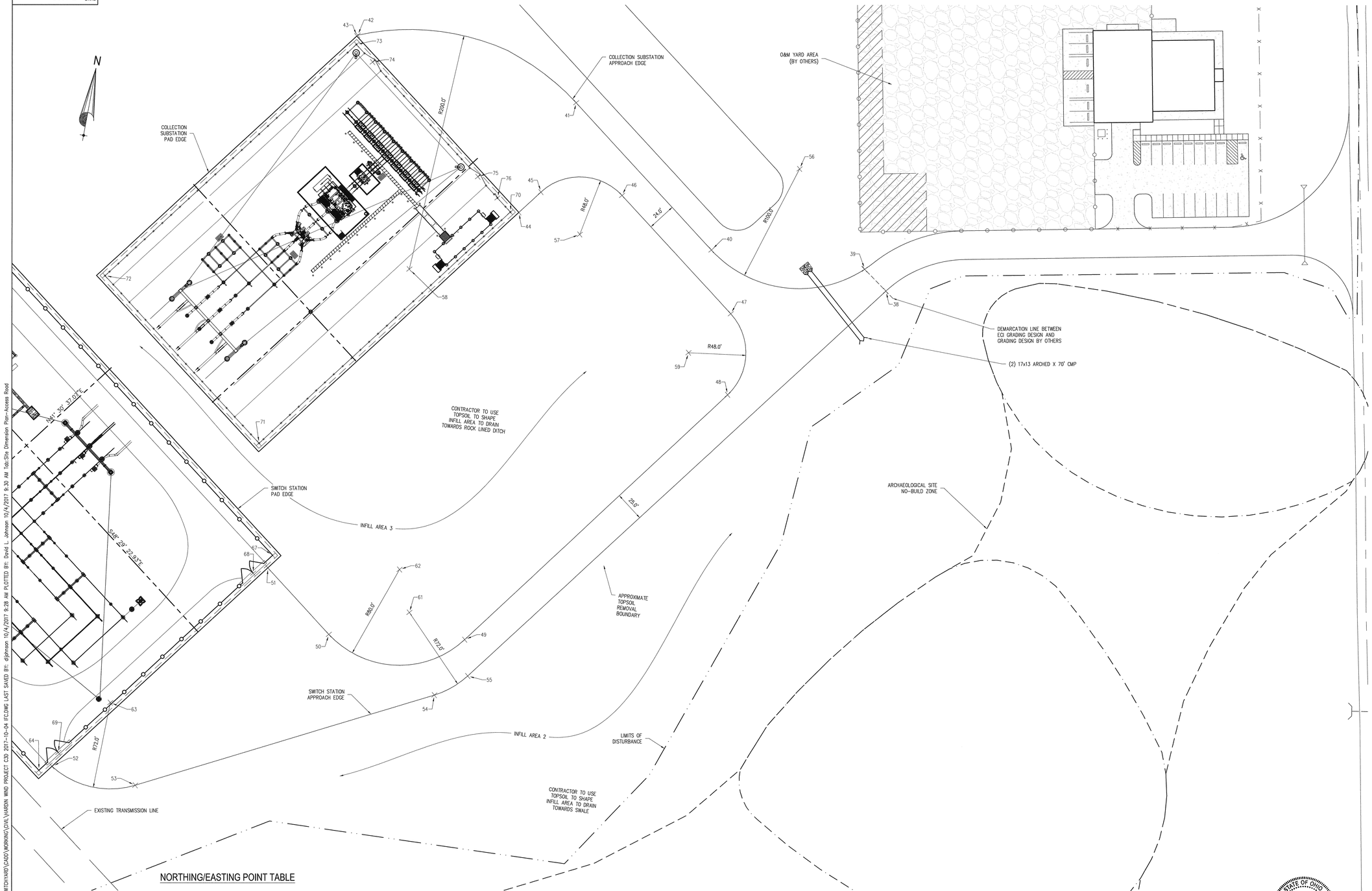
PLOTTED BY: $USER$ ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

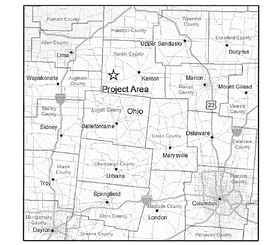
CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

AEP G (30 X 48)

CADFILEPATH

DWG. NO. E-1305





VICINITY MAP

LEGEND:

- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308
2. COORDINATES ARE NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT	E-1304
SITE DIMENSION PLAN; SWITCH STATION LAYOUT	E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT	E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT	E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD	E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT	E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT	E-1311
SITE GRADING PLAN; DETENTION POND	E-1312
SITE GRADING SECTIONS; ACCESS ROADS	E-1313
SITE GRADING SECTIONS; SWITCH STATION	E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION	E-1315
SITE GRADING SECTIONS; DETENTION POND	E-1316
GRADING DETAILS-CIVIL DETAILS	E-1317
GRADING DETAILS-EROSION MATTING DETAILS	E-1318
PROPERTY PLAT, LEGAL DESCRIPTION	E-1319

NORTHING/EASTING POINT TABLE

Point Table

Point #	Description	Easting	Northing
38	APPROACH EDGE	1610334.97	354587.77
39	APPROACH EDGE	1610315.49	354604.07
40	APPROACH EDGE	1610186.36	354606.96
41	APPROACH EDGE	1610061.27	354717.67
42	APPROACH EDGE	1609874.12	354755.11
43	APPROACH EDGE	1609873.46	354754.36
44	APPROACH EDGE	1610023.23	354621.81
45	APPROACH EDGE	1610039.80	354640.53

Point Table

Point #	Description	Easting	Northing
46	APPROACH EDGE	1610107.55	354644.66
47	APPROACH EDGE	1610208.06	354555.70
48	APPROACH EDGE	1610212.38	354488.16
49	CENTER OF RADIUS	1610015.02	354262.49
50	APPROACH EDGE	1609901.77	354255.23
51	APPROACH EDGE	1609845.23	354305.27
52	APPROACH EDGE	1609683.04	354122.01
53	APPROACH EDGE	1609753.60	354113.42

Point Table

Point #	Description	Easting	Northing
54	APPROACH EDGE	1609994.38	354213.83
55	APPROACH EDGE	1610020.59	354232.56
56	CENTER OF RADIUS	1610252.64	354681.84
57	CENTER OF RADIUS	1610075.74	354608.71
58	CENTER OF RADIUS	1609937.20	354565.31
59	CENTER OF RADIUS	1610176.25	354519.76

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

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BILLINGS, MONTANA

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE DIMENSION PLAN

OVERALL ACCESS ROAD

SCALE: 1" = 30'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1305	REV 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

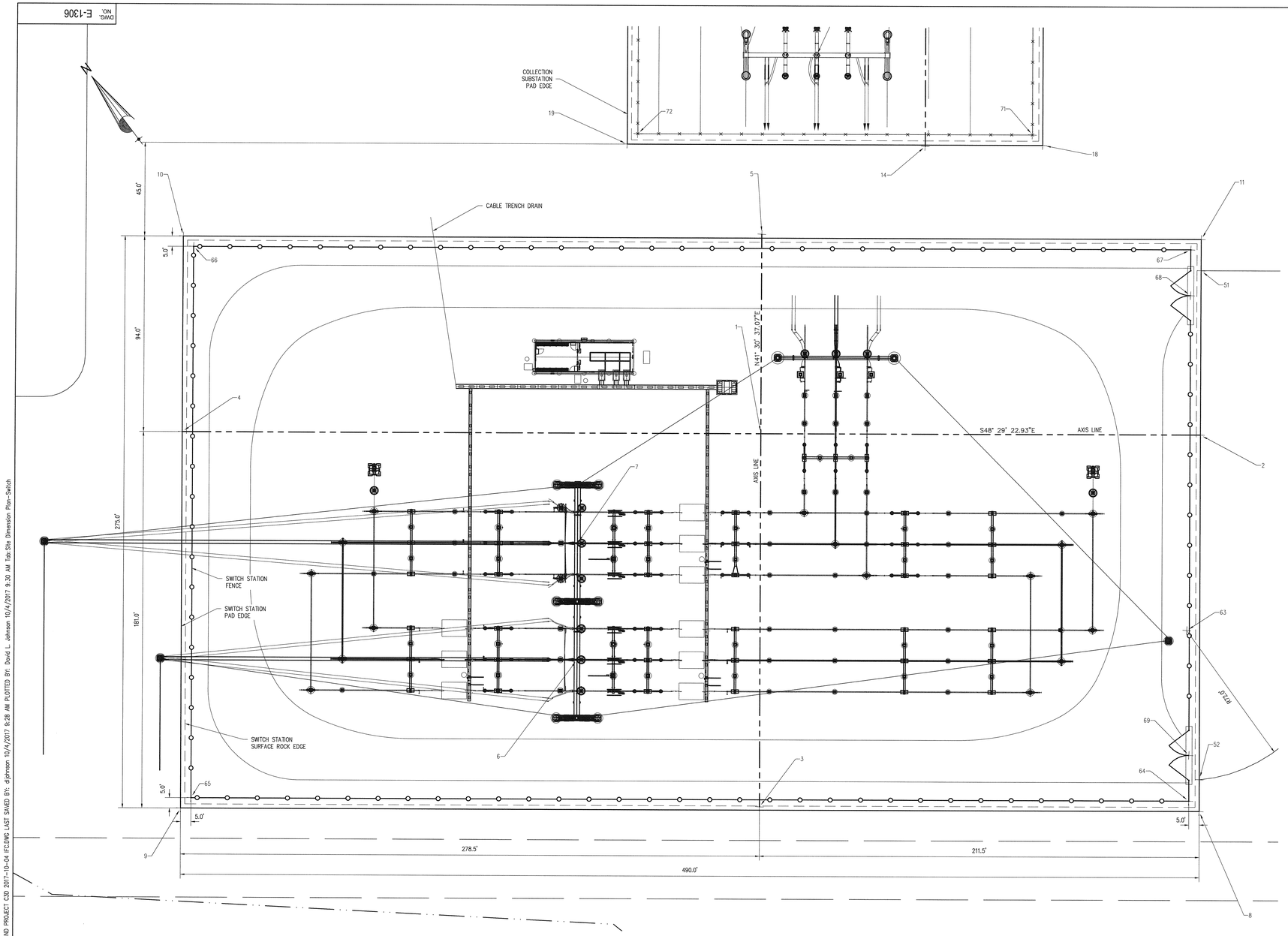
CM 1 2 3 4 5 6 7 | 1/8 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

CADFILEPATH

AEP G (30 X 48)

PLOTTED BY SUSE05 ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

FILE LOCATION: L:\INVENERGY WIND, LLC\IN-195 HARDIN SWITCHYARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: djohnson 10/4/2017 8:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Dimension Plan-Access Road



NORTHING/EASTING POINT TABLE

Point Table			
Point #	Description	Easting	Northing
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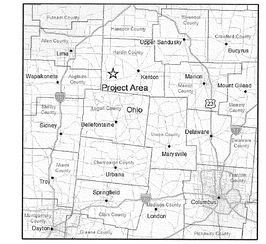
7	CENTER OF DEAD END	1609533.47	354404.92
8	YARD PAD CORNER	1609672.92	354110.57
9	YARD PAD CORNER	1609305.99	354435.32
10	YARD PAD CORNER	1609488.25	354641.25
64	SWITCH STATION FENCE CORNER	1609672.49	354117.63
65	SWITCH STATION FENCE CORNER	1609313.05	354435.75
66	SWITCH STATION FENCE CORNER	1609488.68	354634.19
67	SWITCH STATION FENCE CORNER	1609848.12	354316.07
68	SWITCH STATION GATE CENTER	1609833.54	354299.60
69	SWITCH STATION GATE CENTER	1609687.07	354134.10



VICINITY MAP

LEGEND:

- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308
2. COORDINATES ARE NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; ACCESS ROADS E-1313
SITE GRADING SECTIONS; SWITCH STATION E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
SITE GRADING SECTIONS; DETENTION POND E-1316
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT, LEGAL DESCRIPTION E-1319

STATE OF OHIO
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BILLINGS MONTANA

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

349KV

SITE DIMENSION PLAN

SWITCH STATION LAYOUT

SCALE: 1" = 20'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
		DWG. NO. E-1306	REV 0

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

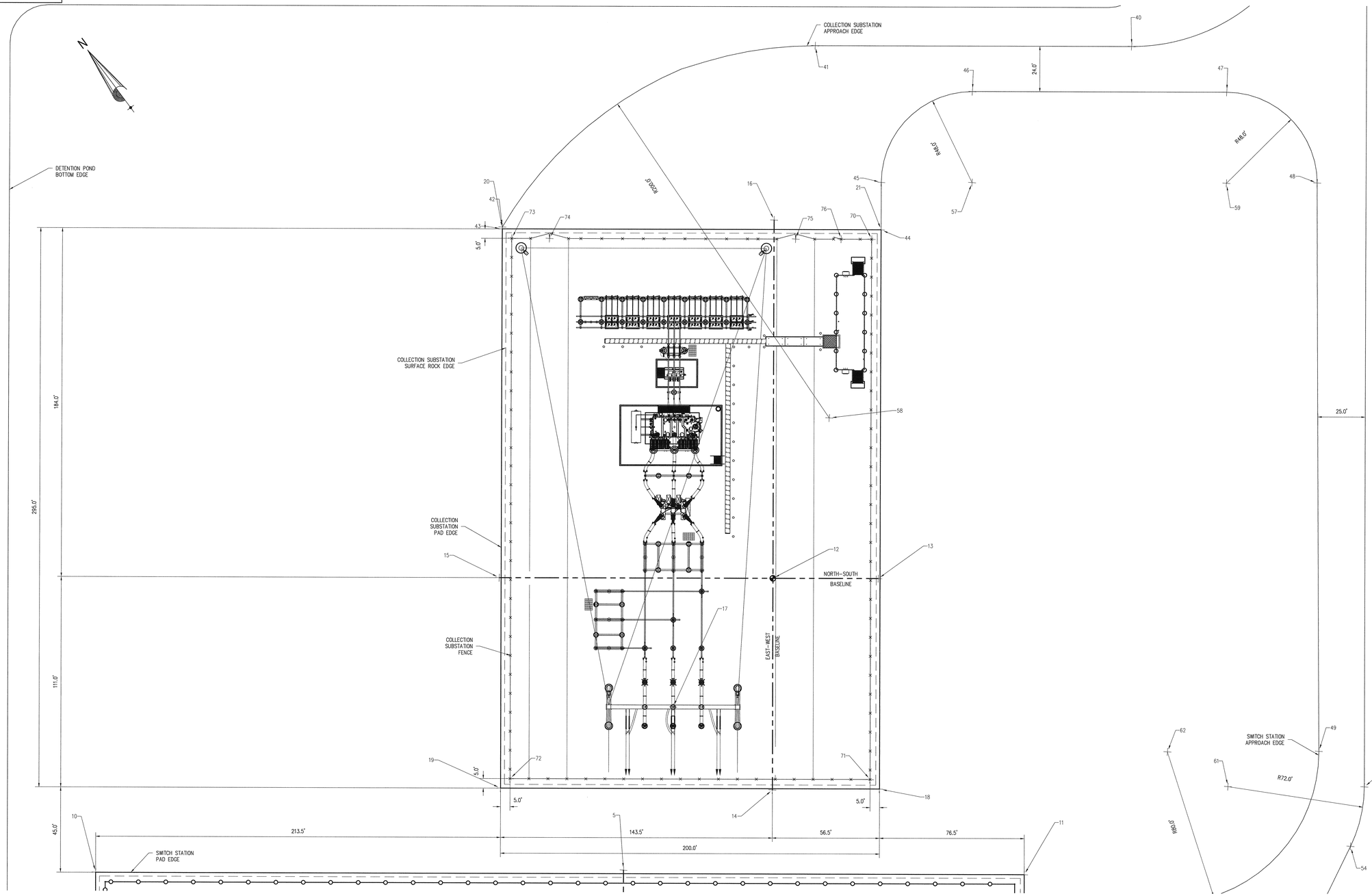
DWG. NO. E-1306

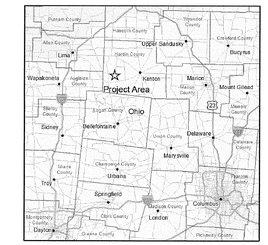
FILE LOCATION: L:\INVENERGY WIND, LLC\WV-195 HARDIN SWITCH\PARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 IFC.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Dimension Plan-Switch

PLOTTED BY $USER$ ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 48)

CADFILEPATH





VICINITY MAP

NORTHING/EASTING POINT TABLE

Point Table			
Point #	Description	Easting	Northing
12	BASELINE INTERSECTION	1609858.97	354521.47
13	BASELINE END	1609900.61	354484.62
14	BASELINE END	1609785.00	354437.89
15	BASELINE END	1609750.78	354617.22
16	BASELINE END	1609984.23	354663.00
17	CENTER OF DEAD END	1609774.58	354505.33
18	YARD PAD CORNER	1609827.71	354400.90
19	YARD PAD CORNER	1609677.95	354533.45
20	YARD PAD CORNER	1609873.46	354754.36
21	YARD PAD CORNER	1610023.23	354621.81
70	SUBSTATION FENCE CORNER	1610016.17	354621.38
71	SUBSTATION FENCE CORNER	1609827.28	354407.96
72	SUBSTATION FENCE CORNER	1609685.00	354533.88
73	SUBSTATION FENCE CORNER	1609873.89	354747.30
74	SUBSTATION GATE CENTER	1609888.87	354734.04
75	SUBSTATION GATE CENTER	1609986.21	354647.89
76	SUBSTATION MANGATE HINGE POST	1610004.19	354631.98

LEGEND:

- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308
2. COORDINATES ARE NAD83 OHIO STATE PLANE, NORTH ZONE, US FOOT.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYUOUT.....E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD.....E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT.....E-1306
SITE GRADING PLAN; OVERALL STATION LAYOUT.....E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD.....E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT.....E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT.....E-1311
SITE GRADING PLAN; DETENTION POND.....E-1312
SITE GRADING SECTIONS; ACCESS ROADS.....E-1313
SITE GRADING SECTIONS; SWITCH STATION.....E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION.....E-1315
SITE GRADING SECTIONS; DETENTION POND.....E-1316
GRADING DETAILS-CIVIL DETAILS.....E-1317
GRADING DETAILS-EROSION MATTING DETAILS.....E-1318
PROPERTY PLAT, LEGAL DESCRIPTION.....E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
(#-E-17)

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS MONTANA

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

SITE DIMENSION PLAN

COLLECTION SUBSTATION LAYOUT

SCALE: 1" = 20'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
	DWG. NO. E-1307	REV. 0	

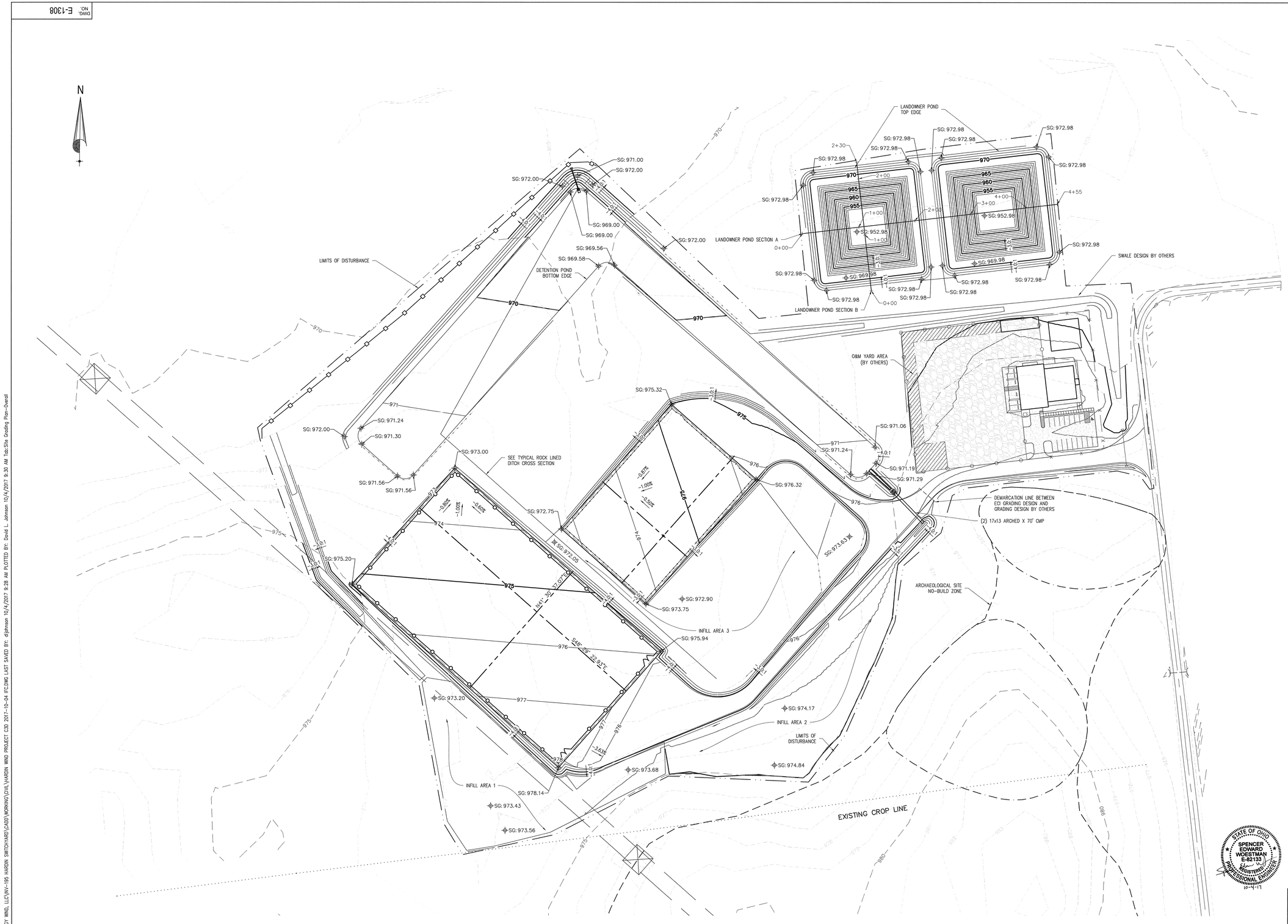
NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

FILE LOCATION: L:\WVENERGY WIND, LLC\WV-185 HARDIN SWITCHYARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FE.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Dimension Plan-Sub

PLOTTED BY $USERS ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 46)

CADFILEPATH



APPROXIMATE EARTHWORK QUANTITIES:

TOTAL AREA:
DISTURBED AREA: 1,843,098 SQ. FT. (42.3 ACRES)

SWITCH STATION ONLY:
TOPSOIL REMOVAL: 5,890 CU. YDS.
TOTAL CUT VOLUME: 5,890 CU. YDS.
FILL VOLUME: 24,942 CU. YDS.
FLEXIBLE BASE (IMPORT) VOLUME: 3,327 CU. YDS.
TOTAL FILL WITHOUT FLEXIBLE BASE: 21,615 CU. YDS.
STATION SURFACING #57 STONE: 2,033 CU. YDS.
SWITCHYARD FENCE: 1,490 L.F.

COLLECTION SUBSTATION ONLY:
TOPSOIL REMOVAL: 2,685 CU. YDS.
TOTAL CUT VOLUME: 2,685 CU. YDS.
FILL VOLUME: 11,323 CU. YDS.
FLEXIBLE BASE (IMPORT) VOLUME: 1,457 CU. YDS.
TOTAL FILL WITHOUT FLEXIBLE BASE: 9,866 CU. YDS.
STATION SURFACING #57 STONE: 880 CU. YDS.
SUBSTATION FENCE: 950 L.F.

MAIN ACCESS ROAD TO SWITCH STATION ONLY:
TOPSOIL REMOVAL: 3,080 CU. YDS.
TOTAL CUT VOLUME: 3,080 CU. YDS.
FILL VOLUME: 8,779 CU. YDS.
MAIN ACCESS ROAD SURFACING STONE (6" DEPTH): 1,044 CU. YDS.
MAIN ACCESS ROAD BASE (8" DEPTH): 1,392 CU. YDS.
TOTAL FILL WITHOUT ROAD BASE/SURFACE STONE: 6,360 CU. YDS.

COLLECTION SUBSTATION APPROACH ONLY:
TOPSOIL REMOVAL: 1,047 CU. YDS.
TOTAL CUT VOLUME: 1,047 CU. YDS.
FILL VOLUME: 4,448 CU. YDS.
APPROACH SURFACING STONE (6" DEPTH) 357 CU. YDS.
APPROACH BASE (8" DEPTH) 476 CU. YDS.
TOTAL FILL WITHOUT ROAD BASE/SURFACE STONE: 3,831

DETENTION POND ONLY:
CUT VOLUME: 4,302 CU. YDS.
FILL VOLUME: 37 CU. YDS.

BERM:
FILL VOLUME: 705 CU. YDS.

SWALES:
CUT VOLUME: 1,020 CU. YDS.

DETENTION POND VOLUME (SURFACE AT 971.0' ELEV.): 4,146 CU. YDS.

INFILL AREA 1:
FILL VOLUME: 7 CU. YDS.

INFILL AREA 2:
FILL VOLUME: 2,146 CU. YDS.

INFILL AREA 3: 1,535 CU. YDS.

LANDOWNER POND VOLUME:
CUT VOLUME: 29,414 CU. YDS.

SILT FENCE: 1,360 L.F.
SEEDING AREA: x SQ. FT.

LEGEND:

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE (SUBGRADE)
- PROPOSED MINOR CONTOUR LINE (SUBGRADE)
- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE
- SILT FENCE

GENERAL NOTES:

1. CUT AND FILL VOLUMES ARE RAW VOLUMES WITH NO ALLOWANCES FOR SHRINKAGE WHERE APPLICABLE.
2. CONTRACTOR SHALL STRIP APPROXIMATELY 12 INCHES OF SOILS FROM THE WORKING AREA; STRIPPED TOP SOIL SHALL BE USED FOR EMBANKMENTS AND SLOPES OUTSIDE OF THE IMMEDIATE AREA OF THE PAD.
3. SUITABLE EXCESS FILL INCLUDING WASTE TOP SOILS MAY BE USED FOR EMBANKMENTS AND SLOPES OUTSIDE OF THE IMMEDIATE AREA OF THE PAD.
4. SITE TO BE COVERED BY 8 INCH DEPTH OF 304 BASE COURSE AS A WORKING SURFACE.
5. SLOPE ACCESS ROADS FOR DRAINAGE.
6. NEW CONTOURS INDICATE SUBGRADE AND DO NOT INCLUDE CRUSHED ROCK SURFACING.
7. ALL AREAS NOT RECEIVING CRUSHED ROCK SURFACING OR ROAD MIX SHALL BE FILLED WITH TOPSOIL AND RE-SEEDED.
8. CRUSHED ROCK SURFACING SHALL NOT BE PLACED UNTIL ALL SUBGRADE CONDUIT, GROUNDING AND UTILITIES ARE COMPLETE.
9. THE EARTHWORK CONTRACTOR SHALL FURNISH AND INSTALL COMPACTED NON-EXPANSIVE BACKFILL.
10. EROSION CONTROL MATTING TO BE NORTH AMERICAN GREEN SC250 OR APPROVED EQUAL.
11. CABLE TRENCH DRAIN PIPE TO BE INSTALLED BY OTHERS.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; ACCESS ROADS E-1313
SITE GRADING SECTIONS; SWITCH STATION E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
SITE GRADING SECTIONS; DETENTION POND E-1316
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT, LEGAL DESCRIPTION E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED PROFESSIONAL ENGINEER
10-04-17

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS MONTANA

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE GRADING PLAN

OVERALL STATION LAYOUT

SCALE: 1" = 60'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1308	REV. 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

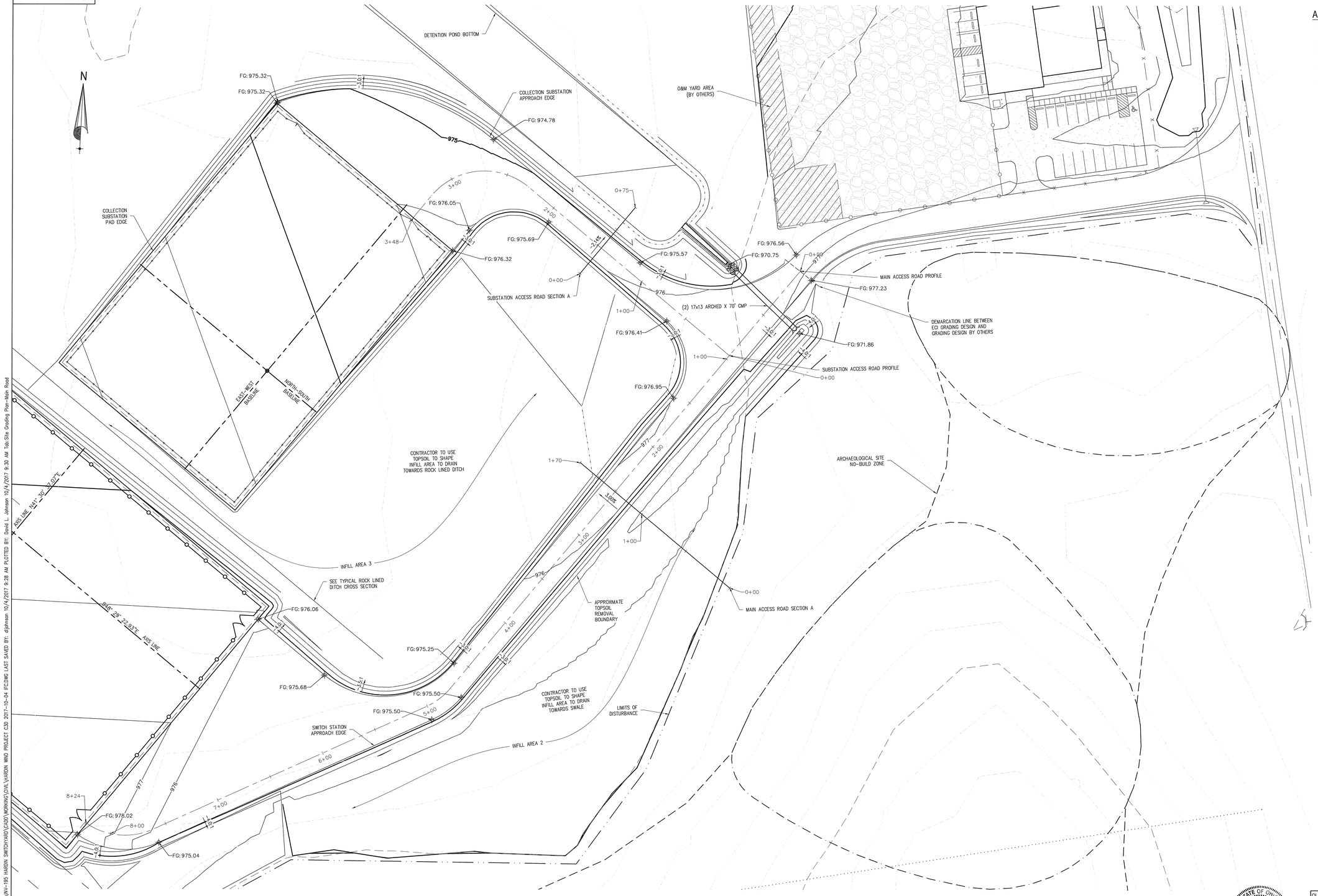
DWG. NO. E-1308

FILE LOCATION: L:\NVENERGY WIND, LLC\NV-195 HARDIN SWITCH\HARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: djohnson 10/4/2017 8:28 AM PLOTTED BY: David L. Johnson 10/4/2017 8:30 AM Tab:Site Grading Plan-Overall

PLOTTED BY: $USER$ ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 48)

CADFILEPATH



APPROXIMATE EARTHWORK QUANTITIES:

MAIN ACCESS ROAD TO SWITCH STATION ONLY:
TOPSOIL REMOVAL: 3,080 CU. YDS.
TOTAL CUT VOLUME: 3,080 CU. YDS.
FILL VOLUME: 8,779 CU. YDS.
MAIN ACCESS ROAD SURFACING STONE (6" DEPTH): 1,044 CU. YDS.
MAIN ACCESS ROAD BASE (6" DEPTH): 1,392 CU. YDS.
TOTAL FILL WITHOUTH ROAD BASE/SURFACE STONE: 6,360 CU. YDS.

COLLECTION SUBSTATION APPROACH ONLY:
TOPSOIL REMOVAL: 1,047 CU. YDS.
TOTAL CUT VOLUME: 1,047 CU. YDS.
FILL VOLUME: 4,448 CU. YDS.
APPROACH SURFACING STONE (6" DEPTH) 357 CU. YDS.
APPROACH BASE (6" DEPTH) 476 CU. YDS.
TOTAL FILL WITHOUT ROAD BASE/SURFACE STONE: 3,831

LEGEND:

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE (SUBGRADE)
- PROPOSED MINOR CONTOUR LINE (SUBGRADE)
- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1306
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; ACCESS ROADS E-1313
SITE GRADING SECTIONS; SWITCH STATION E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
SITE GRADING SECTIONS; DETENTION POND E-1316
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT, LEGAL DESCRIPTION E-1319

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS MONTANA

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82193
REGISTERED PROFESSIONAL ENGINEER
10-4-17

OLD DWG #:	STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE GRADING PLAN

MAIN ACCESS ROAD

SCALE: 1" = 30'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1309	REV 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

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CADFILEPATH

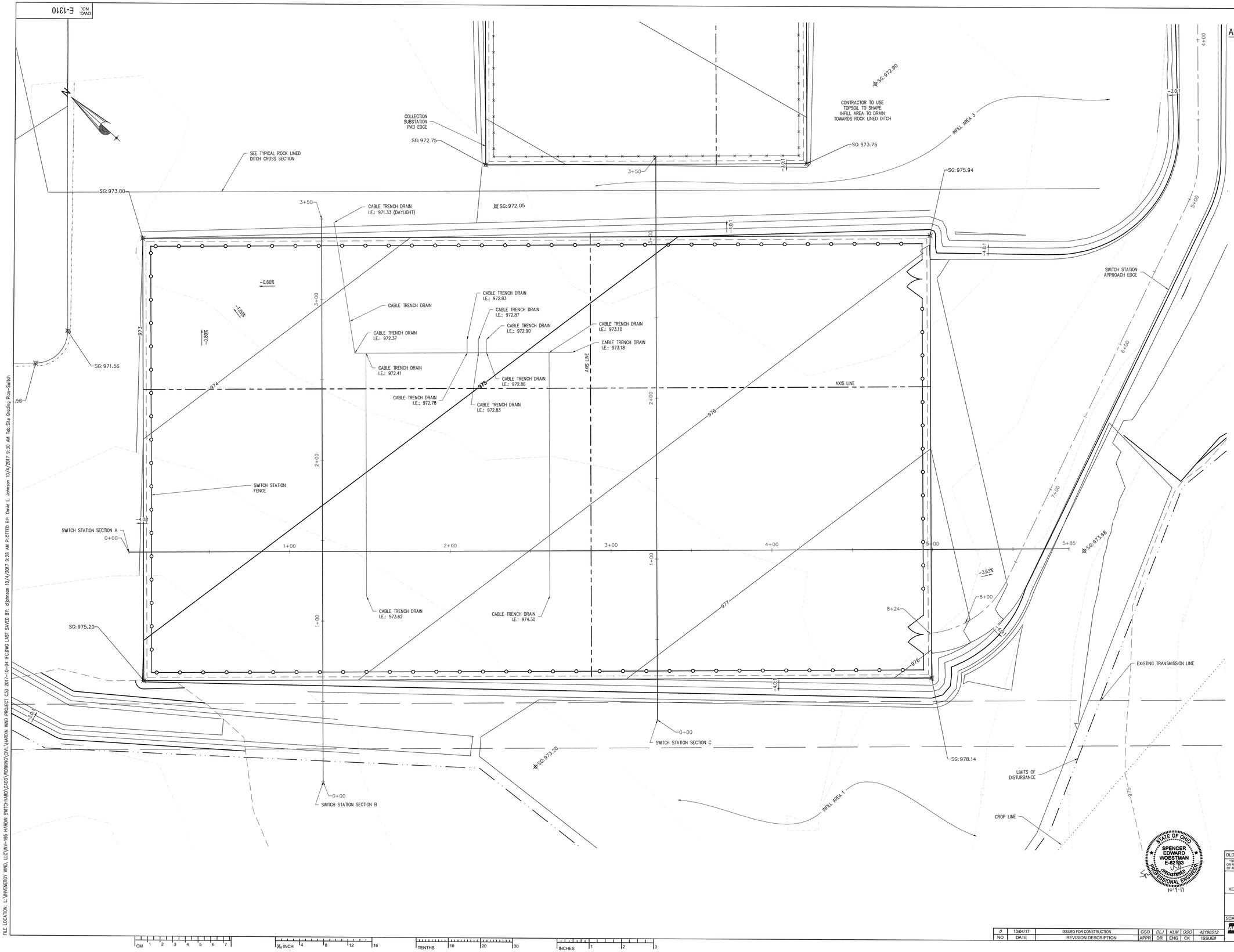
AEP (9.30 X 48)

PLOTTED BY SUSERS ON DD-MMM-YYYY AT HH:MM

STATION ENGINEERING

FILE LOCATION: L:\INVENERGY WIND, LLC\INV-195 HARDIN SWITCH\AGS\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 PC.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Grading Plan-Main Road

DWG. NO. E-1309



APPROXIMATE EARTHWORK QUANTITIES:

SWITCH STATION ONLY:
TOPSOIL REMOVAL: 5,880 CU. YDS.
TOTAL CUT VOLUME: 5,890 CU. YDS.
FILL VOLUME: 24,942 CU. YDS.
FLEXIBLE BASE (IMPORT) VOLUME: 3,327 CU. YDS.
TOTAL FILL WITHOUT FLEXIBLE BASE: 21,615 CU. YDS.
STATION SURFACING #57 STONE: 2,033 CU. YDS.
SWITCHYARD FENCE: 1,490 L.F.

LEGEND:

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE (SUBGRADE)
- PROPOSED MINOR CONTOUR LINE (SUBGRADE)
- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE
- SILT FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
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GRADING DETAILS-CIVIL DETAILS E-1317
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PROPERTY PLAT, LEGAL DESCRIPTION E-1319

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BILLINGS, MONTANA

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82193
REGISTERED PROFESSIONAL ENGINEER
10-04-17

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

SITE GRADING PLAN

SWITCH STATION LAYOUT

SCALE: 1" = 20'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1310	REV. 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

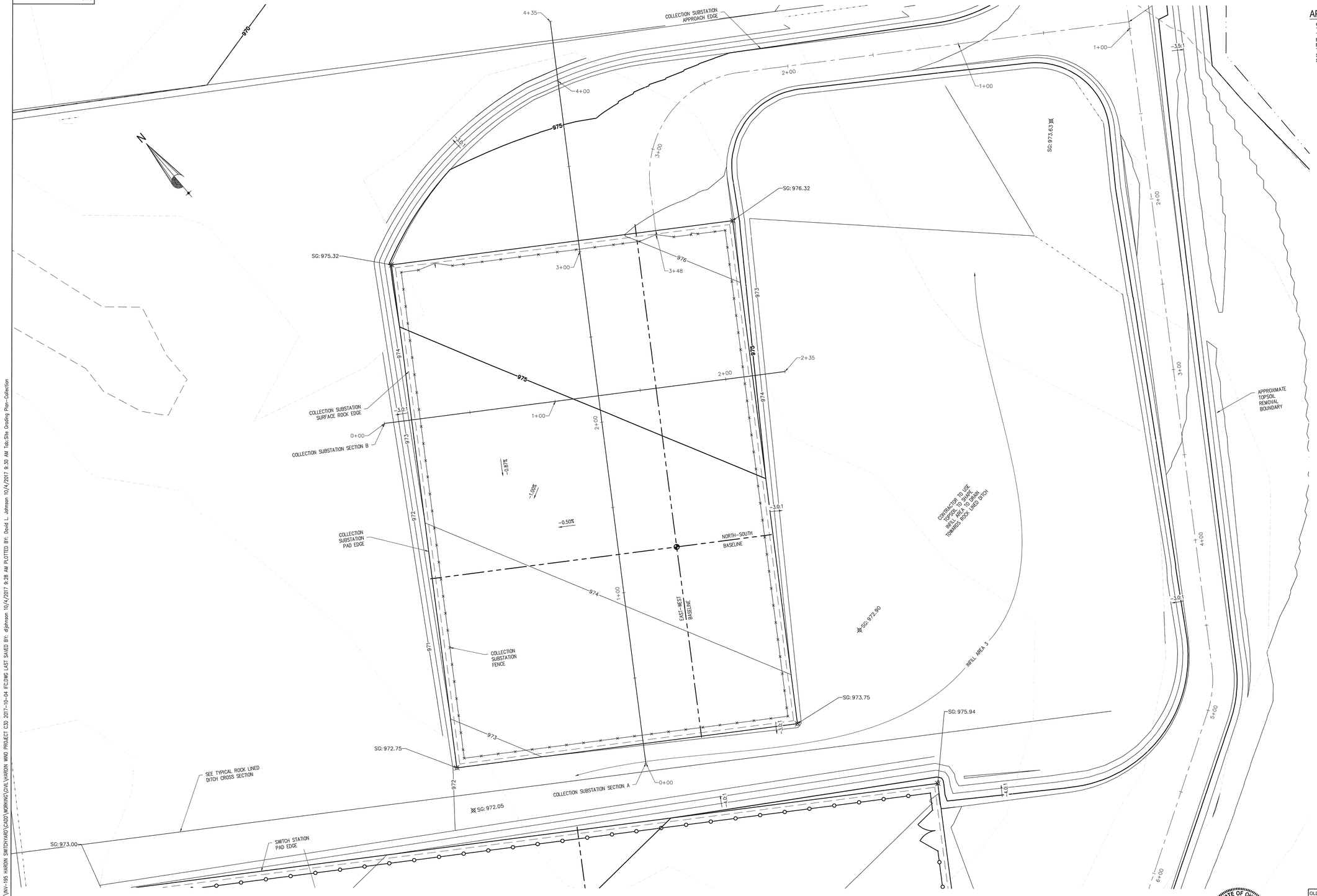
DWG. NO. E-1310

FILE LOCATION: L:\WVENERGY WIND, LLC\WV-195 HARDIN SWITCH\WO\CAD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: djohnson 10/4/2017 8:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Grading Plan-Switch

PLOTTED BY $USERS ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 48)

CADFILEPATH



APPROXIMATE EARTHWORK QUANTITIES:

COLLECTION SUBSTATION ONLY:
TOPSOIL REMOVAL: 2,685 CU. YDS.
TOTAL CUT VOLUME: 2,685 CU. YDS.
FILL VOLUME: 11,323 CU. YDS.
FLEXIBLE BASE (IMPORT) VOLUME: 1,457 CU. YDS.
TOTAL FILL WITHOUT FLEXIBLE BASE: 9,866 CU. YDS.
STATION SURFACING #57 STONE: 880 CU. YDS.
SUBSTATION FENCE: 950 L.F.

LEGEND:

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE (SUBGRADE)
- PROPOSED MINOR CONTOUR LINE (SUBGRADE)
- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT	E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD	E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT	E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT	E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT	E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD	E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT	E-1310
SITE GRADING PLAN; DETENTION POND	E-1312
SITE GRADING SECTIONS; ACCESS ROADS	E-1313
SITE GRADING SECTIONS; SWITCH STATION	E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION	E-1315
SITE GRADING SECTIONS; DETENTION POND	E-1316
GRADING DETAILS-CIVIL DETAILS	E-1317
GRADING DETAILS-EROSION MATTING DETAILS	E-1318
PROPERTY PLAT, LEGAL DESCRIPTION	E-1319

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ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS MONTANA

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

OLD DWG #:	STD DWG #:

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OHIO TRANSMISSION COMPANY
HARDIN SWITCH STATION
KENTON — OHIO
345KV

SITE GRADING PLAN

COLLECTION SUBSTATION LAYOUT

SCALE: 1" = 20'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017

AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215 — DWG. NO. E-1311 — REV 0

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

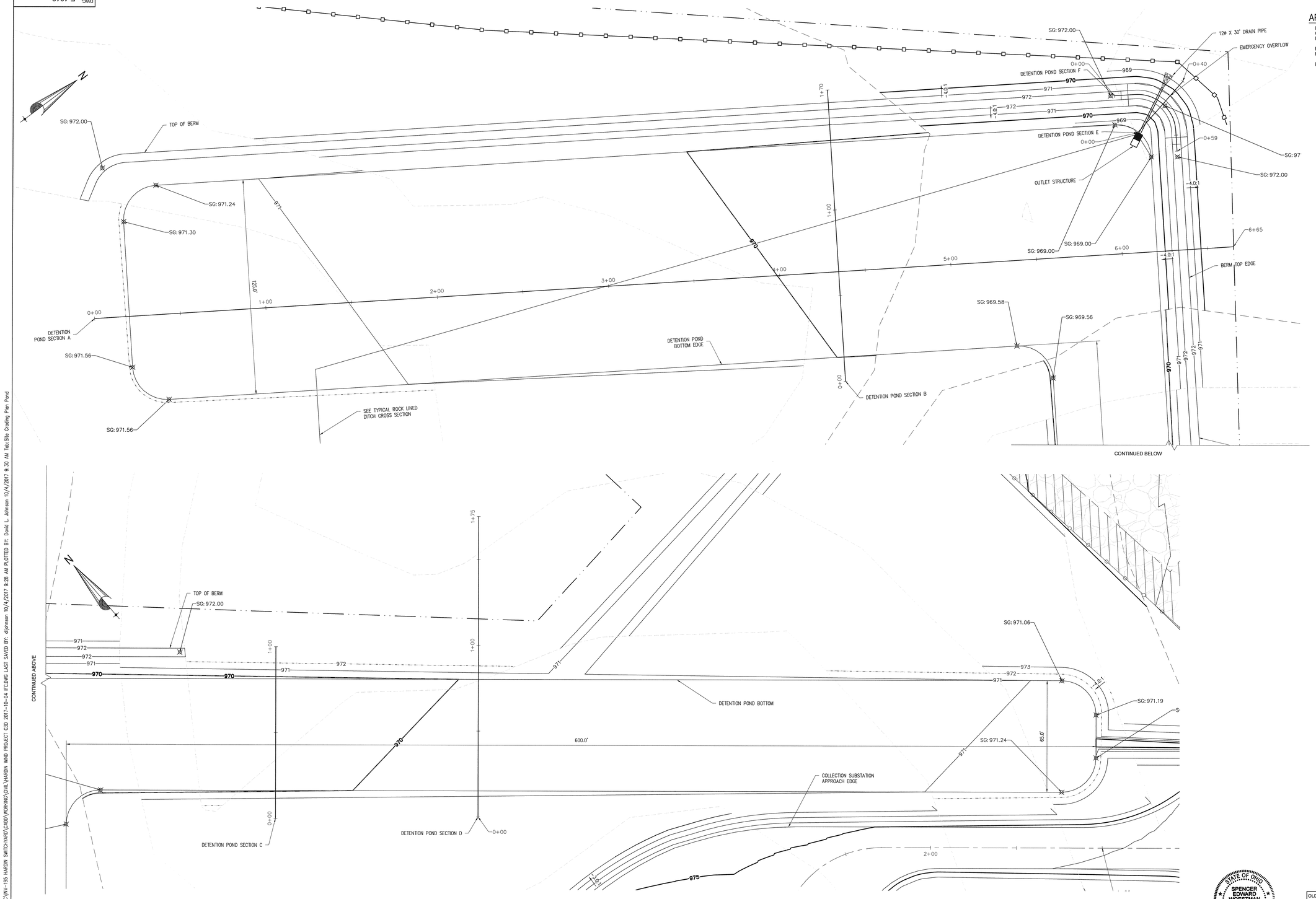
DWG. NO. E-1311

FILE LOCATION: L:\INVENERGY WIND, LLC\INV-195 HARDIN SWITCHYARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 IFC.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:30 AM Tab:Site Grading Plan-Collection

PLOTTED BY SUSERS ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 48)

CADFILEPATH



APPROXIMATE EARTHWORK QUANTITIES:

DETENTION POND ONLY:
CUT VOLUME: 4,302 CU. YDS.
FILL VOLUME: 37 CU. YDS.

BERM:
FILL VOLUME: 705 CU. YDS.

DETENTION POND VOLUME (SURFACE AT 971.0' ELEV.): 4,146 CU. YDS.

LEGEND:

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- PROPOSED MAJOR CONTOUR LINE (SUBGRADE)
- PROPOSED MINOR CONTOUR LINE (SUBGRADE)
- SUBSTATION FENCE
- AXIS LINE/BASELINE
- SWITCH STATION FENCE
- SILT FENCE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT	E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD	E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT	E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT	E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT	E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD	E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT	E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT	E-1311
SITE GRADING SECTIONS; ACCESS ROADS	E-1313
SITE GRADING SECTIONS; SWITCH STATION	E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION	E-1315
SITE GRADING SECTIONS; DETENTION POND	E-1316
GRADING DETAILS-CIVIL DETAILS	E-1317
GRADING DETAILS-EROSION MATTING DETAILS	E-1318
PROPERTY PLAT; LEGAL DESCRIPTION	E-1319

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512
NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE GRADING PLAN

DETENTION POND

SCALE: 1" = 20'	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017

AEP AMERICAN ELECTRIC POWER
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

DWG. NO.: E-1312 REV: 0

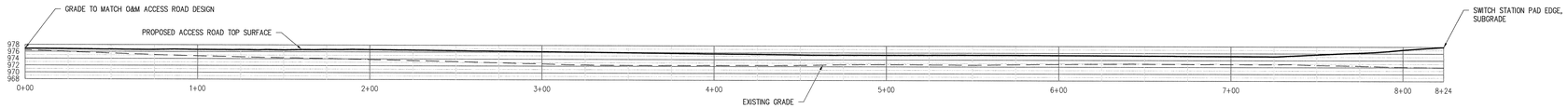
DWG. NO. E-1312

ELE LOCATION: L:\RIVERCREST WIND, LLC\WV-195 HARDIN SWITCH\HARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: dljohnson 10/4/2017 8:28 AM PLOTTED BY: David L. Johnson 10/4/2017 8:30 AM Tab:Site Grading Plan Pond

PLOTTED BY SUSER5 ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

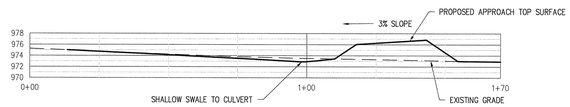
AEP G (30 X 46)

CADFILEPATH



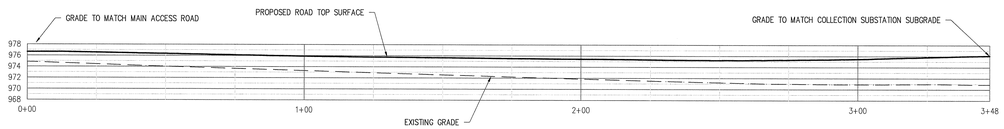
MAIN ACCESS ROAD PROFILE

SCALE: 1" = 30' HORIZONTAL
1" = 15' VERTICAL



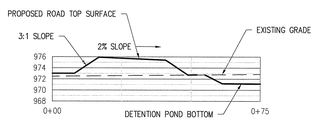
MAIN ACCESS ROAD SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



SUBSTATION ACCESS ROAD PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



SUBSTATION ACCESS ROAD SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

LEGEND:

- - - - - - EXISTING GRADE
——— PROPOSED FINISH GRADE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; SWITCH STATION E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
SITE GRADING SECTIONS; DETENTION POND E-1316
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT, LEGAL DESCRIPTION E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-62133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE GRADING SECTIONS

ACCESS ROADS

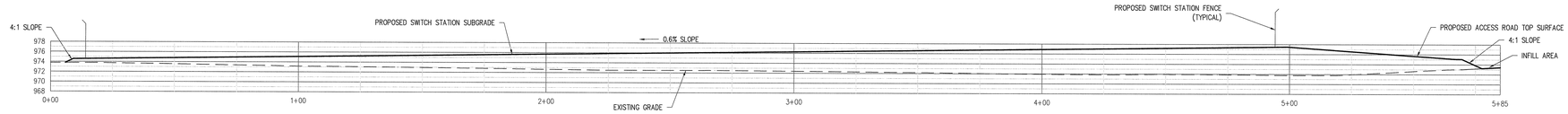
SCALE: AS NOTED	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1313	REV 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

CADFILEPATH

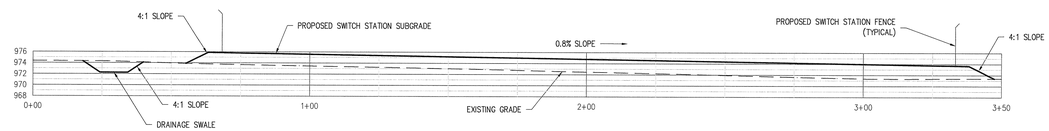
AEP G (20 X 46) PLOTTED BY SUSIES ON DD/MM/YYYY AT HH:MM STATION ENGINEERING

FILE LOCATION: L:\INVENERGY WIND, LLC\INV-195 HARDIN SWITCH\ARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: dljohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:31 AM Tab:Site Sections Road



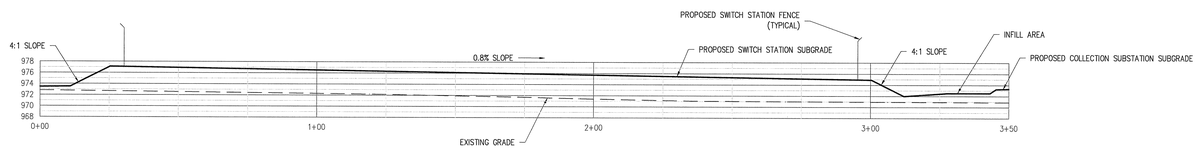
SWITCH STATION SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



SWITCH STATION SECTION B

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



SWITCH STATION SECTION C

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

LEGEND:

- - - - - - EXISTING GRADE
——— PROPOSED SUBGRADE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; ACCESS ROADS E-1313
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
SITE GRADING SECTIONS; DETENTION POND E-1316
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT; LEGAL DESCRIPTION E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

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ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

OLD DWG #:	STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

SITE GRADING SECTIONS

SWITCH STATION

SCALE: AS NOTED	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017

AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215 — DWG. NO. E-1314 — REV 0

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

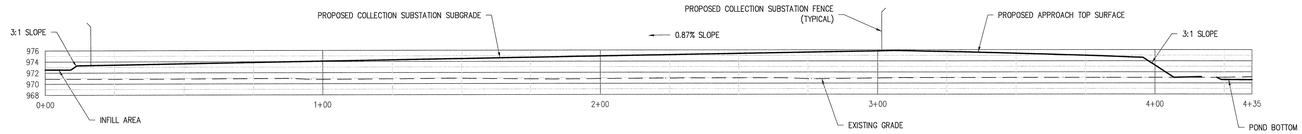
DWG. NO. E-1314

FILE LOCATION: L:\INVENERGY WIND, LLC\INV-195 HARDIN SWITCH\HSD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 FC.DWG LAST SAVED BY: djohnson 10/4/2017 9:26 AM PLOTTED BY: David L. Johnson 10/4/2017 9:31 AM Tab:Site Sections Switch

AEP-G (30 X 48) PLOTTED BY SUSERS ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

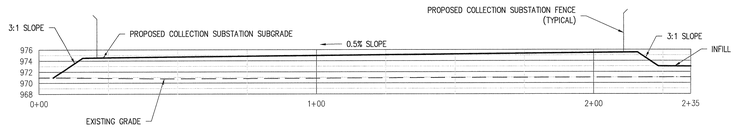
CM 1 2 3 4 5 6 7 — 1/16 INCH 4 8 12 16 — TENTHS 10 20 30 — INCHES 1 2 3

CADFILEPATH



COLLECTION SUBSTATION SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



COLLECTION SUBSTATION SECTION B

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

LEGEND:

EXISTING GRADE
PROPOSED SUBGRADE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT..... E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD..... E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT..... E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT..... E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT..... E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD..... E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT..... E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT..... E-1311
SITE GRADING PLAN; DETENTION POND..... E-1312
SITE GRADING SECTIONS; ACCESS ROADS..... E-1313
SITE GRADING SECTIONS; SWITCH STATION..... E-1314
SITE GRADING SECTIONS; DETENTION POND..... E-1316
GRADING DETAILS-CIVIL DETAILS..... E-1317
GRADING DETAILS-EROSION MATTING DETAILS..... E-1318
PROPERTY PLAT, LEGAL DESCRIPTION..... E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82139
REGISTERED PROFESSIONAL ENGINEER
10-4-17

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS MONTANA

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OHIO TRANSMISSION COMPANY
HARDIN SWITCH STATION
KENTON OHIO
345KV
SITE GRADING SECTIONS
COLLECTION SUBSTATION

SCALE: AS NOTED | DR: DLJ/ECI | ENG: BGP/ECI | CH: CAJ/ECI
WO#: 42190512C1 | APPD: SEW/ECI | DATE: 10/04/2017

AEP AMERICAN ELECTRIC POWER
1 RIVERSIDE PLAZA, COLUMBUS, OH 43215
DWG. NO. E-1315 REV 0

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

FILE LOCATION: L:\INVENERGY WIND, LLC\INV-195 HARDIN SWITCHYARD\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 IFC.DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:31 AM Tab:Site Sections Collection

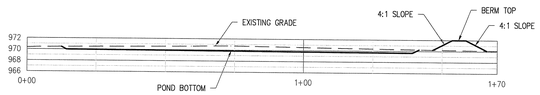
PLOTTED BY $USER$ ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

AEP G (30 X 48) CADFILEPATH

CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

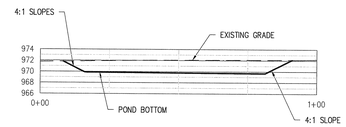
DETENTION POND SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



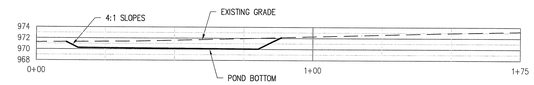
DETENTION POND SECTION B

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



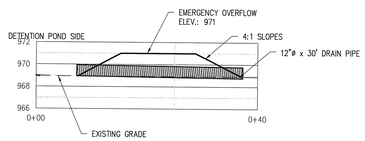
DETENTION POND SECTION C

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



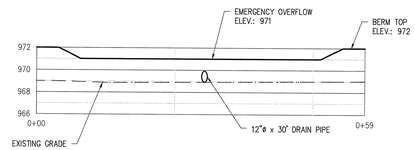
DETENTION POND SECTION D

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



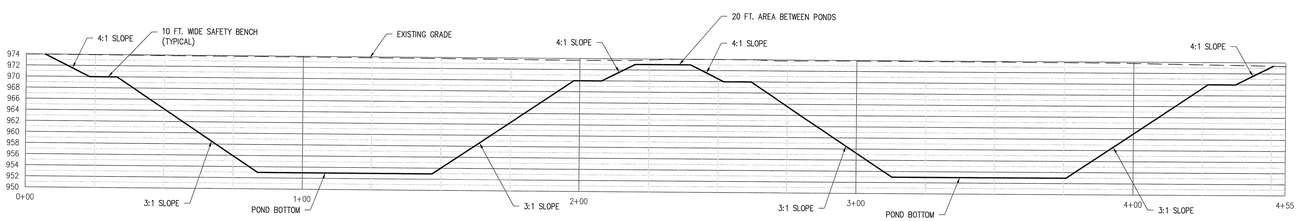
DETENTION POND SECTION E

SCALE: 1" = 10' HORIZONTAL
1" = 5' VERTICAL



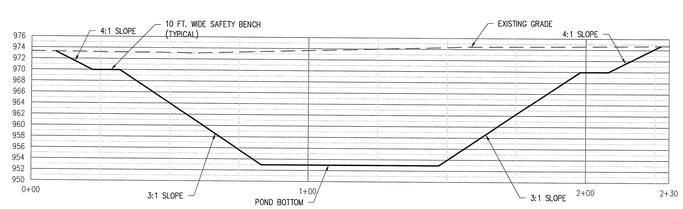
DETENTION POND SECTION F

SCALE: 1" = 10' HORIZONTAL
1" = 5' VERTICAL



LANDOWNER POND SECTION A

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



LANDOWNER POND SECTION B

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

LEGEND:

EXISTING GRADE
PROPOSED SUBGRADE

GENERAL NOTES:

1. FOR GENERAL NOTES SEE SHEET E-1308

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT E-1307
SITE GRADING PLAN; OVERALL STATION LAYOUT E-1308
SITE GRADING PLAN; MAIN ACCESS ROAD E-1309
SITE GRADING PLAN; SWITCH STATION LAYOUT E-1310
SITE GRADING PLAN; COLLECTION SUBSTATION LAYOUT E-1311
SITE GRADING PLAN; DETENTION POND E-1312
SITE GRADING SECTIONS; ACCESS ROADS E-1313
SITE GRADING SECTIONS; SWITCH STATION E-1314
SITE GRADING SECTIONS; COLLECTION SUBSTATION E-1315
GRADING DETAILS-CIVIL DETAILS E-1317
GRADING DETAILS-EROSION MATTING DETAILS E-1318
PROPERTY PLAT, LEGAL DESCRIPTION E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-04-17

"Engineering with Distinction."
ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

OLD DWG #:	STD DWG #:

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OHIO TRANSMISSION COMPANY
HARDIN SWITCH STATION
KENTON OHIO
345KV

SITE GRADING SECTIONS

DETENTION POND AND LANDOWNER PONDS

SCALE: AS NOTED	DR: DLJ/ECI	ENG: BGP/ECI	CH: CAJ/ECI
	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/2017

AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215 — DWG. NO. E-1316 — REV. 0

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#
0	10/04/17	ISSUED FOR CONSTRUCTION	GSO	DLJ	KLM	GSO	42190512

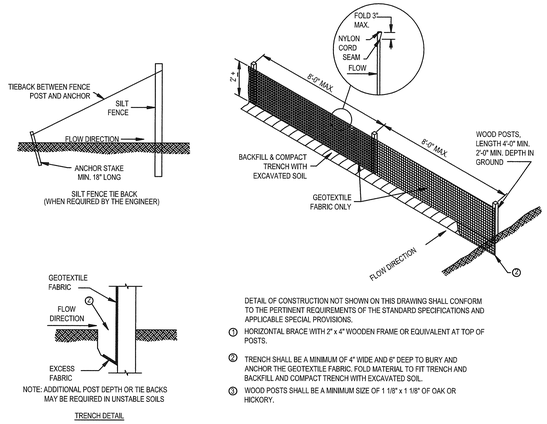
CM 1 2 3 4 5 6 7 — 1/16 INCH 4 8 12 16 — TENTHS 10 20 30 — INCHES 1 2 3

AEP G (30 X 46)

CADFILEPATH

PLOTTED BY: $USER$ ON DD-MMM-YYYY AT HH:MM STATION ENGINEERING

FILE LOCATION: L:\WVENERGY WIND, LLC\WV-195 HARDIN SWITCH\WSO\CADD\WORKING\CIVIL\HARDIN WIND PROJECT C3D 2017-10-04 (FC).DWG LAST SAVED BY: djohnson 10/4/2017 9:28 AM PLOTTED BY: David L. Johnson 10/4/2017 9:31 AM Tab:Site Sections Pond

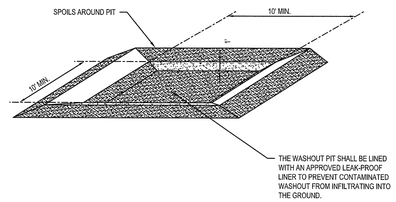


DETAIL OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

1. HORIZONTAL BRACE WITH 2" x 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. TRENCH SHALL BE A MINIMUM OF 4" WIDE AND 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" x 1 1/8" OF OAK OR HICKORY.

SILT FENCE DETAILS

SCALE: N.T.S.



1. WASHING OUT OF CONCRETE TRUCKS AND RINSING OF THE CONCRETE TRUCK CHUTES SHALL BE STRICTLY MONITORED TO AVOID THE CONTAMINATION OF ANY SURFACE WATER OR GROUNDWATER.
2. A WASHOUT PIT SHALL BE CONSTRUCTED FOR CONCRETE TRUCK WASHING. THE LOCATION SHALL BE COORDINATED WITH THE OWNER PRIOR TO CONSTRUCTION AND SHALL COMPLY TO THE REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENTAL QUALITY AND DELAWARE COUNTY AND SHALL BE REMOVED AFTER COMPLETION OF THE PROJECT.
3. ALL EXCESS WASHOUT AND CONCRETE SHALL BE DISPOSED OF AT AN APPROVED DISPOSAL LOCATION.

TYPICAL CONCRETE TRUCK WASHOUT PIT

SCALE: N.T.S.

NOTES

GENERAL: Catch basin structure shall be a Catch Basin No. 2-2B per Ohio DOT Standard Construction Drawing CB-1.1.

GRATE: Furnish a design essentially the same and equally as strong as the one shown (see Construction Information table), or meet the requirements of CMS 711.14. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

WALLS: Construct brick or cast-in-place walls with a nominal 8" thickness. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and handling without damage.

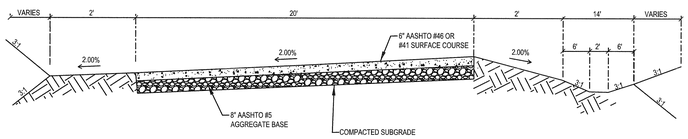
CONCRETE: Use 4000 psi compressive strength for cast-in-place concrete. Meet the requirements of CMS 706.13 for all precast concrete and mark with the catch basin number.

PRECAST BASE: If a precast base is used, set it deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Do not use brick layers to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation is at the flow line of the side inlet.

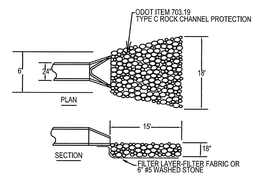
OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

CONSTRUCTION INFORMATION
Minimum weight of grate, 120 lbs.



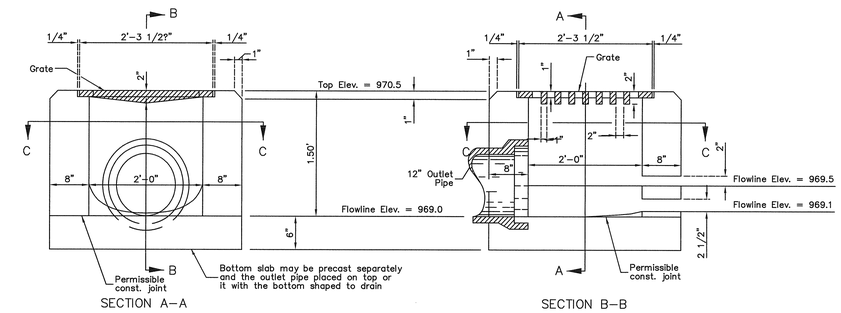
ACCESS ROAD TYPICAL SECTION

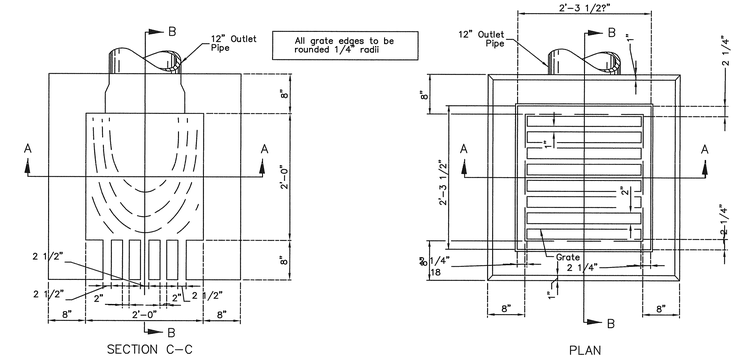
SCALE: N.T.S.



RIP RAP OUTLET PROTECTION

SCALE: N.T.S.





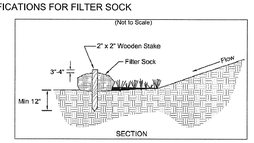
OUTLET STRUCTURE

SCALE: N.T.S.

DESCRIPTION

FILTER SOCKS ARE SEDIMENT-TRAPPPING DEVICES USING COMPOST INSERTED INTO A FLEXIBLE, PERMEABLE TUBE WITH A PNEUMATIC BLOWER DEVICE OR EQUIVALENT. FILTER SOCKS TRAP SEDIMENT BY FILTERING WATER PASSING THROUGH THE BERM AND ALLOWING WATER TO POND, CREATING A SETTLING OF SOLIDS.

SPECIFICATIONS FOR FILTER SOCK



1. MATERIAL - COMPOST USED FOR FILTER SOCKS SHALL BE WEED, PATHOGEN AND INSECT FREE AND FREE OF ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH. THEY SHALL BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER AND CONSIST OF A PARTICLES RANGING FROM 3/8" TO 2".
2. FILTER SOCK SHALL BE 3-OR 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST PASSING THE ABOVE SPECIFICATIONS FOR COMPOST PRODUCTS.

INSTALLATION:

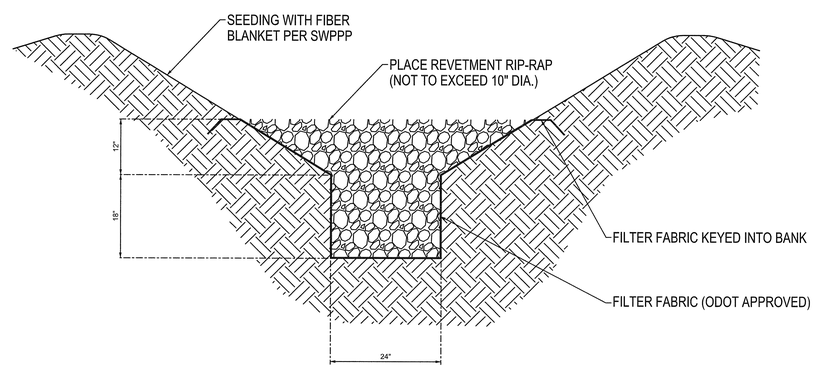
3. FILTER SOCKS WILL BE PLACED ON A LEVEL LINE ACROSS SLOPES, GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA. ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND AS NEEDED MID-SLOPE.
4. FILTER SOCKS INTENDED TO BE LEFT AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE, SHALL BE SEEDED AT THE TIME OF INSTALLATION FOR ESTABLISHMENT OF PERMANENT VEGETATION.
5. FILTER SOCKS ARE NOT TO BE USED IN CONCENTRATED FLOW SITUATIONS OR IN RUNOFF CHANNELS.

MAINTENANCE:

6. ROUTINELY INSPECT FILTER SOCKS AFTER EACH SIGNIFICANT RAIN, MAINTAINING FILTER SOCKS IN A FUNCTIONAL CONDITION AT ALL TIMES.
7. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE FILTER SOCKS WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT.
8. WHERE THE FILTER SOCK DETERIORATES OR FAILS, IT WILL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
9. REMOVAL- FILTER SOCKS WILL BE REMOVED WHEN NO LONGER REQUIRED IN SUCH A WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDLINGS.

FILTER SOCK REQUIREMENTS

SCALE: N.T.S.



TYPICAL ROCK LINED DITCH CROSS SECTION

SCALE: N.T.S.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT..... E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD..... E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT..... E-1306
SITE DIMENSION PLAN; COLLECTION SUBSTATION LAYOUT..... E-1307
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GRADING DETAILS-EROSION MATTING DETAILS..... E-1318
PROPERTY PLAT, LEGAL DESCRIPTION..... E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82133
REGISTERED
PROFESSIONAL ENGINEER
10-4-17

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ECI ELECTRICAL CONSULTANTS, INC.
BILLINGS, MONTANA

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

GRADING DETAILS

CIVIL DETAILS

SCALE: NONE	DR: DRD/ECI	ENG: KLM/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/17
	DWG. NO. E-1317	REV 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

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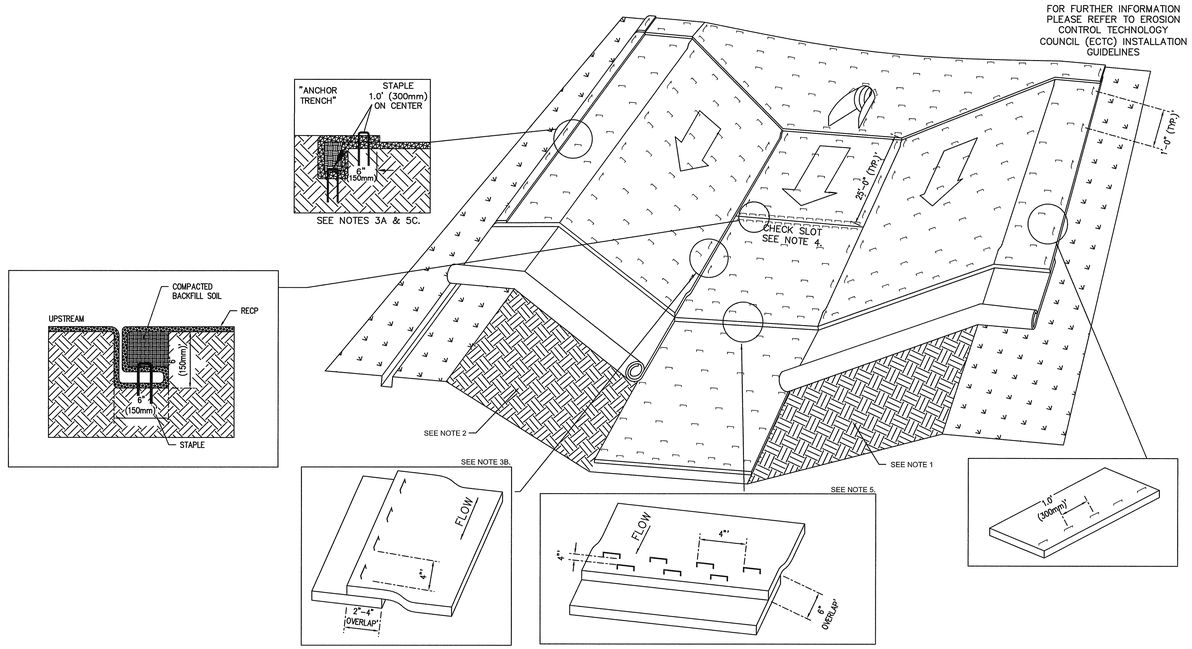
AEP G (20 X 46)

DWG. NO. E-1318



TYPICAL SWALE MATTING DETAIL

INSTALLATION GUIDELINES OF ROLLED EROSION CONTROL (RECP) IN CHANNELS

1. THE SITE SHOULD BE FINE GRADED TO A SMOOTH PROFILE AND RELATIVELY FREE FROM ALL WEEDS, CLODS, STONES, ROOTS, STICKS, RIVULETS, GULLIES, CRUSTING AND CAKING. FILL ANY VOIDS AND VERIFY THE SLOPE IS COMPACTED PROPERLY.

2. APPLY SOIL AMENDMENTS AS NECESSARY TO PREPARE SOIL BED. PLACE FERTILIZER, WATER, AND SEED IN ACCORDANCE WITH MANUFACTURER, LOCAL/STATE REGULATIONS, OR ENGINEER/SPECIFIER REQUIREMENTS.

3.

A. RECPS SHOULD BE PLACED IN THE CHANNEL BOTTOM FIRST. SECURE THE RECP AT THE BEGINNING OF THE CHANNEL, BY DIGGING AN ANCHOR TRENCH 6 INCHES DEEP BY SIX INCHES WIDE PERPENDICULAR TO THE DIRECTION OF WATER. EXTEND THE RECP PAST THE TRENCH SO THAT RECP OVERLAP EXTENDS PAST THE TRENCH A MINIMUM OF 6". STAKE OR STAPLE THE RECP IN THE TRENCH ON 12-INCH CENTERS, BACKFILL THE ANCHOR TRENCH AND COMPACT THE SOIL. PLACE SEED OVER THE COMPACTED SOIL IF NECESSARY. COVER THE COMPACTED SOIL WITH THE REMAINING 12 INCHES OF THE TERMINAL END OF THE RECP. STAPLE OR STAKE TERMINAL END DOWN SLOPE OF THE ANCHOR TRENCH ON 12-INCH CENTERS.

B. RECPS SHOULD BE UNROLLED IN THE DIRECTION OF WATER FLOW AND ORIENTED TO MINIMIZE THE NUMBER OF SEAMS ON THE BOTTOM OF THE CHANNEL. WHEN INSTALLING TWO RECPS SIDE BY SIDE IN A WATERWAY THE CENTER OF THE RECP SHOULD BE CENTERED IN THE AREA OF CONCENTRATED WATER FLOW. INSTALL ADJOINING RECPS AWAY FROM THE CENTER OF THE CHANNEL BOTTOM. FOLLOW MANUFACTURERS RECOMMENDATIONS WHEN ABUTTING RECP PANELS, IF AN OVERLAP IS SUGGESTED IT WILL GENERALLY BE TWO TO FOUR INCHES. CONTINUE TO INSTALL A COMMON ROW OF STAPLES AT TWO-FOOT MINIMUMS ALONG THE LENGTH OF THE OFFSET CENTER OVERLAP.

4. AS THE RECP IS UNROLLED CHECK SLOTS SHALL BE PLACED AT 25-FOOT INTERVALS. A CHECK SLOT IS CONSTRUCTED BY INSTALLING A DOUBLE ROW OF STAPLES OR STAKES STAGGERED AND SPACED FOUR INCHES APART. PLACE THE FIRST ROW OF STAPLES OR STAKES FOUR INCHES ON CENTER. CONTINUE ROLLING THE RECP DOWNSTREAM OVER THE COMPLETED CHECK SLOT.

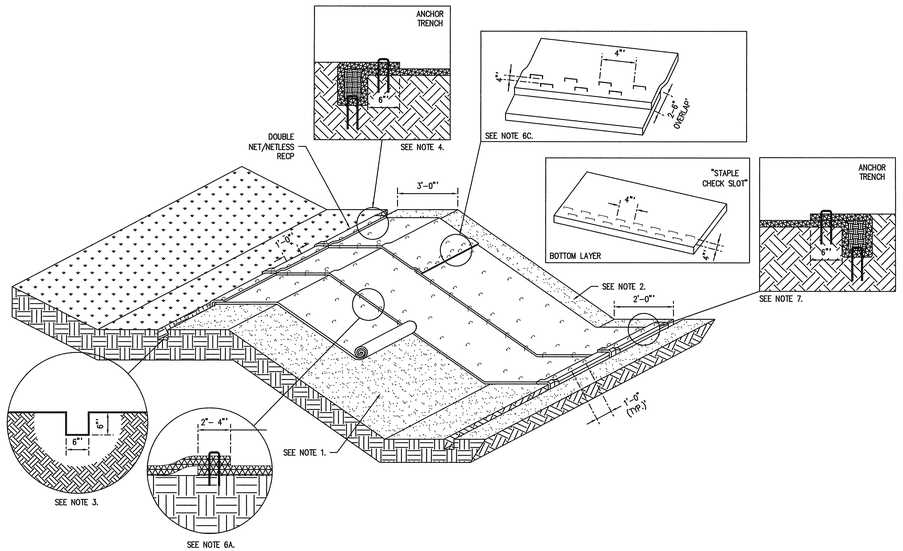
5. CONTINUE TO ROLL THE RECP ALONG THE CHANNEL BOTTOM AND SIDE SLOPES IN THE DIRECTION OF THE WATER FLOW.

A. AS THE RECP IS INSTALLED FROM THE CHANNEL BOTTOM UP THE SLOPE A SHINGLE TYPE INSTALLATION IS RECOMMENDED WITH THE UP-SLOPE RECP OVERLAPPING THE LOWER RECP APPROXIMATELY TWO INCHES TO FOUR INCHES. ANCHOR THE RECPS WITH A MINIMUM STAPLE PATTERN OF ONE STAPLE EVERY 24 INCHES ACROSS THE WIDTH AND ONE STAPLE EVERY 36 INCHES DOWN ITS LENGTH.

B. IF THE RECP NEEDS TO BE SPLICED, BE SURE THE RECP IS "SHINGLED" WITH THE UP-STREAM RECP OVERLAPPING THE DOWN-STREAM RECP. THERE SHOULD BE FOUR INCHES OF OVERLAP IN A SPLICE. USE A STAPLE CHECK SLOT TO SECURE THE OVERLAP.

C. ANCHOR THE RECP PLACED AT THE TOP OF THE CHANNEL SLOPE IN THE SAME MANNER AS DESCRIBED IN THE SLOPE SECTION.

6. SECURE THE RECP AT THE TERMINAL END OF THE CHANNEL WITH A CHECK SLOT SIMILAR TO THE ONE MADE AT THE BEGINNING OF THE CHANNEL.



TYPICAL SLOPE MATTING DETAIL

INSTALLATION GUIDELINES OF RECPS DURING SLOPE APPLICATIONS

1. THE SITE SHOULD BE FINE GRADED TO A SMOOTH PROFILE AND RELATIVELY FREE FROM ALL WEEDS, CLODS, STONES, ROOTS, STICKS, RIVULETS, GULLIES, CRUSTING AND CAKING. FILL ANY VOIDS AND VERIFY THE SLOPE IS COMPACTED PROPERLY.

2. APPLY SOIL AMENDMENTS AS NECESSARY TO PREPARE SOIL BED. PLACE FERTILIZER, WATER, AND SEED IN ACCORDANCE WITH MANUFACTURER, LOCAL/STATE REGULATIONS, OR ENGINEER/SPECIFIER REQUIREMENTS.

3. AT THE TOP OF THE SLOPE DIG AN ANCHOR TRENCH 6 INCHES DEEP BY SIX INCHES WIDE. THE RECP WILL BE ANCHORED INTO THE TRENCH BY STAPLES. ALLOW AT LEAST 3 FEET FROM THE CREST OF THE SLOPE TO THE ANCHOR TRENCH. STAPLES SHOULD BE INSTALLED ON THE TOP OF THE RECP ONE FOOT ON CENTER ALONG THE OUTSIDE PARAMETER OF THE RECP.

4. BEGIN RECP PLACEMENT PAST THE ANCHOR TRENCH. EXTEND THE RECP PAST THE ANCHOR TRENCH SO THAT RECP OVERLAP EXTENDS PAST TRENCH A MINIMUM OF 6". RUN THE RECP DOWN THE ANCHOR TRENCH. ANCHOR THE RECP WITH STAPLES IN THE ANCHOR TRENCH. BE SURE TO DRIVE STAPLES OR STAKES FLUSH WITH THE SOIL SURFACE. CONSULT WITH ENGINEER FOR STAKE/STAPLE SIZE. SECURE THE ANCHOR TRENCH USING SINGLE NET RECP - BACKFILL THE ANCHOR TRENCH AND COMPACT THE SOIL. PLACE SEED OVER THE COMPACTED SOIL. COVER THE COMPACTED SOIL WITH THE REMAINING 12 INCHES OF THE TERMINAL END OF THE RECP. STAPLE OR STAKE TERMINAL END DOWN SLOPE OF THE ANCHOR TRENCH ON 12-INCH CENTERS.

5. RECPS ARE TYPICALLY UNROLLED PARALLEL TO THE PRIMARY DIRECTION OF FLOW. STARTING AT THE CREST OF THE SLOPE, ROLL THE RECP DOWN THE SLOPE IN A CONTROLLED MANNER. APPROXIMATELY EVERY 20-25 FEET PULL THE RECP TO TAKE OUT ANY EXCESS SLACK. THE GOAL IS TO HAVE THE RECPS CONTOUR AND HAVE INTIMATE CONTACT WITH THE SOIL. DO NOT STRETCH OR ALLOW MATERIAL TO BRIDGE OVER SURFACE INCONSISTENCIES.

6. A. SECURE THE OVERLAP OR THE EDGES WITH STAPLES, FOLLOW MANUFACTURER RECOMMENDATIONS FOR EDGE JOINTS. THE TYPICAL INSTALLATION WILL REQUIRE ONE PLACED AT THREE TO FIVE FEET INTERVALS ALONG THE VERTICAL LENGTH OF THE RECPS. STAPLES SHOULD BE STAGGERED EVERY 18 TO 24 INCHES HORIZONTALLY ACROSS THE RECP.

B. IT IS RECOMMENDED THAT ALL RECP MATERIALS BE SECURELY ANCHORED AT AN APPROXIMATE RATE OF 1.5 STAPLES OR STAKES PER SQUARE YARD. HOWEVER, SOIL TYPES AND OTHER SITE CONDITIONS MAY REQUIRE ADDITIONAL STAPLING. FOLLOW MANUFACTURER AND ENGINEER RECOMMENDATIONS.

C. IF THE RECP NEEDS TO BE SPLICED IN THE MIDDLE OF A SLOPE BE SURE THE RECP IS "SHINGLED" WITH UP-SLOPE RECP OVERLAPPING THE DOWN-SLOPE RECP. THERE SHOULD BE FOUR INCHES OF OVERLAP IN A SPLICE. USE A STAPLE CHECK SLOT TO SECURE THE OVERLAP. A STAPLE CHECK SLOT IS MADE BY PLACING A ROW OF STAPLES FOUR INCHES ON CENTER AND THEN PLACING A SECOND ROW OF STAPLES FOUR INCHES ON CENTER, STAGGERED FROM THE FIRST ROW.

7. ROLL THE RECP TWO FEET PAST THE TOE OF THE SLOPE. SECURE WITH STAPLES OR STAKES ONE FOOT ON CENTER ACROSS THE RECP.

*NOTE: ON SHORT SLOPES SOME MANUFACTURES ALLOW FOR A HORIZONTAL INSTALLATION METHOD TO AVOID EXTRA HANDLING, IN THESE SITUATIONS FOLLOW ENGINEER AND MANUFACTURER RECOMMENDATIONS.

REFERENCE DRAWINGS:

SITE DIMENSION PLAN; OVERALL STATION LAYOUT..... E-1304
SITE DIMENSION PLAN; OVERALL ACCESS ROAD..... E-1305
SITE DIMENSION PLAN; SWITCH STATION LAYOUT..... E-1306
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GRADING DETAILS-CIVIL DETAILS..... E-1317
PROPERTY PLAT, LEGAL DESCRIPTION..... E-1319

STATE OF OHIO
SPENCER EDWARD WOESTMAN
E-82135
REGISTERED PROFESSIONAL ENGINEER
10-4-17

OLD DWG #:	STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

GRADING DETAILS

EROSION MATTING DETAILS

SCALE: NONE.	DR: DRD/ECI	ENG: KLM/ECI	CH: CAJ/ECI
	WO#: 4219051 2C1	APPD: SEW/ECI	DATE: 10/04/17

AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215 — DWG. NO. E-1318 — REV. 0

L:\EPC Services\EPCS INVENERGY - HARDIN SWYD\CADD\Working\Civil\E1318.DGN

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC. BILLINGS, MONTANA

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

PLOTTED BY $USER5 ON 10/3/2017 AT 08:39 AM STATION ENGINEERING

AEP G (30 X 46)

DWG. NO. E-1319

ON HOLD FOR FINAL PURCHASE

ON HOLD FOR FINAL PURCHASE

REFERENCE DRAWINGS:

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GRADING DETAILS-CIVIL DETAILS..... E-1317
GRADING DETAILS-EROSION MATTING DETAILS..... E-1318

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON OHIO

345KV

PROPERTY PLAT

LEGAL DESCRIPTION

SCALE: NONE	DR: DRD/ECI	ENG: KLM/ECI	CH: CAJ/ECI
AMERICAN ELECTRIC POWER	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/17
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO. E-1319	REV. 0	

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

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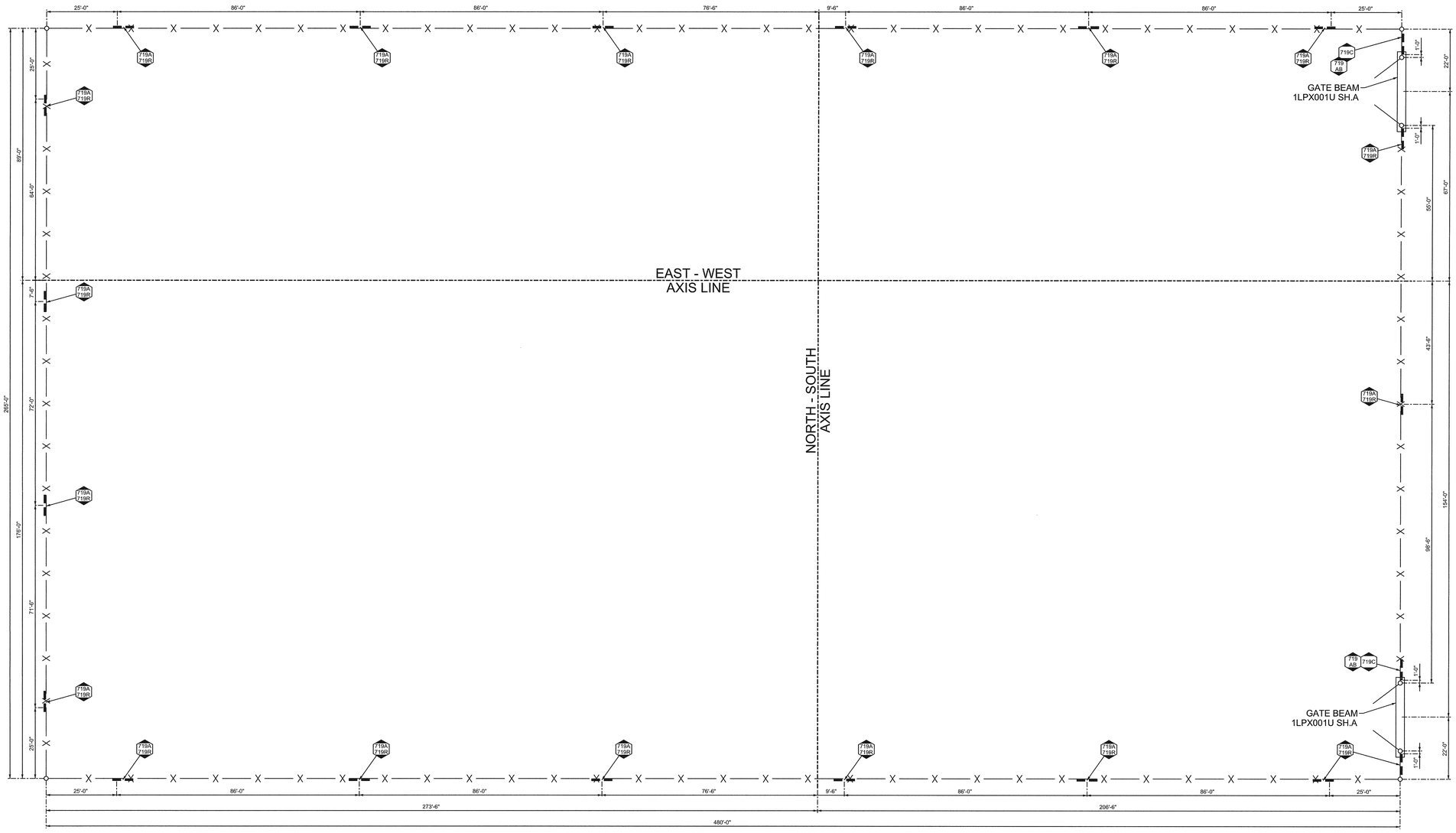
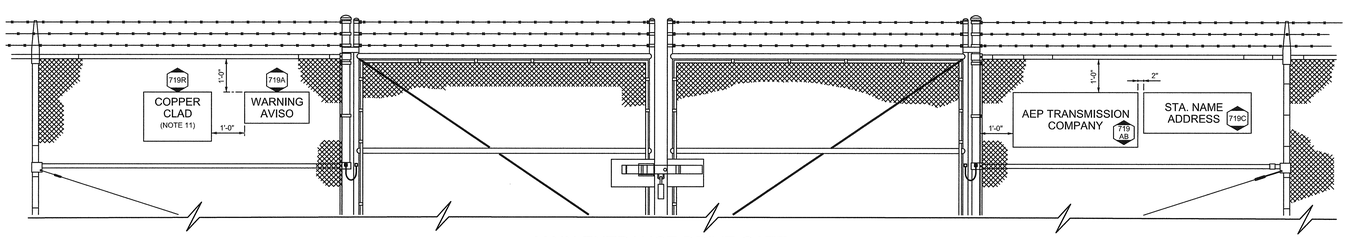
AEP G (30 X 46)

DWG. NO. E-3380



FENCE LAYOUT PLAN



MAIN ENTRANCE DRIVE GATE

BILL OF MATERIAL

SEE NOTE# 9

SYMBOL	QUAN.	CID#	DWG#	DESCRIPTION
719C	(2)	0043839819	E-3381	SUBSTATION NAME WITH ADDRESS (6 MOUNTING HOLES)
719B	(2)	0043842520	E-3381	DANGER, HYDROGEN AREA, NO SMOKING INSIDE CONTROL HOUSE - 1 PER BATTERY (4 MOUNTING HOLES)
719 AB	(2)	0500069009	E-3381	OPERATING COMPANY OR AEP TRANSMISSION COMPANY SEE TABLE BELOW (8 MOUNTING HOLES)
719A	(19)	0043842201	E-3381	WARNING, KEEP OUT, HAZARDOUS VOLTAGE INSIDE (BILINGUAL) (4 MOUNTING HOLES) (NOTE 2)
719R	(19)	0043838020	E-3381	WARNING, KEEP OUT, COPPER-CLAD STEEL HARDWARE, (BILINGUAL) REQUIRED BY EVERY WARNING SIGN (6 MOUNTING HOLES) (NOTE 2)
719N	SEE NOTE #9	0047531900	E-3381	FENCE CLIPS FOR MOUNTING SIGNS (NOTE #9)

NOTES

1. FOR SUBSTATION SIGNS GUIDELINE SEE SS-690000
2. IF MORE THAN 100 FEET, ADDITIONAL SIGNS MUST BE USED (NOT TO EXCEED 100 FEET APART)
3. OPERATING COMPANY SIGN PLACED AT APPROXIMATE CENTER OF FENCE FACING ALL MAJOR ROADS OR STREETS.
4. OPERATING COMPANY SIGN PLACED 1 FT. TO THE RIGHT OF THE MAIN ENTRANCE DRIVE GATE POST.
5. WARNING SIGNS ARE TO BE BILINGUAL
6. ALL SIGNS SHOULD BE PLACED 12 INCHES BELOW TOP FENCE RAIL, FACING OUTWARD AND ON THE OUTSIDE OF THE FENCE FABRIC.
7. ONLY TO BE USED ON STATIONS THAT ARE USING SURVEILLANCE CAMERAS.
8. ONLY REQUIRED ON STATIONS WITH A GROUND FAULT CURRENT OF 40KA & ABOVE. INSTALL ONE SIGN AT EACH ENTRANCE LOCATION OF THE SUBSTATION FENCE. PORTABLE GROUNDS SHALL BE STORED IN THE CONTROL BUILDING.
9. SIGNS COME WITH MOUNTING CLIPS ALL HARDWARE TO BE STAINLESS STEEL
10. ONLY REQUIRED ON STATIONS IN AFRICANIZED BEE ZONE. INSTALL ONE SIGN AT EACH ENTRANCE LOCATION OF THE SUBSTATION FENCE.
11. REQUIRED BY EVERY WARNING SIGN.
12. ONLY REQUIRED IN AEP WEST.
13. LOCATED ON ALL DOORS W/CARDREADER, ONLY REQUIRED WHERE CONTROL BUILDING IS SECURED & MONITORED.
14. LOCATED INSIDE CONTROL BUILDING BEHIND DESK ON WALL BY PHONE ONLY REQUIRED WHERE CONTROL BUILDING SECURED AND MONITORED

REFERENCE DRAWINGS:

E-3381 ——— SIGN STANDARD DETAILS

NUMBERS IN ⬡ REFER TO TRANSCO STATION BOM

SPENCER EDWARD WOESTMAN E-82133 STATE OF OHIO REGISTERED PROFESSIONAL ENGINEER

"Engineering with Distinction"
ECI ELECTRICAL CONSULTANTS, INC. BILLINGS, MONTANA

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

OLD DWG #: | STD DWG #:

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

FENCE & SIGN DETAILS

SIGN LOCATION PLAN & ELEVATION

SCALE: 1" = 15'	DR: DRD/ECI	ENG: GSO/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/17
	DWG. NO.: E-3380	REV 0	

L:\EPC Services\EPCS INVENERGY - HARDIN SWYD\CADD\Working\Civil\E3380.DGN

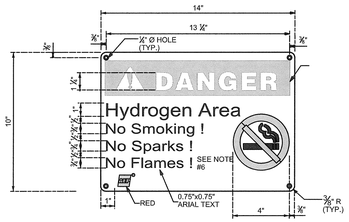
AEP G (30 X 48) PLOTTED BY $USERS ON 10/3/2017 AT 11:30 AM STATION ENGINEERING

CM 1 2 3 4 5 6 7 | 1/16 INCH 4 8 12 16 | TENTHS 10 20 30 | INCHES 1 2 3

DWG. NO. E-3381

REFERENCE DRAWING

E-3380 ——— FENCE & SIGN DETAILS



CID# 0043842520

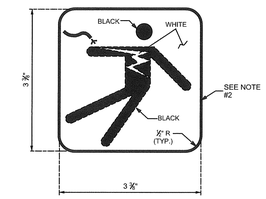
(MADE OF FIBERGLASS, SEE NOTE# 3)

ITEM# 719B

CID# 0043839819

(MADE OF ALUMINUM, SEE NOTE# 4)

ITEM# 719C



NOT TO SCALE

STICK FIGURE
LIMB ANGLES

NOTE:

1) THE SIGN SHALL COMPLY WITH ANSI Z535.1-Z535.5 (LATEST REVISION).

2 THE SYMBOL/PICTORIAL PANEL SHALL BE SQUARE WITH A BLACK SYMBOL OF A BODY WITH WIRE AND LIGHTNING BOLT ON A WHITE BACKGROUND

3) SIGN SHALL BE FABRICATED USING ACRYLIC MODIFIED POLYESTER RESIN REINFORCED WITH CHOPPED STRAND FIBERGLASS, MINIMUM OF 28%. FIBERTEC IS NON-STATIC AND IMAGES ARE EMBEDDED SUBSURFACE IN THE MATERIAL TO PROTECT THEM ON BOTH SIDES. THE NOMINAL THICKNESS OF A STANDARD FIBERTEC SIGN IS 0.090" THICK.

4) SIGNS SHALL BE MANUFACTURED FROM AN 80 MIL ALUMINUM SHEET,TYPE 3003 H-14 COATED FRONT AND BACK WITH AN ACRYLIC ENAMEL. ALL SHARP EDGES AND BURRS SHALL BE REMOVED. THE SIGNS SHALL HAVE A THICKNESS OF 0.080". THE MOUNTING HOLES SHALL BE PROTECTED BYBRASS FERRULES.

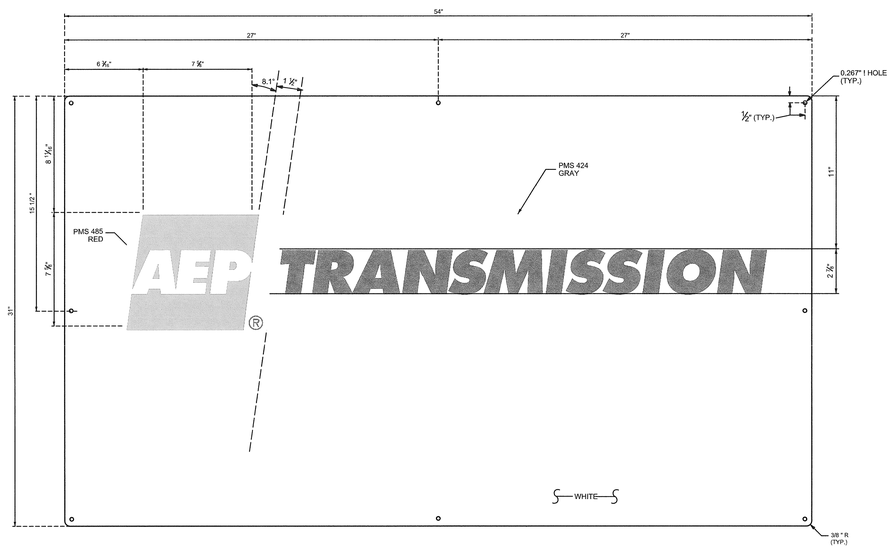
5) THE SIGNAL WORD "WARNING" SHALL BE IN BLACK LETTERS ON A RECTANGULAR ANSI SAFETY ORANGE BACKGROUND.

THE SAFETY ALERT SHALL BE AN ORANGE EXCLAMATION MARK ON A BLACK EQUILATERAL TRIANGLE.

6) THE SIGNAL WORD "DANGER" SHALL BE IN WHITE LETTERS ON A RECTANGULAR ANSI SAFETY RED BACKGROUND.

THE SAFETY ALERT SYMBOL SHALL BE A RED EXCLAMATION MARK ON A WHITE EQUILATERAL TRIANGLE.

7) THE SIGNAL WORD "NOTICE" "AVISO" AND "NOTICE" SHALL BE WHITE LETTERS ON A RECTANGULAR ANSI SAFETY BLUE BACKGROUND.

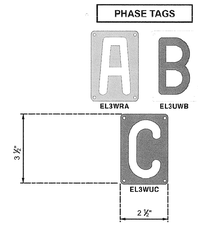


CID# 0500069009

(MADE FROM ALUMINUM, SEE NOTE# 1)

ITEM# 719AB

PHASE TAGS



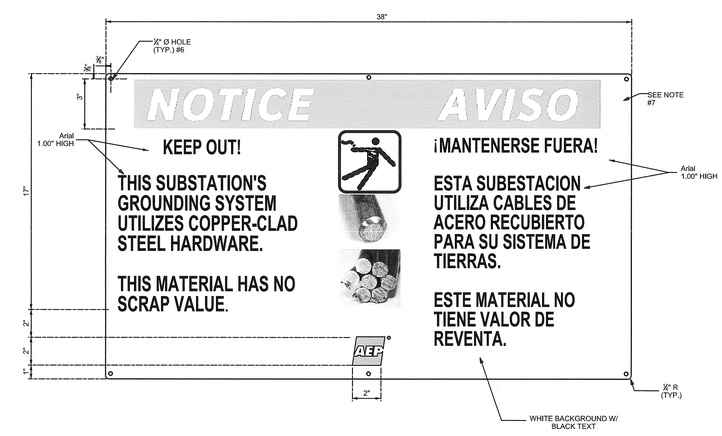
CID# 0043830000

(MADE OF HIGH IMPACT POLYPROPOLENE)

ALL 3 ABOVE TO BE

ITEM# 719P

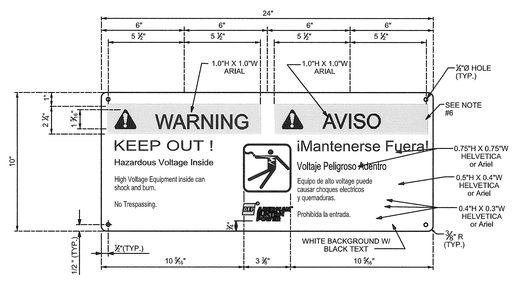
(THEY COME AS A SET)



CID# 0043838020

(MADE OF ALUMINUM SEE NOTE# 4)

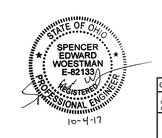
ITEM# 719R



CID# 0043842201

(MADE OF ALUMINUM, SEE NOTE# 4)

ITEM# 719A



"Engineering with Distinction"

ECI ELECTRICAL CONSULTANTS, INC. BILLINGS, MONTANA

NO	DATE	REVISION DESCRIPTION	APPR	DR	ENG	CK	ISSUE#

OLD DWG #: | STD DWG #: 1LPX002U SH. A

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OHIO TRANSMISSION COMPANY

HARDIN SWITCH STATION

KENTON — OHIO

345KV

SIGN STANDARD

DANGER, STICK FIGURE, COPPER-CLAD, STATION, AEP OHIO, PHASE MARKERS

SCALE: NONE	DR: DRD/ECI	ENG: GSO/ECI	CH: CAJ/ECI
AEP AMERICAN ELECTRIC POWER — 1 RIVERSIDE PLAZA COLUMBUS, OH 43215	WO#: 42190512C1	APPD: SEW/ECI	DATE: 10/04/17
		DWG. NO. E-3381	REV. 0

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AEP G (30 X 46) PLOTTED BY SUSERS ON 10/3/2017 AT 09:34 AM STATION ENGINEERING

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

1/8/2018 4:11:24 PM

in

Case No(s). 09-0479-EL-BGN, 11-3446-EL-BGA, 16-0469-EL-BGA, 16-2404-EL-BGA

Summary: Notice of Compliance with Certificate Condition #57 - Issued for Construction Drawings for Substation and Point of Interconnection electronically filed by Mr. William V Vorys on behalf of Hardin Wind Energy LLC