

App No:

2019111036

Application General Information

Applicant Name	Potomac Edison	Updated	12/3/2019
Application Type	New	Ann. Plan?	No
Carrier	First Energy	Will site be used to support government telecommunications facilities or other equipment for government use?	No
Solution Type	Macro		
Existing	New	Gvt. Use Desc.	

Application Description

Install a COW, temporary equipment shelter, security fencing and overhead electric service. On the tower, we will be installing a 4ft parabolic dish (Quickfire QF4-52-N) connected to a Carlson Wireless Long Haul TDM unlicensed 5.8GHz radio. The P25 mobile radio system will consist of one each transmit and receive antenna (Sinclair SD212) connect to a filter system and Kenwood TKR-740 repeaters operating in the VHF High band.

Site Information

Site Id	697	Zoning	CRT
Structure Type	Tower	Latitude	39.2909917
Address	10041 Lewis Drive, Damascus, MD	Longitude	-77.2069361
County Site Name	Lewis Dr. COW	Ground Elevation	854
Carrier Site Name	Damascus COW	City	Damascus, MD
Site Owner	Lewis Drive Limited Partnership	Lease Status	In Process
Structure Owner	Pillar Innovations	Does the structure require an antenna structure registration under FCC Title 47	No
Existing Structure Height		Distance to Residential Property (New, Replacement, Colocation Only)	460
Provide the proposed height of the replacement structure without any antenna (New, Replacement Apps Only)	106	Distance to Commercial Property (New, Replacement, Colocation Only)	35

Justification of why this site was selected:

This spot offered a clear, flat area with access to the site already established with a gravel driveway. It would be tucked back off the street with one side screened by a large commercial building and the other by a stand of trees. The elevation, AMSL, was also very advantageous.

Nearby Sites (New, Replacement Apps Only):

Crown Castle monopole on Lewis Drive - offered good height and was in a good location, offered no equipment shelter or means to get off of the tower to one. Water Tower off of Ridge Road - Does not offer a way to provide the needed separation between our Tx and Rx antennas. I spoke with Crown Castle about this location in September after meeting with my tower contractor at the site. It was understood that the zoning process for attaching to this tower would not fit into the time we had available since it wasn't in a CRT zone. There was also some concerns about how we would get from the tower to a shelter if we were to place one there. Lastly, we had concerns about whether the available structural capacity included some proposed additions indicated by the owner.

Tuesday, December 3, 2019

9:30:07 AM

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Screening considerations(New, Colocations, Replacement Apps Only):

Since this is temporary, no screening options were considered

App No:

2019111036

6409 Questions

Does this qualify as a 6409 application? (Minor Mod, Colocations Only)

For towers outside the public ROW will the proposed installation increase the height of the structure by: (1) more than 10% or (2) more than 20 feet, whichever is greater?

Will the proposed installation increase the width by adding appurtenance to the body of the structure that would protrude from the edge of the structure by more than 6 feet?

For towers outside the public ROW will the proposed installation increase the width by adding appurtenance to the body of the structure that would protrude from the edge of the structure by more than 20 feet?

More than four Equipment Cabinets? YN

Will the proposed installation require excavation or expansion outside the current boundaries of the site?

Does the structure or current installation have concealment elements/measures?

No

Will the proposed installation increase the height of the structure by: (1) more than 10% or (2) more than 10 feet, whichever is greater?

If yes, describe how the proposed installation does not defeat the existing concealment.

Small Wireless Facility Informatio

Small Wireless Facility Questions

Small Wireless Facility?

No

Is the structure 10% taller than adjacent structures?

Yes

Cumulative volume of the proposed wireless equipment(s) exclusive of antennas in cubic feet

2.2

Please list adjacent structure heights

Cumulative volume of the proposed antenna antenna(s) exclusive of equipment

Tribal Lands?

No

ROW Information

PROW?

No

Pole Number

ROW owner

ROW width

Tuesday, December 3, 2019

9:30:11 AM

App No:

2019111036

Antenna Information

Antenna Compliance

Compliance Desc

Antenna Location

Antenna Loc. Desc.

Env. Assessment

Cat. Excluded?

Routine Env. Evaluation

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

Antenna Model

Frequency

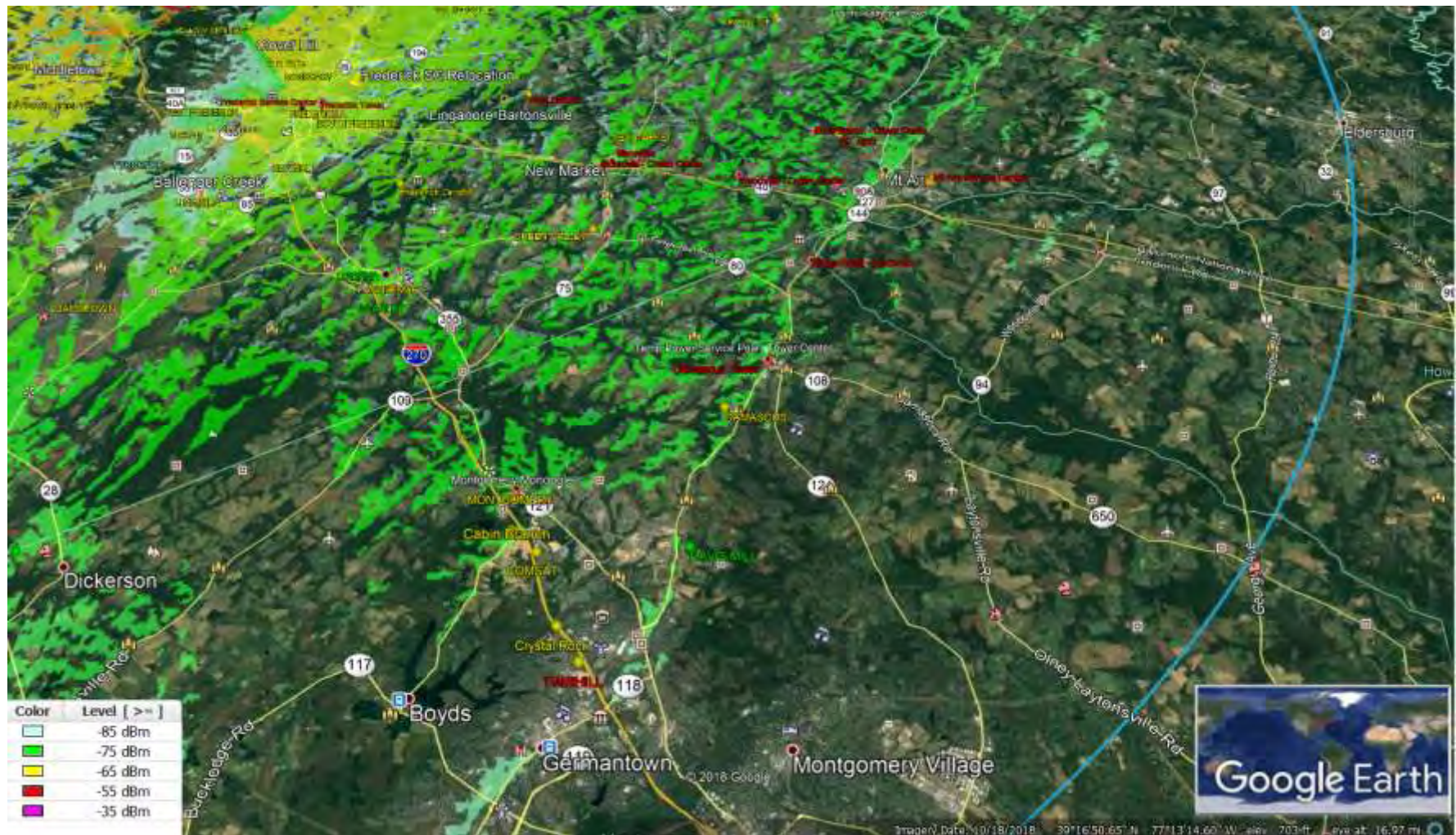
RAD Center Max ERP Antenna Dimensions Quantity

Tuesday, December 3, 2019

9:30:11 AM

First Energy Mobile Radio Coverage Without Damascus COW

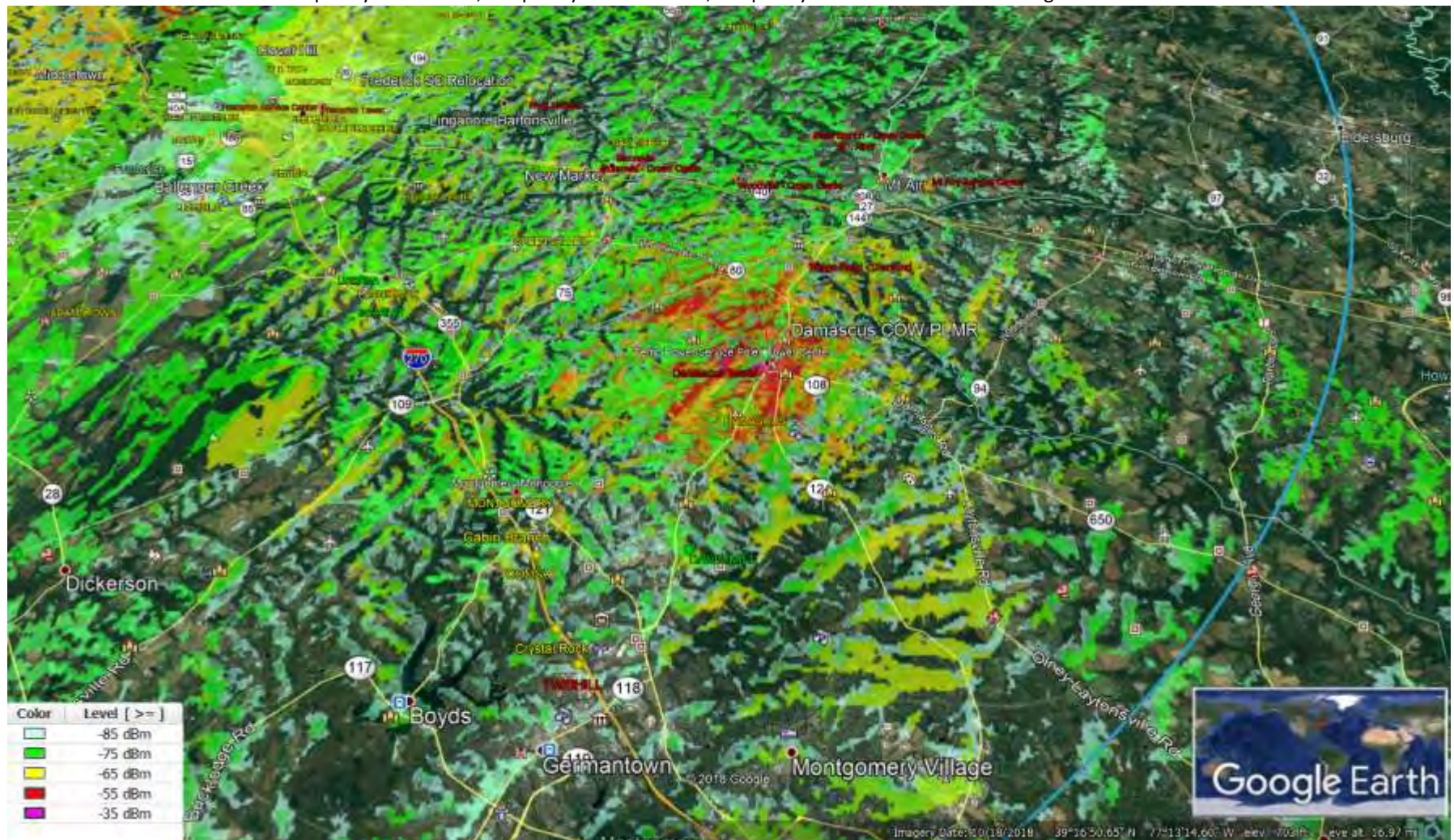
Mountaindale Base Station (Frederick County) – Frequency 152.24MHz, Antenna Height 77ft AGL



First Energy Mobile Radio Coverage With Damascus COW

Mountaindale Base Station (Frederick County) – Frequency 152.24MHz, Antenna Height 77ft AGL

Damascus COW Base Station – Frequency 153.23MHz, Frequency 153.3950MHz, Frequency 153.095MHz Antenna Height 65ft AGL

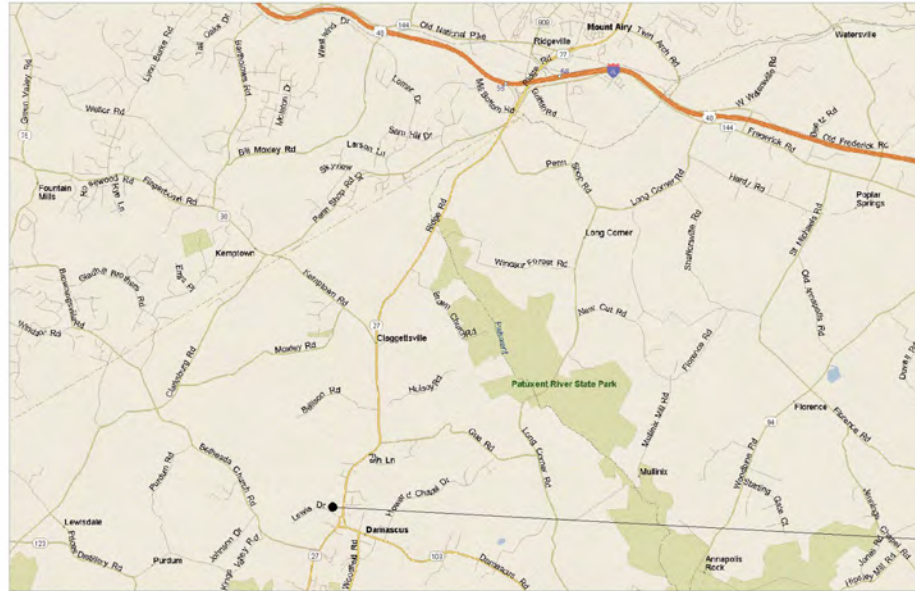




INDEX OF SHEETS	
C10	COVER SHEET
C20	SITE PLOT PLAN
C21	PROPERTY BOUNDARY PLAN
C22	STREET VIEW PHOTO
C30	SITE LAYOUT PLAN
C61	TOWER ELEVATION VIEW
E10	ELECTRICAL DETAILS

APPLICABLE BUILDING CODES:	IBC 2018
USE GROUP:	UTILITY
CONSTRUCTION TYPE:	5B NONCOMBUSTIBLE

TOTAL ANTENNAS TO BE INSTALLED
ONE 4FT MICROWAVE DISH
TWO 10FT DIPOLE ANTENNAS



SITE LOCATION

In the Southwest Corner of the Property Owned By Lewis Drive LTD Partnership, Install a 106' Temporary Communications Tower For a Private Land Mobile Radio System (PLMR). Radio Equipment Will Include a 5.8ghz Unlicensed Microwave System With One Antenna and the PLMR Equipment Consisting of 3 Transceivers and an Antenna System With 2 Antennas. Equipment Will Be Housed In a Rented Office Trailer And the Entire Compound Will Be Secured By a 6' Security Fence.

[illegible]Sheet #
C10

Drawing File Name:
1stEng_DMASCUS_C10R0.dwg

76 South Main
Street
Akron, Ohio 44308



1116 WALNUT LANE,
LANSDALE, PA 19446
TEL: 267-250-9931

Engineer's Seal:

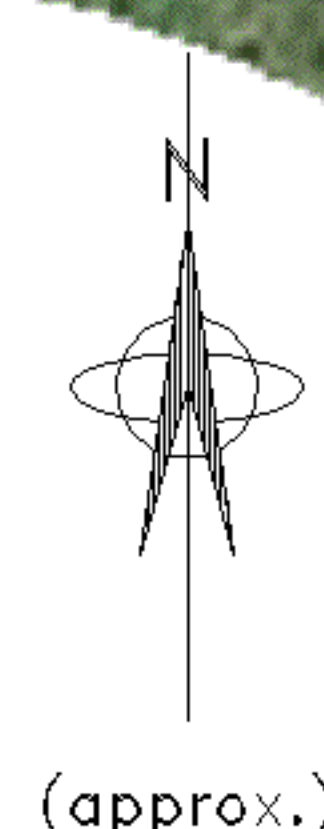
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Drawing File Name:
1stEng_DMASCUS_C20R0.dwg

COW GPS:
LAT. 39° 17' 27.8" N
LONG. 77° 12' 24.9" W

0' 30' 60'

(on 11 x 17 paper)



(approx.)



***NEW FIRSTENERGY
RADIO ANTENNA COW***

STREET VIEW PHOTO

FirstEnergy

*76 South Main
Street
Akron, Ohio 44308*

Prepared by:



Robert J. Heath PE, LLC

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DRAWING REVISION HISTORY		DESCRIPTION	DATE	NO.
		CONSTRUCTION DRAWINGS	2015-12-06	0

***FIRSTENERGY
RADIO SYSTEM***

Site Name:
Damascus COW

Site Info:
10041 Lewis Dr, 20872

Sheet Title: Street View Photo
Sheet #: C22

Drawing File Name:
1stEng_DMASCUS_C22R0.dwg

76 South Main
Street
Akron, Ohio 44308

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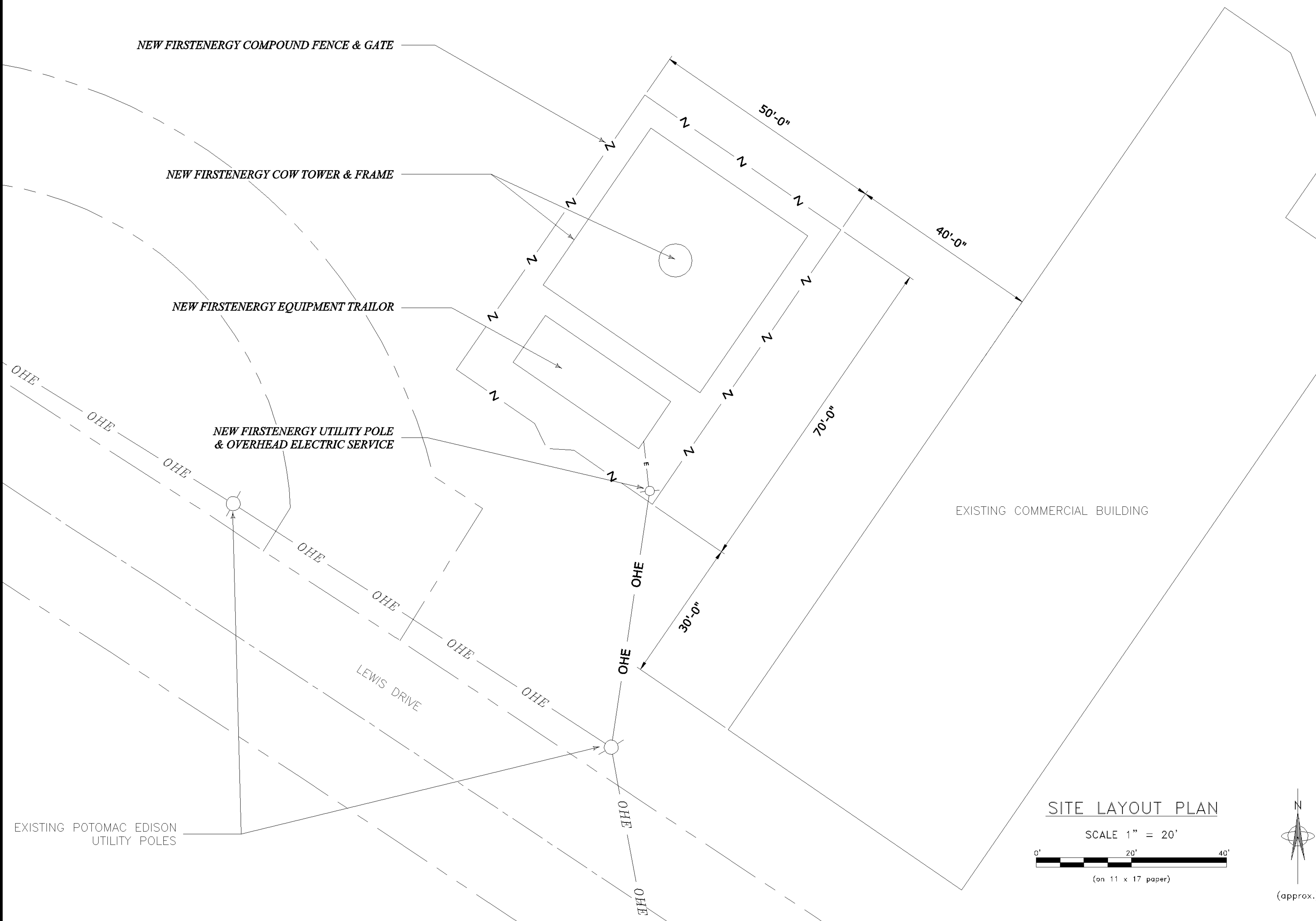
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Site Name:
Damascus COW

Sheet Title: Site Layout Plan Sheet # C30

Drawing File Name:
1stEng_DMASCUS_C30R0.dwg



FirstEnergy

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Prepared by:



Robert J. Heath PE, LLC

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Engineer's Seal:

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FIRSTENERGY
RADIO SYSTEM

Site Name:

Camascus Cow

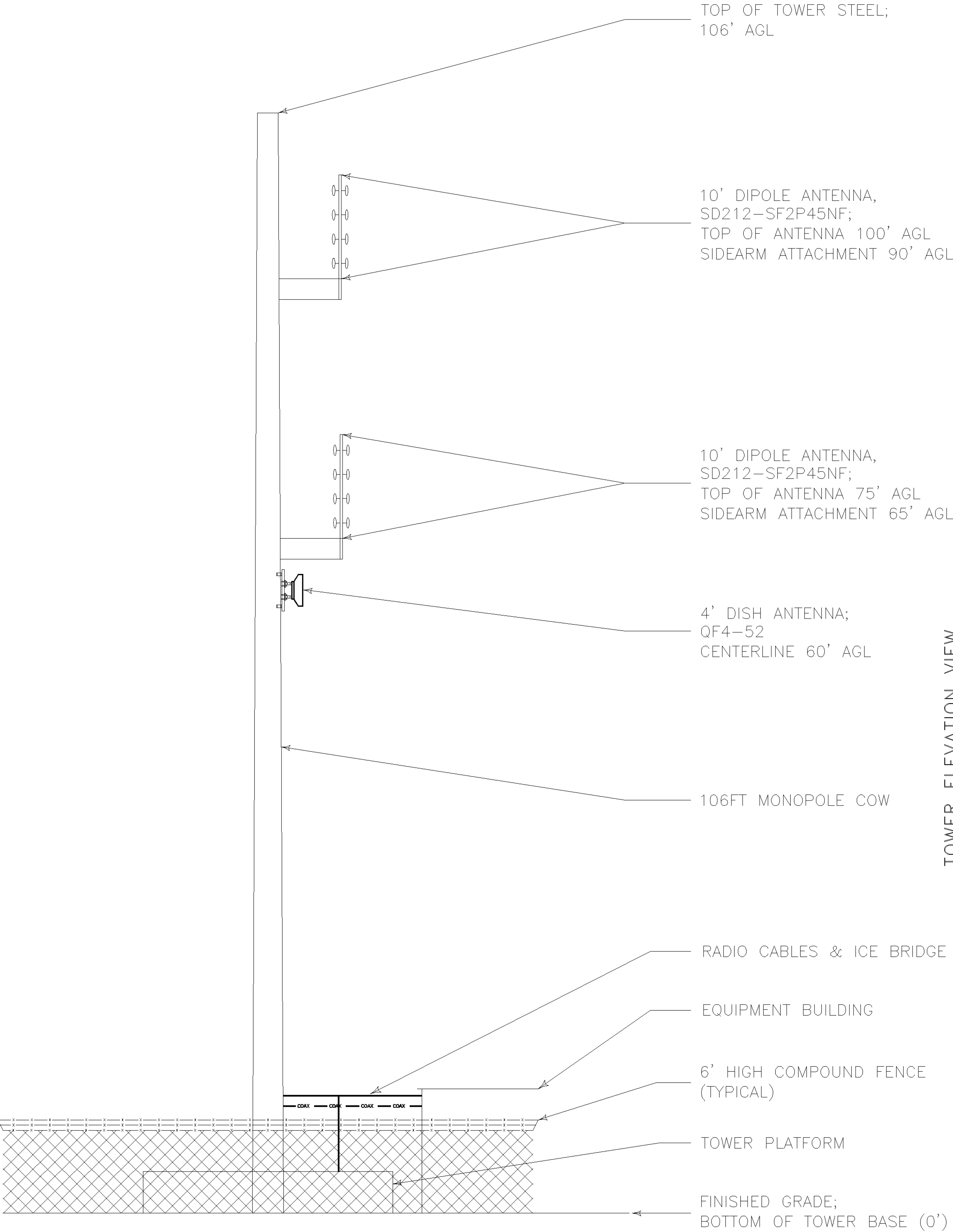
Site Info:

10041 Lewis Dr. 20872

Sheet Title: Tower Elevation View Sheet #: C61

Drawing File Name:

1stEng_DMASCUS_C61R0.dwg



Note:

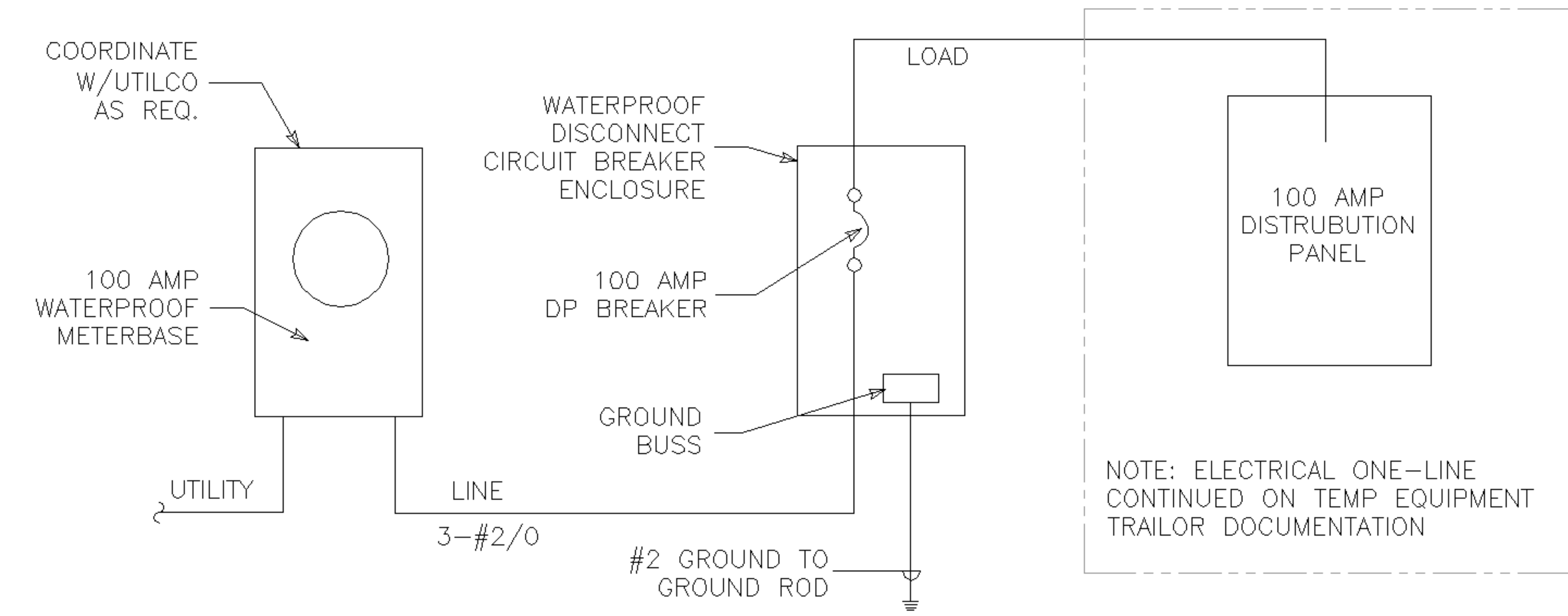
ALL PROPOSED ANTENNA SUPPORT STRUCTURES AND THE NEW 106FT MONOPOLE TOWER STRUCTURE ARE TO MEET INDUSTRY STANDARDS ASA/EIA/TIA 222-G AND IBC2015 FOR STRUCTURAL INTEGRITY.

TOWER ELEVATION VIEW

SCALE 1" = 10'



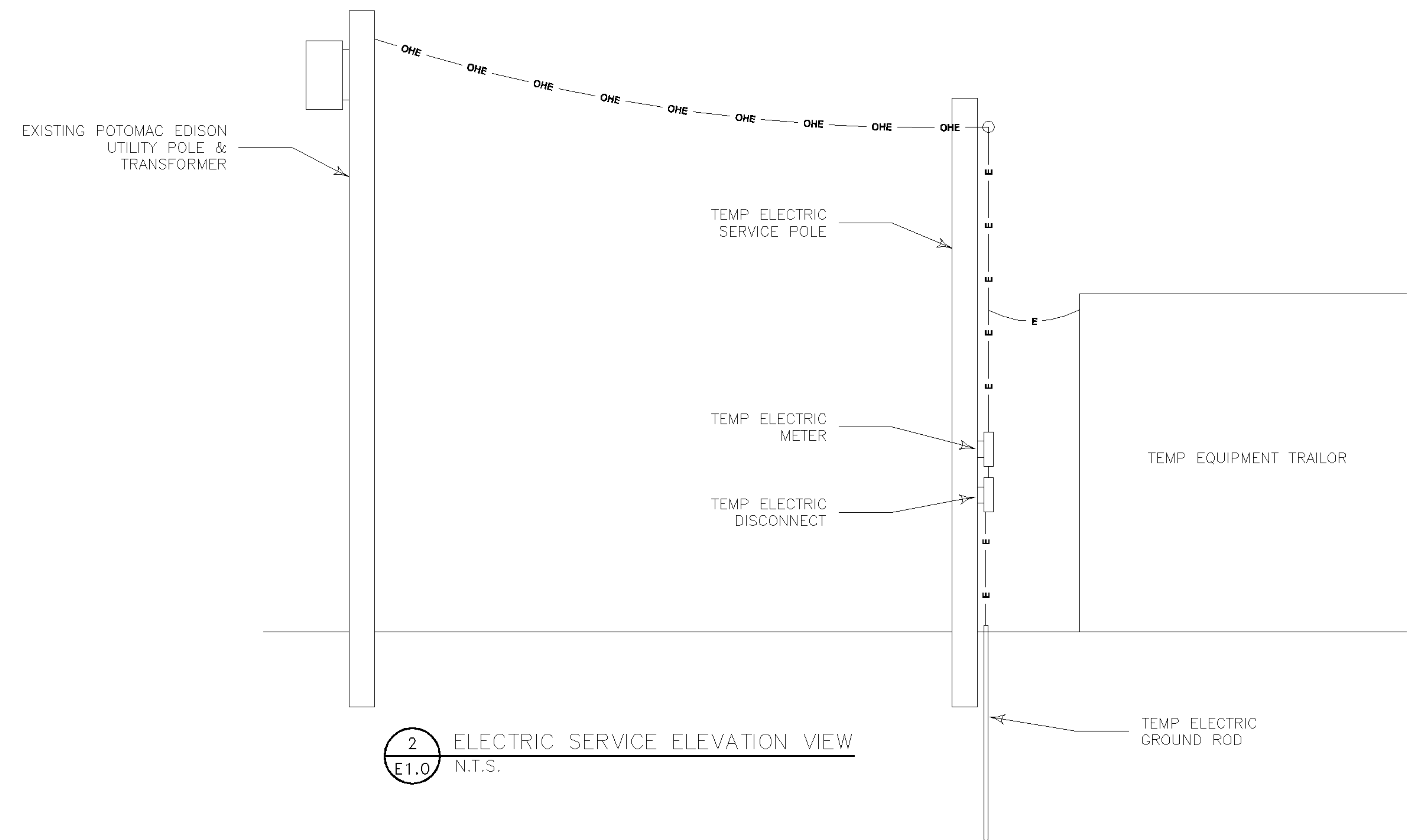
(on 11 x 17 paper)



1
E1.0
ELECTRICAL ONE-LINE
N.T.S.

GENERAL NOTE:

ALL WORK SHALL BE IN COMPLIANCE WITH NEC, AND ALL OTHER APPLICABLE CODES AND/OR AUTHORITIES HAVING JURISDICTION.



2
E1.0
ELECTRIC SERVICE ELEVATION VIEW
N.T.S.

FirstEnergy

76 South Main
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Akron, Ohio 44308

Prepared by:



Robert J. Heath PE, LLC

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		CONSTRUCTION DRAWINGS	2019-12-06	0

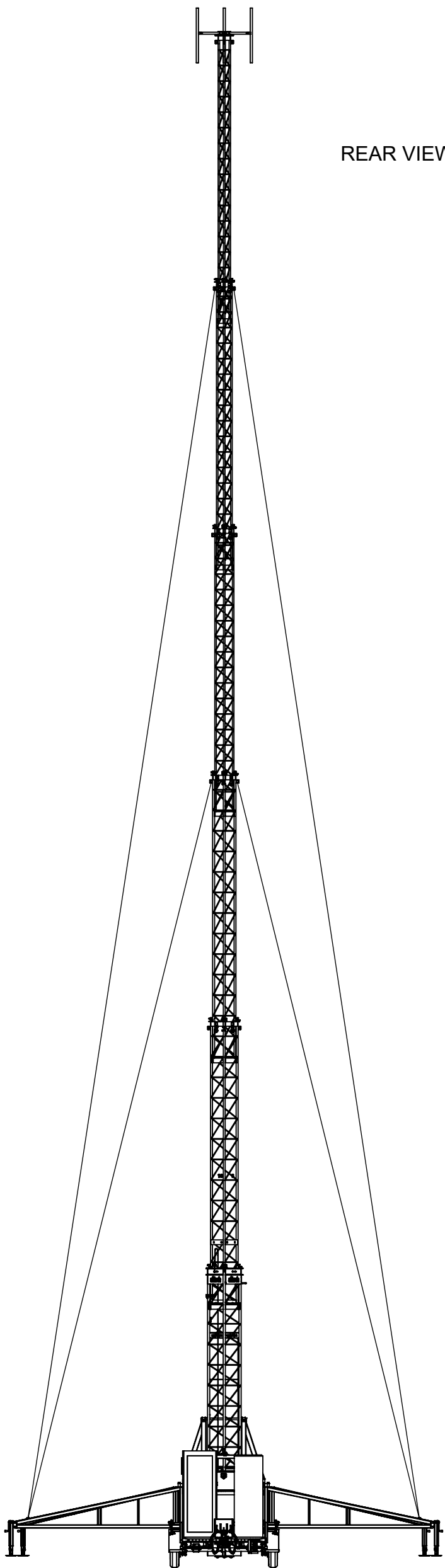
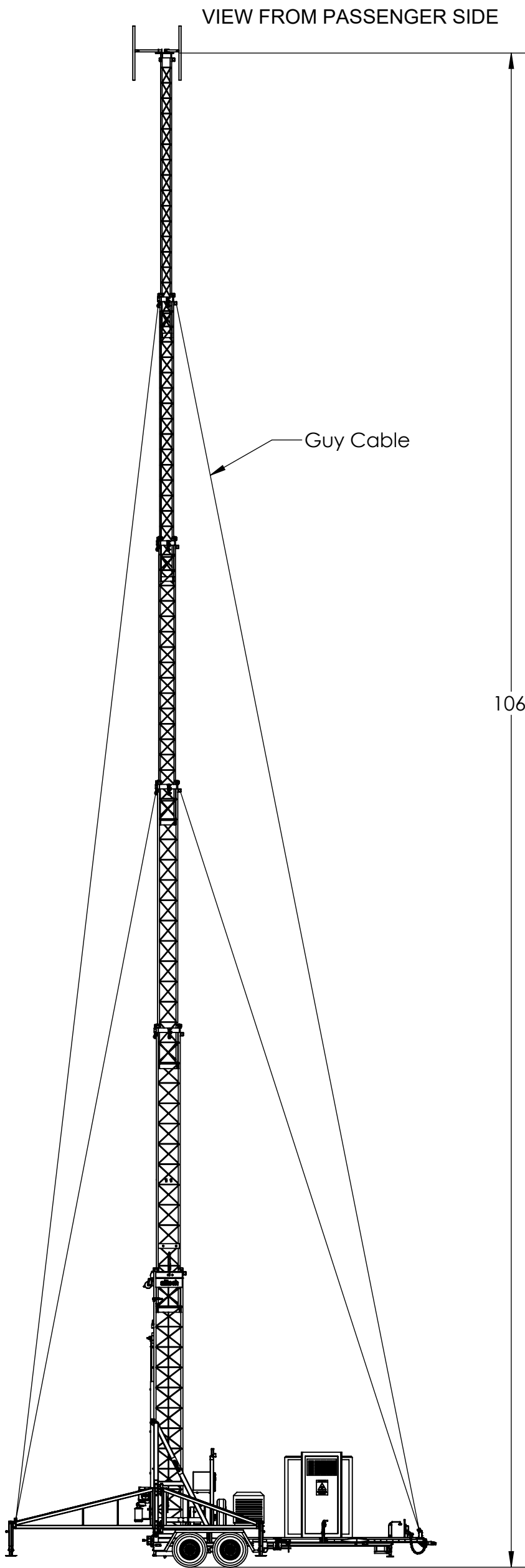
FIRSTENERGY
RADIO SYSTEM

Site Name:
Damascus COW

Site Info:
10041 Lewis Dr, 20872

Sheet Title: Electrical Details
Sheet #: E10

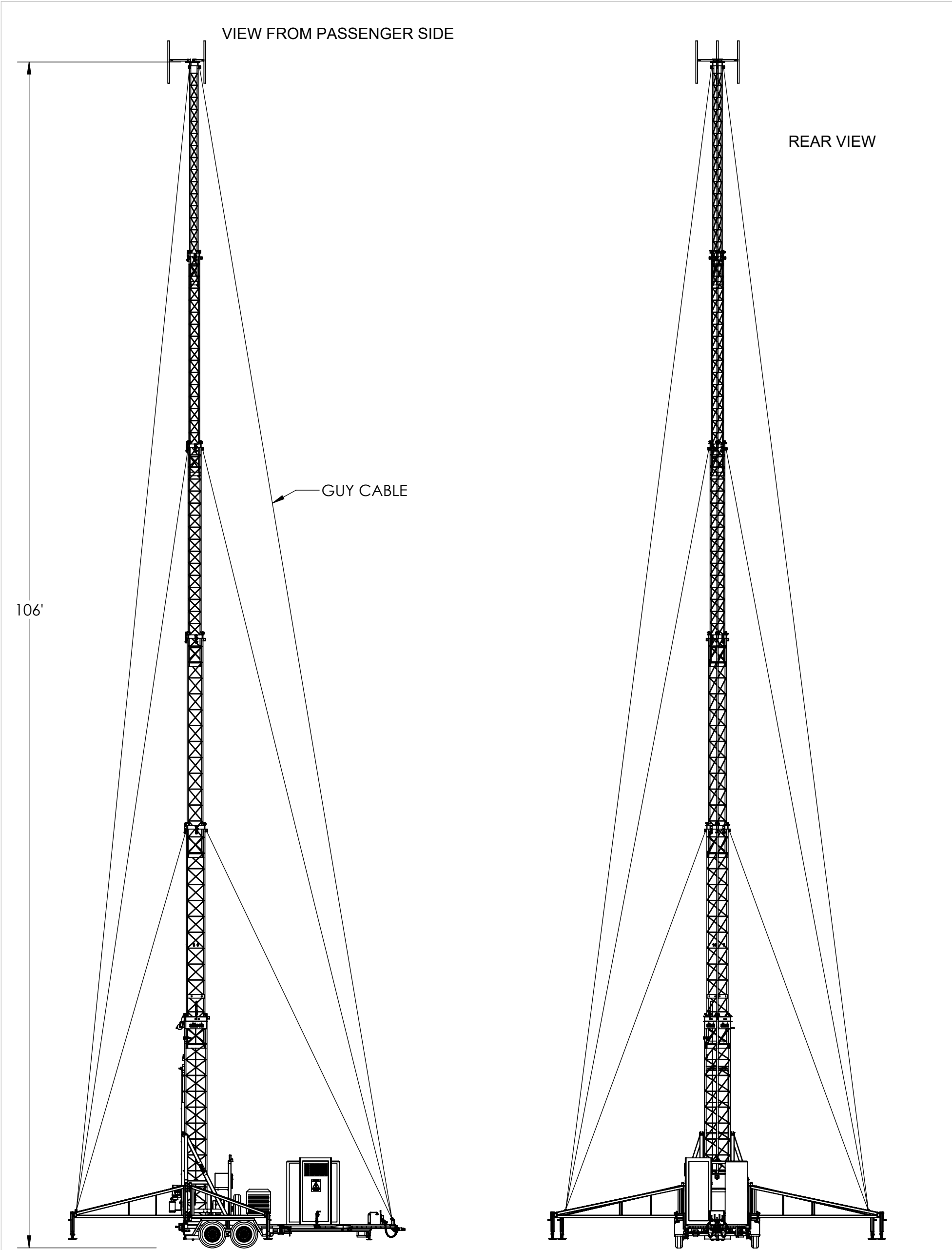
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Alltech Communications, LLC 10 E 3rd St., Ste 300 - Tulsa, OK 74103	
		DIMENSIONS ARE IN INCHES	DRAWN	NAVEEN	2018-01-07	TITLE: ATC106	
		TOLERANCES:	CHECKED	RRM			
		FRACTIONAL $\pm 1/16"$	ENG APPR.	RRM			
		ANGULAR: MACH $\pm 2^\circ$ BEND $\pm 2^\circ$	MFG APPR.				
		TWO PLACE DECIMAL $\pm .030"$	Q.A.				
		THREE PLACE DECIMAL $\pm .005"$	COMMENTS:			SIZE	DWG. NO.
NEXT ASSY	USED ON	INTERPRET GEOMETRIC TOLERANCING PER:				B	REV
APPLICATION		MATERIAL				SCALE: 1:64	WEIGHT: -
		FINISH				SHEET 5 OF 7	
		DO NOT SCALE DRAWING					



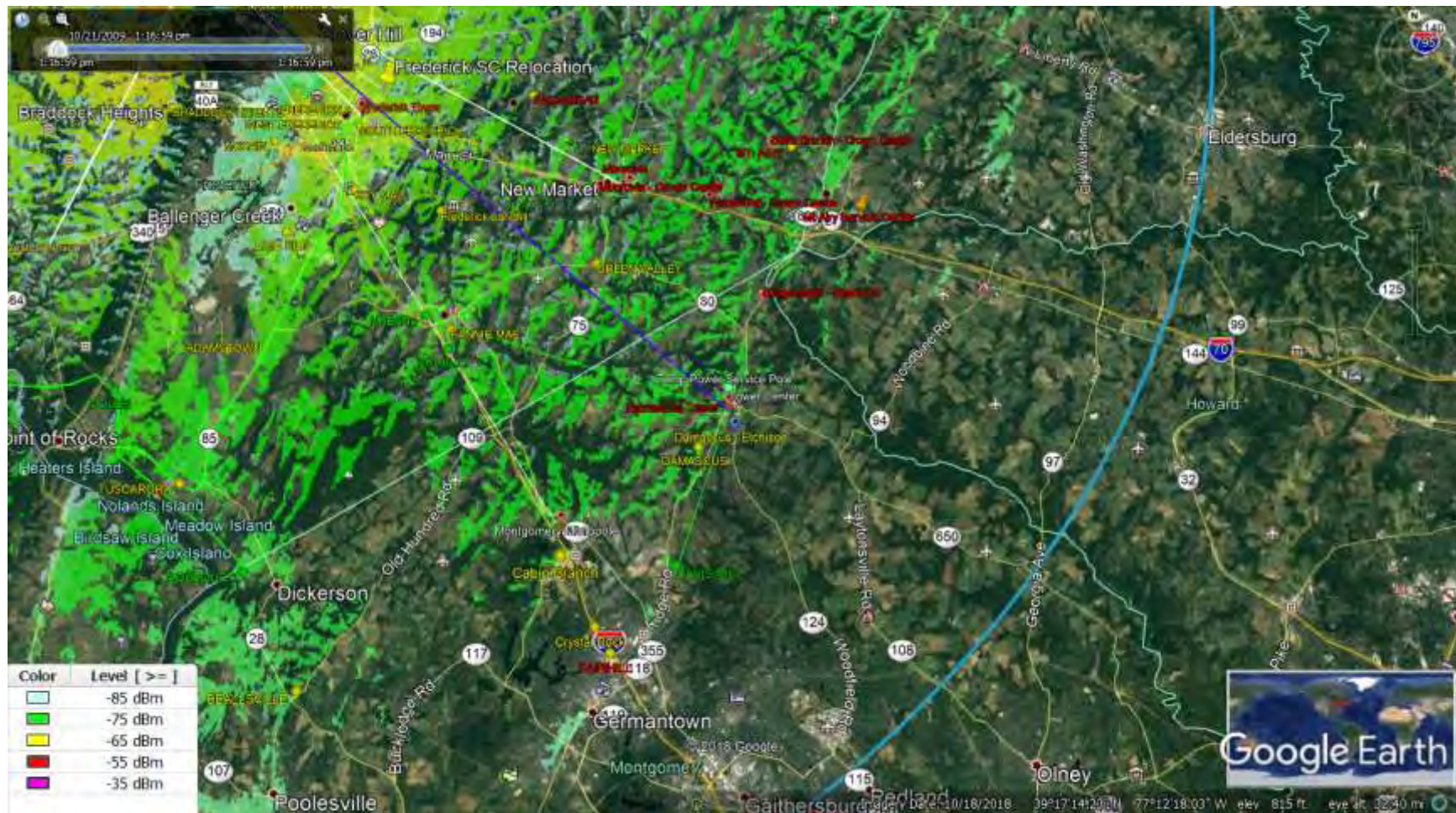
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		MATERIAL				SCALE: 1:64	WEIGHT: -
		-				SHEET 6 OF 7	
NEXT ASSY	USED ON	FINISH					
APPLICATION		DO NOT SCALE DRAWING					

First Energy Mobile Radio Coverage Without Damascus COW

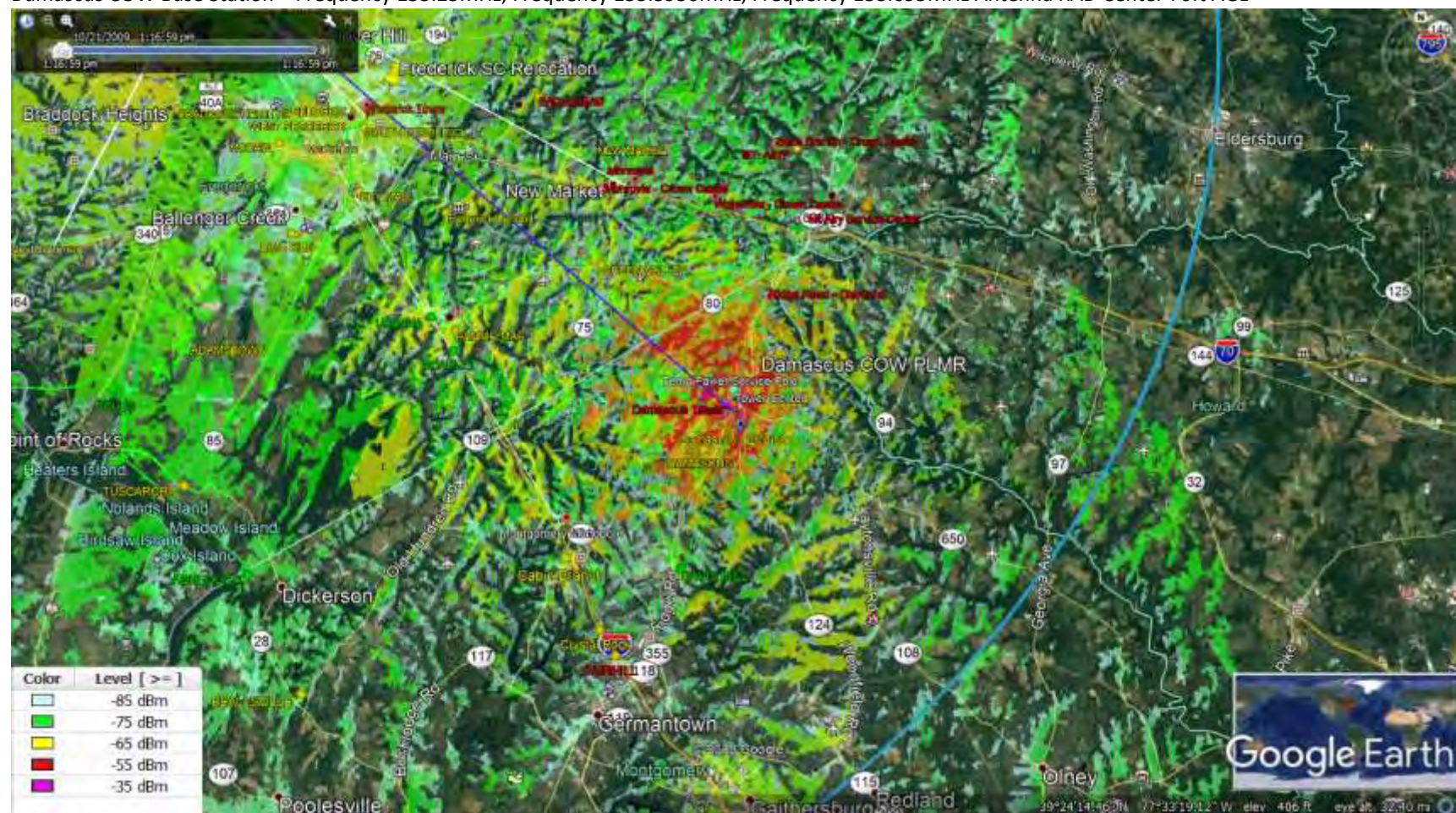
Mountaindale Base Station (Frederick County) – Frequency 152.24MHz, Antenna Height 77ft AGL



First Energy Mobile Radio Coverage With Damascus COW

Mountaindale Base Station (Frederick County) – Frequency 152.24MHz, Antenna RAD Center 77ft AGL

Damascus COW Base Station – Frequency 153.23MHz, Frequency 153.3950MHz, Frequency 153.095MHz Antenna RAD Center 70ft AGL



App No:

2019111036

Application General Information

Applicant Name	Potomac Edison	Updated	12/3/2019
Application Type	New	Ann. Plan?	No
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Small Wireless Facility Informatio

Small Wireless Facility Questions

Small Wireless Facility?

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Cumulative volume of the proposed wireless equipment(s) exclusive of antennas in cubic feet

2.2

Please list adjacent structure heights

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Tribal Lands?

No

ROW Information

PROW?

No

Pole Number

ROW owner

ROW width

Tuesday, December 3, 2019

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Antenna Information

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Compliance Desc

Antenna Location

Antenna Loc. Desc.

Env. Assessment

Cat. Excluded?

Routine Env. Evaluation

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

Antenna Model

Frequency

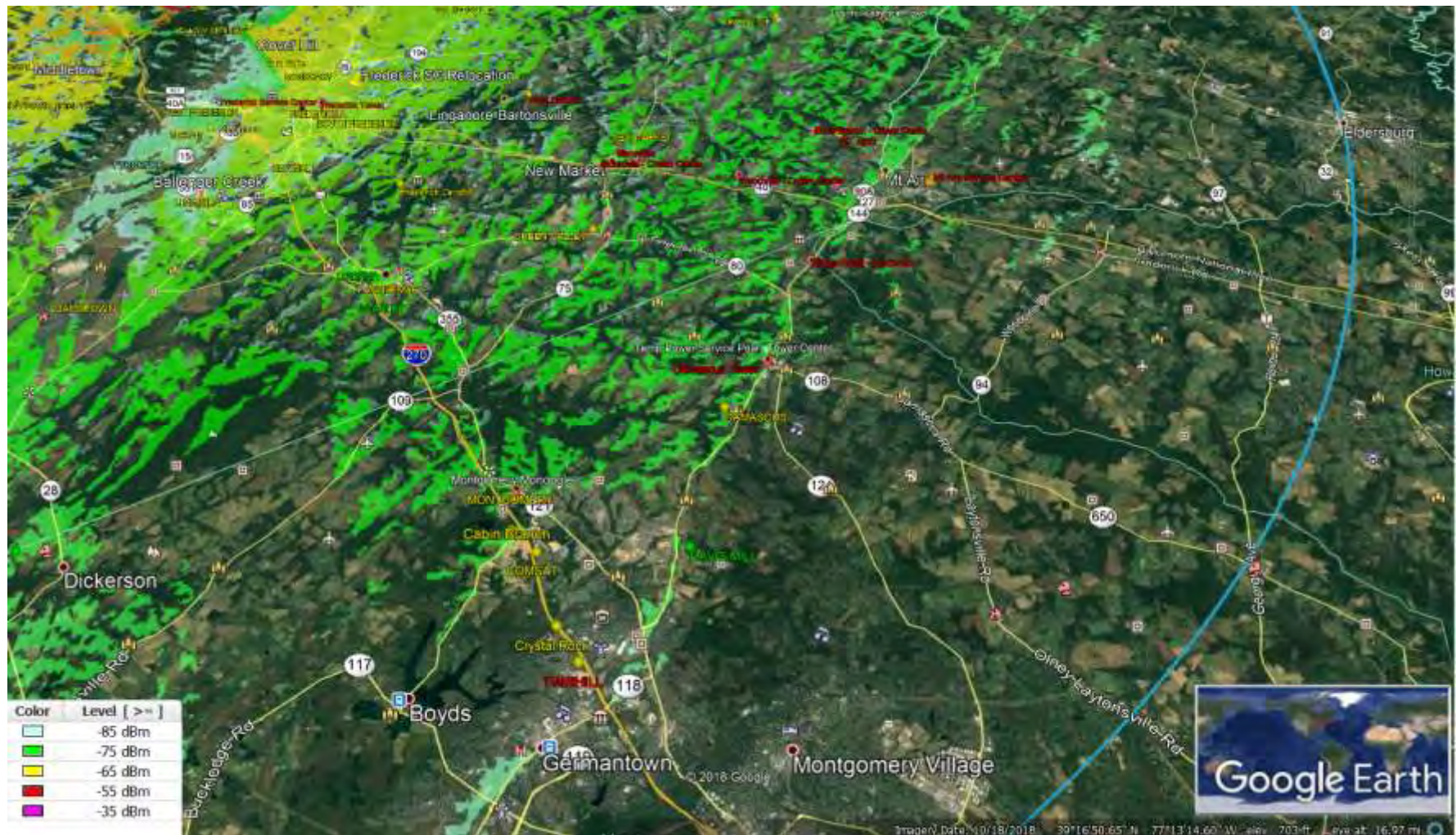
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First Energy Mobile Radio Coverage Without Damascus COW

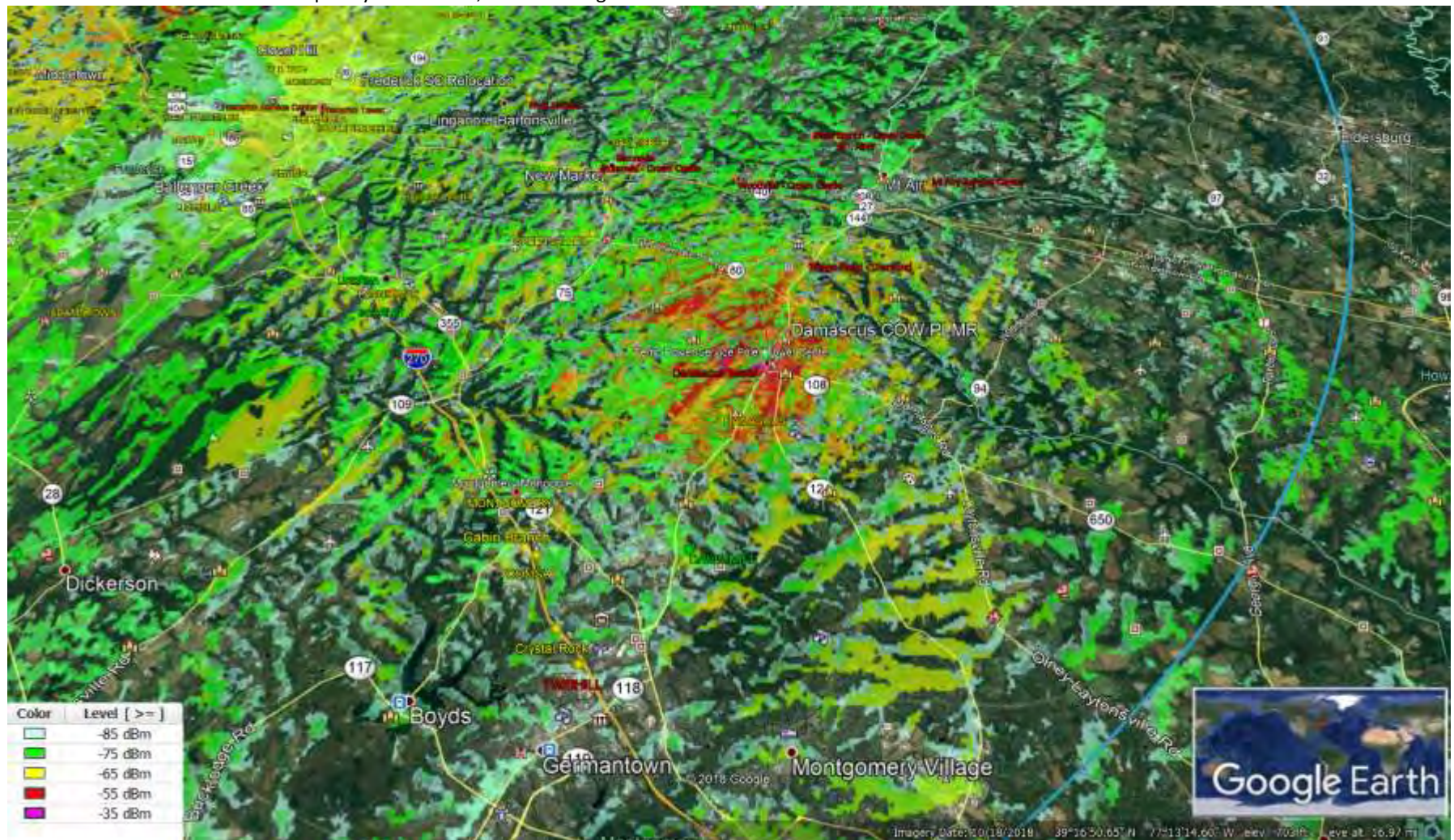
Mountaindale Base Station – Frequency 152.24MHz, Antenna Height 77ft AGL



First Energy Mobile Radio Coverage With Damascus COW

Mountaindale Base Station – Frequency 152.24MHz, Antenna Height 77ft AGL

Damascus COW Base Station – Frequency 152.23MHz, Antenna Height 65ft AGL

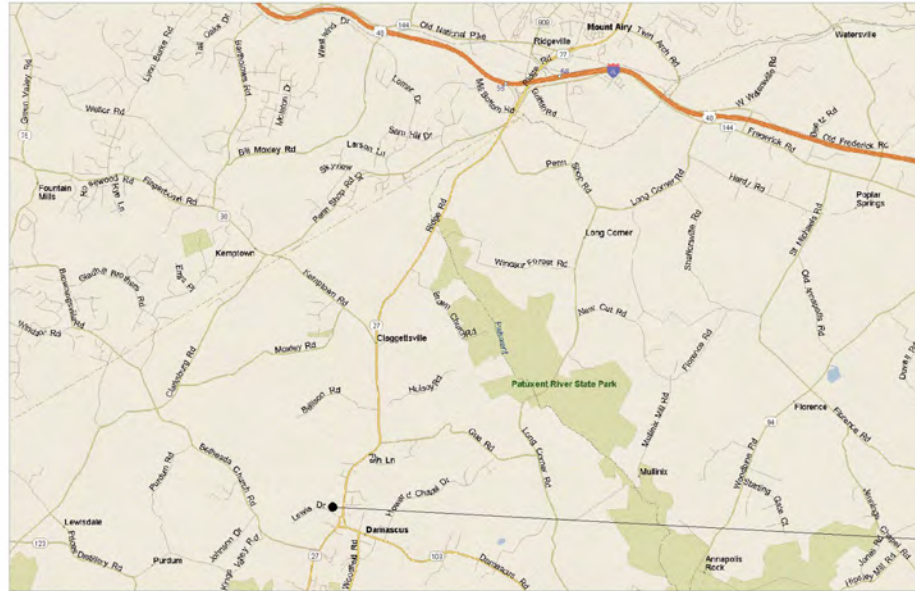




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C61	TOWER ELEVATION VIEW
E10	ELECTRICAL DETAILS

APPLICABLE BUILDING CODES:	IBC 2018
USE GROUP:	UTILITY
CONSTRUCTION TYPE:	5B NONCOMBUSTIBLE

TOTAL ANTENNAS TO BE INSTALLED
ONE 4FT MICROWAVE DISH
TWO 10FT DIPOLE ANTENNAS



SITE LOCATION

SITE GPS: 39.290990, -77.206875

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Richard A Marquiss
10802 Bower Ave
Williamsport, MD 21795
rmarqui@firstenergycorp.com
301-790-6146 (office)
301-331-7026 (cell)

[illegible]Sheet #
C10

Drawing File Name:
1stEng_DMASCUS_C10R0.dwg

76 South Main
Street
Akron, Ohio 44308

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1116 WALNUT LANE,
LANSDALE, PA 19446
TEL: 267-250-9931

Engineer's Seal:

[illegible]

Site Info:
10041 Lewis Dr, 20872

Drawing File Name:
1stEng_DMASCUS_C20R0.dwg





*NEW FIRSTENERGY
RADIO ANTENNA COW*

STREET VIEW PHOTO

FirstEnergy

*76 South Main
Street
Akron, Ohio 44308*

Prepared by:



Robert J. Heath PE, LLC

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DRAWING REVISION HISTORY		NO.	DATE	DESCRIPTION
0	2015-12-06	CONSTRUCTION DRAWINGS		

*FIRSTENERGY
RADIO SYSTEM*

Site Name:
Damascus COW

Site Info:
10041 Lewis Dr, 20872

Sheet Title: Sheet #:
Street View Photo C22

Drawing File Name:
1stEng_DMASCUS_C22R0.dwg

76 South Main
Street
Akron, Ohio 44308

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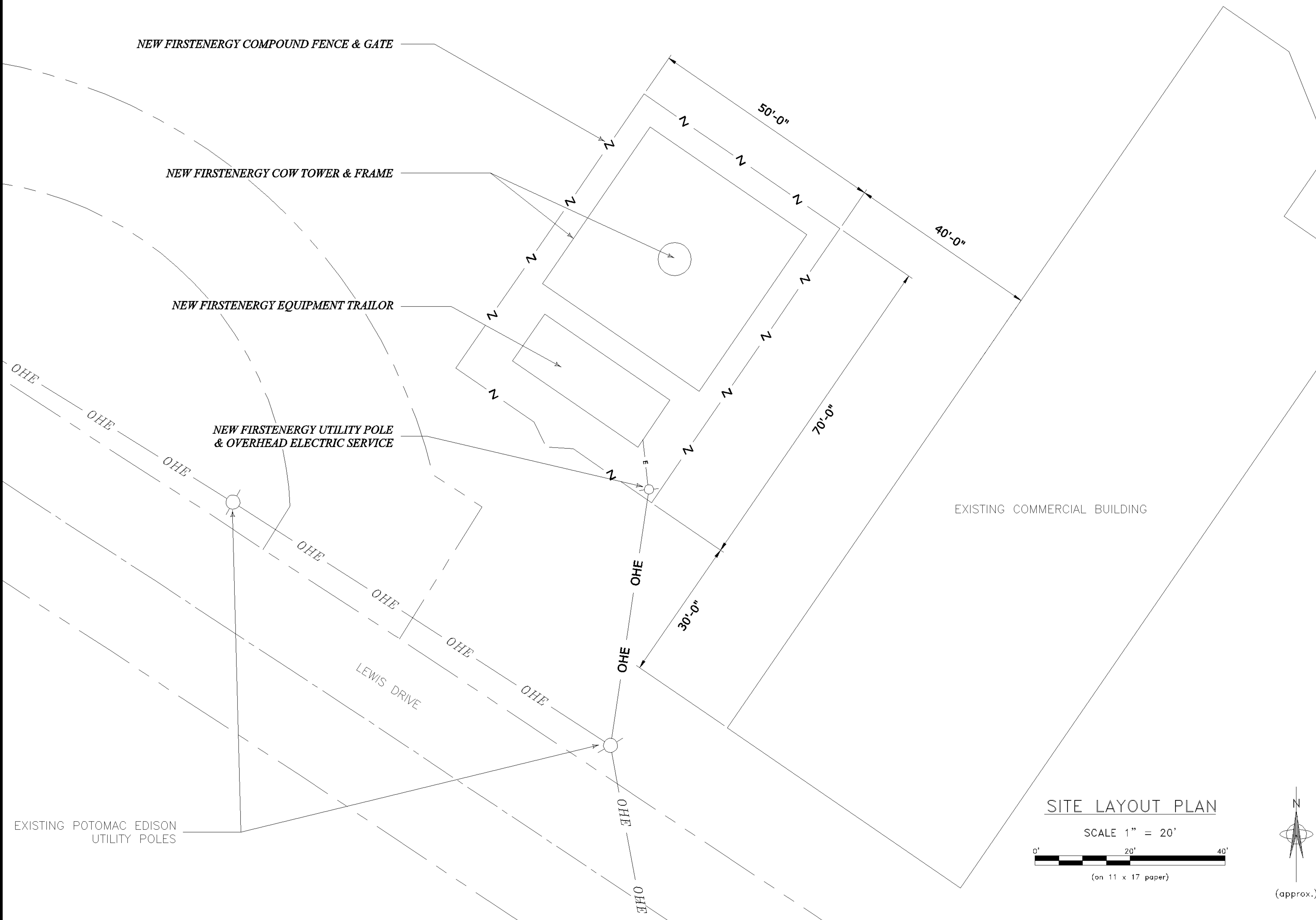
1116 WALNUT LANE,
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Engineer's Seal:

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Site Info:
10041 Lewis Dr, 20872

Drawing File Name:
1stEng_DMASCUS_C30R0.dwg



FirstEnergy
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Prepared by:



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Engineer's Seal:



DRAWING REVISION HISTORY		NO.	DATE	DESCRIPTION
0	2019-12-06	CONSTRUCTION DRAWINGS		

FIRSTENERGY
RADIO SYSTEM

Site Name:
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Site Info:
10041 Lewis Dr, 20872

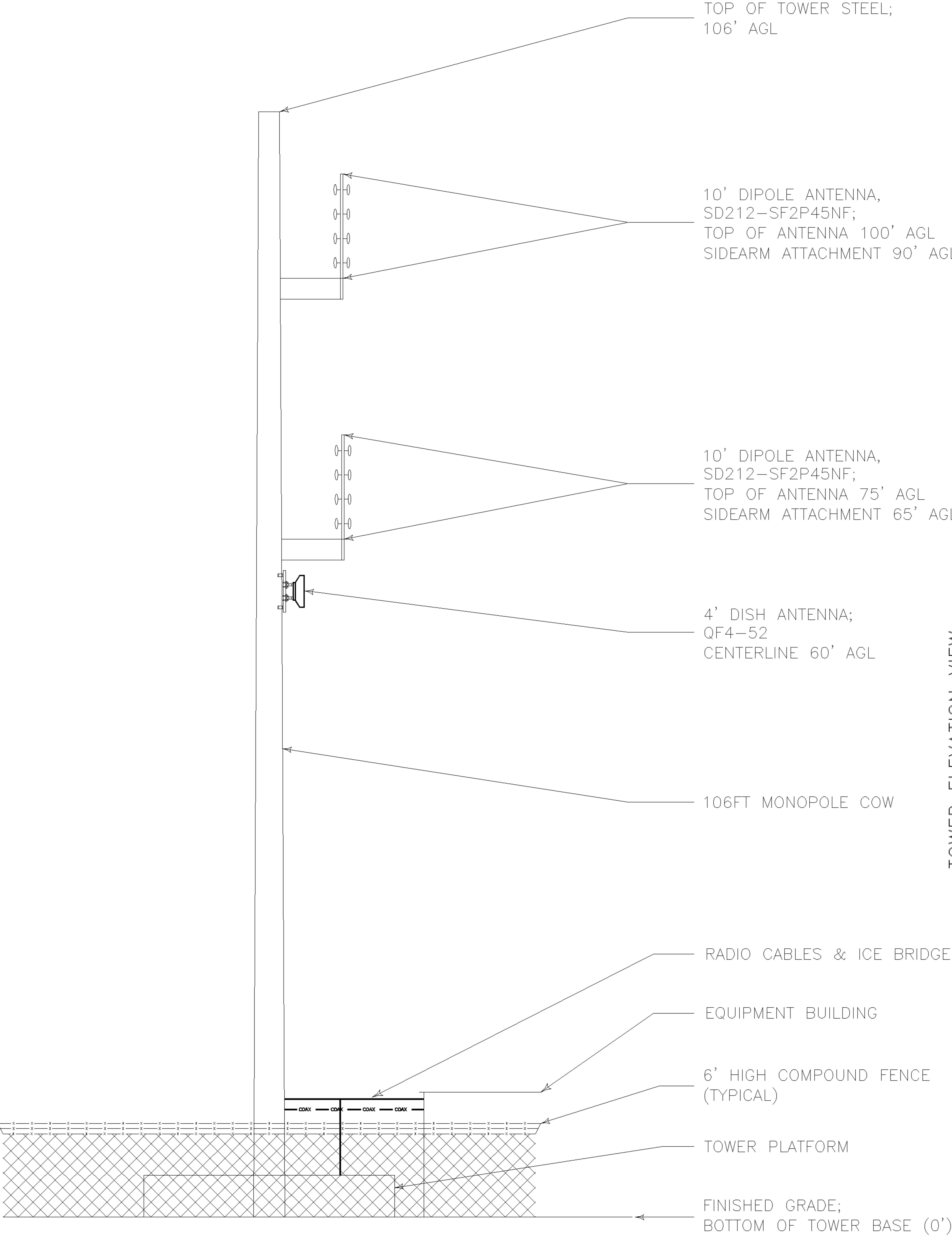
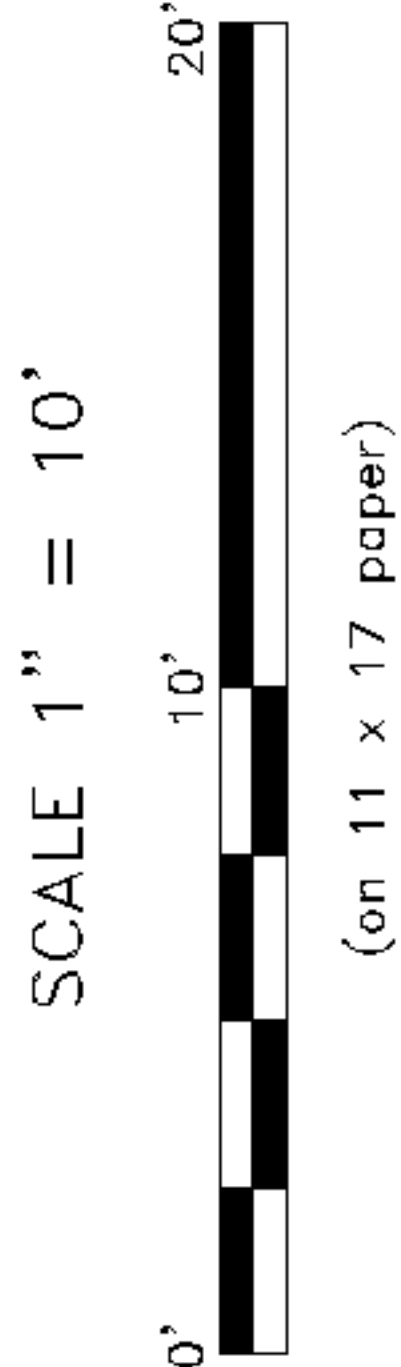
Sheet Title: Tower Elevation View
Sheet #: C61

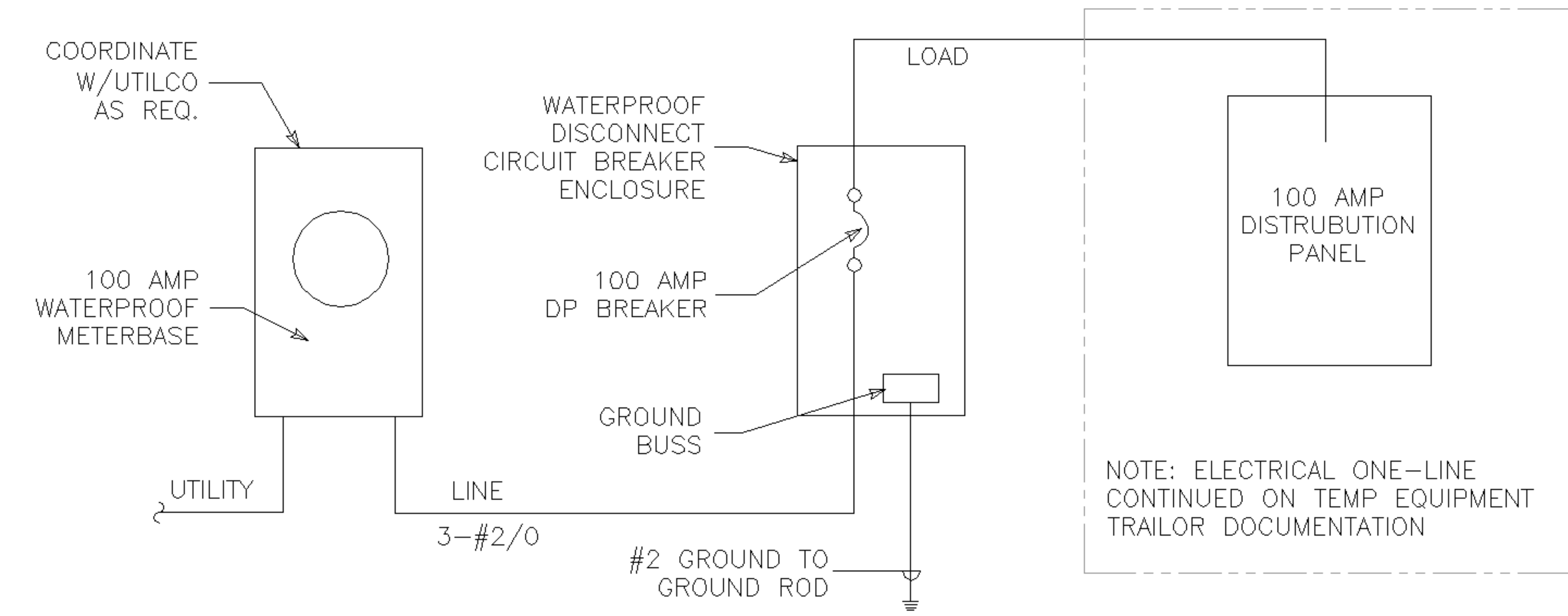
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Note:

ALL PROPOSED ANTENNA SUPPORT STRUCTURES
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ARE TO MEET INDUSTRY STANDARDS ASA/EIA/TIA
222-G AND IBC2015 FOR STRUCTURAL INTEGRITY.

TOWER ELEVATION VIEW

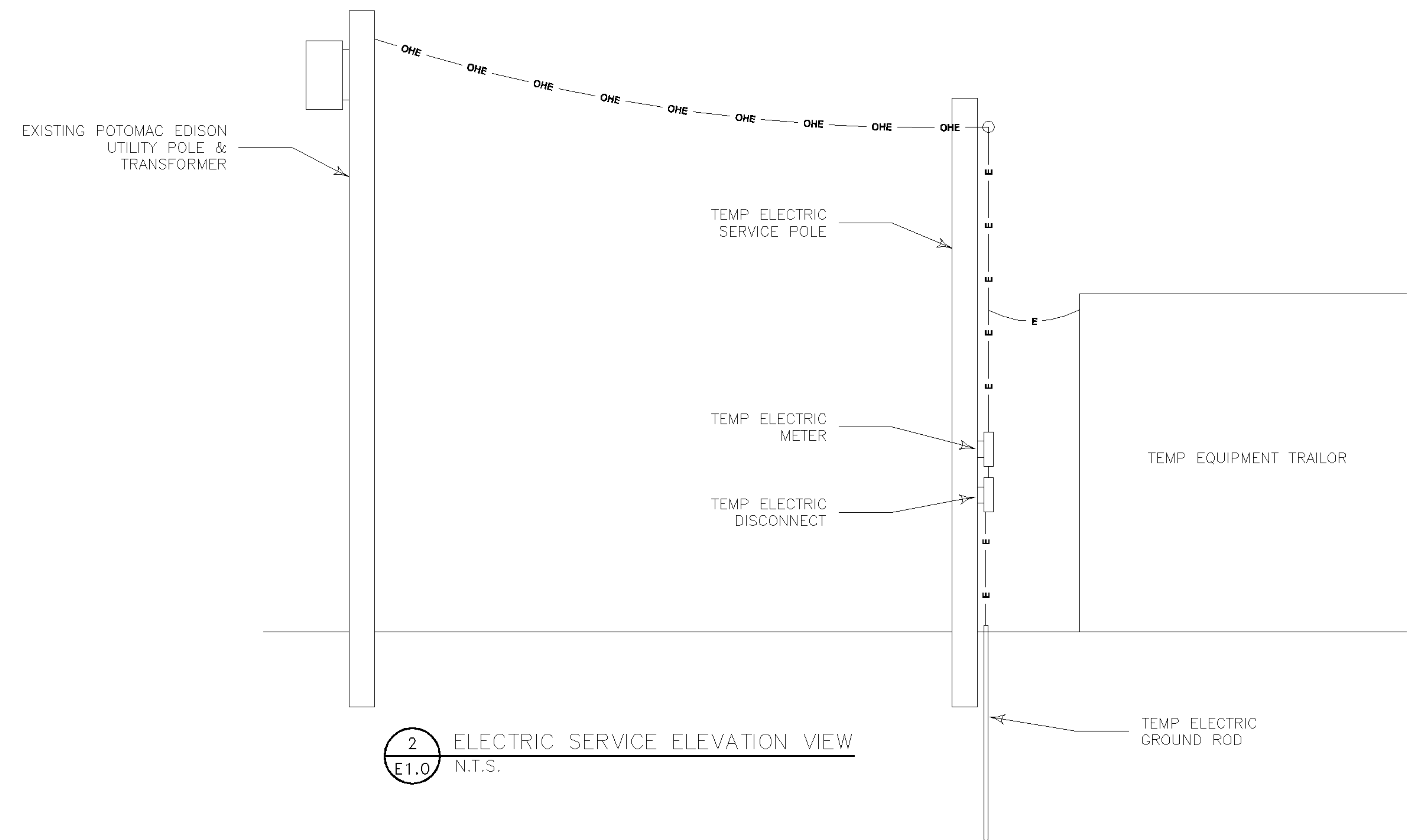




1
E1.0
ELECTRICAL ONE-LINE
N.T.S.

GENERAL NOTE:

ALL WORK SHALL BE IN COMPLIANCE WITH NEC, AND ALL OTHER APPLICABLE CODES AND/OR AUTHORITIES HAVING JURISDICTION.



2
E1.0
ELECTRIC SERVICE ELEVATION VIEW
N.T.S.

FirstEnergy

76 South Main
Street
Akron, Ohio 44308

Prepared by:



Robert J. Heath PE, LLC

1116 WALNUT LANE,
LANSDALE, PA 19446
TEL: 267-250-9931

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Engineer's Seal:



DRAWING REVISION HISTORY		DESCRIPTION	DATE	NO.
		CONSTRUCTION DRAWINGS	2019-12-06	0

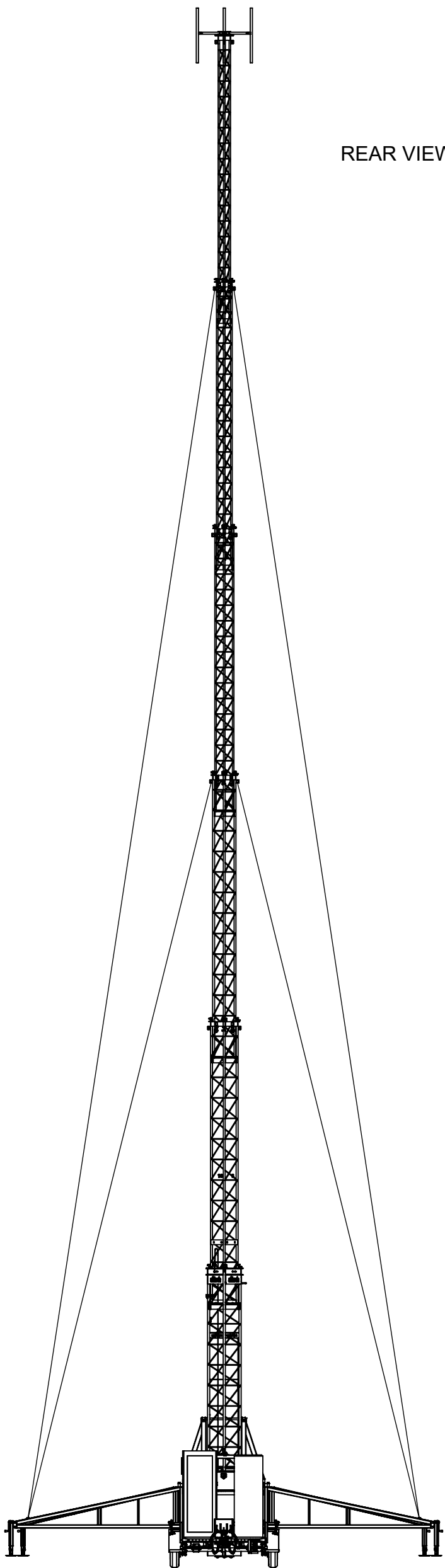
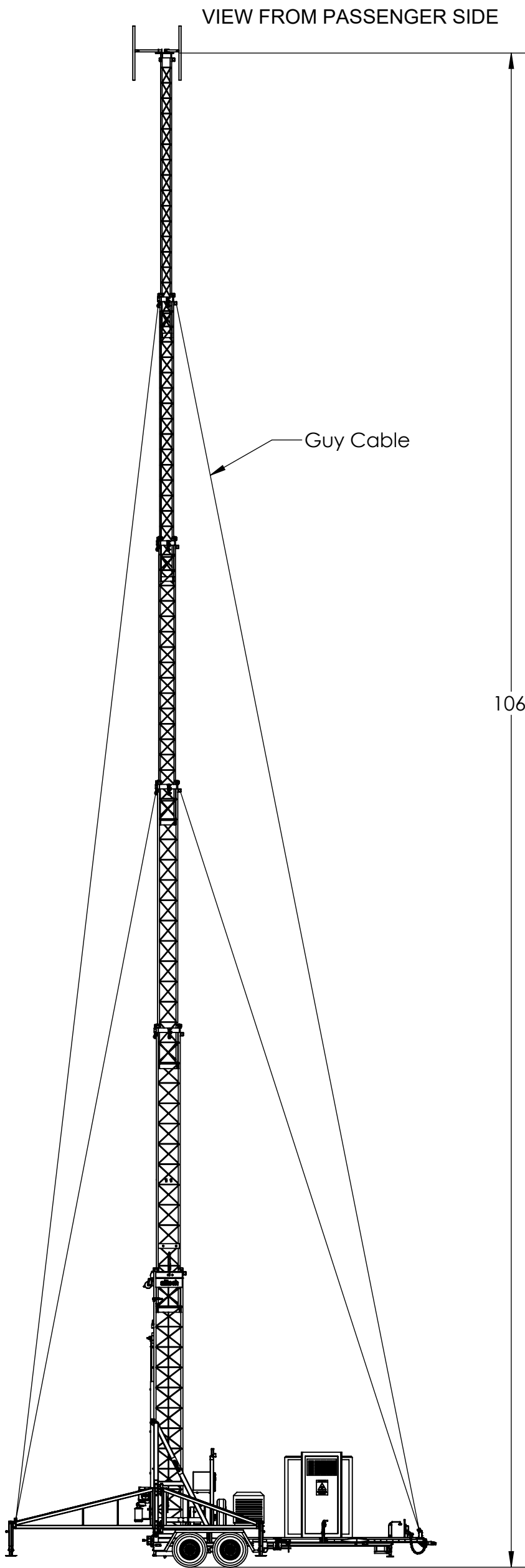
FIRSTENERGY
RADIO SYSTEM

Site Name:
Damascus COW

Site Info:
10041 Lewis Dr, 20872

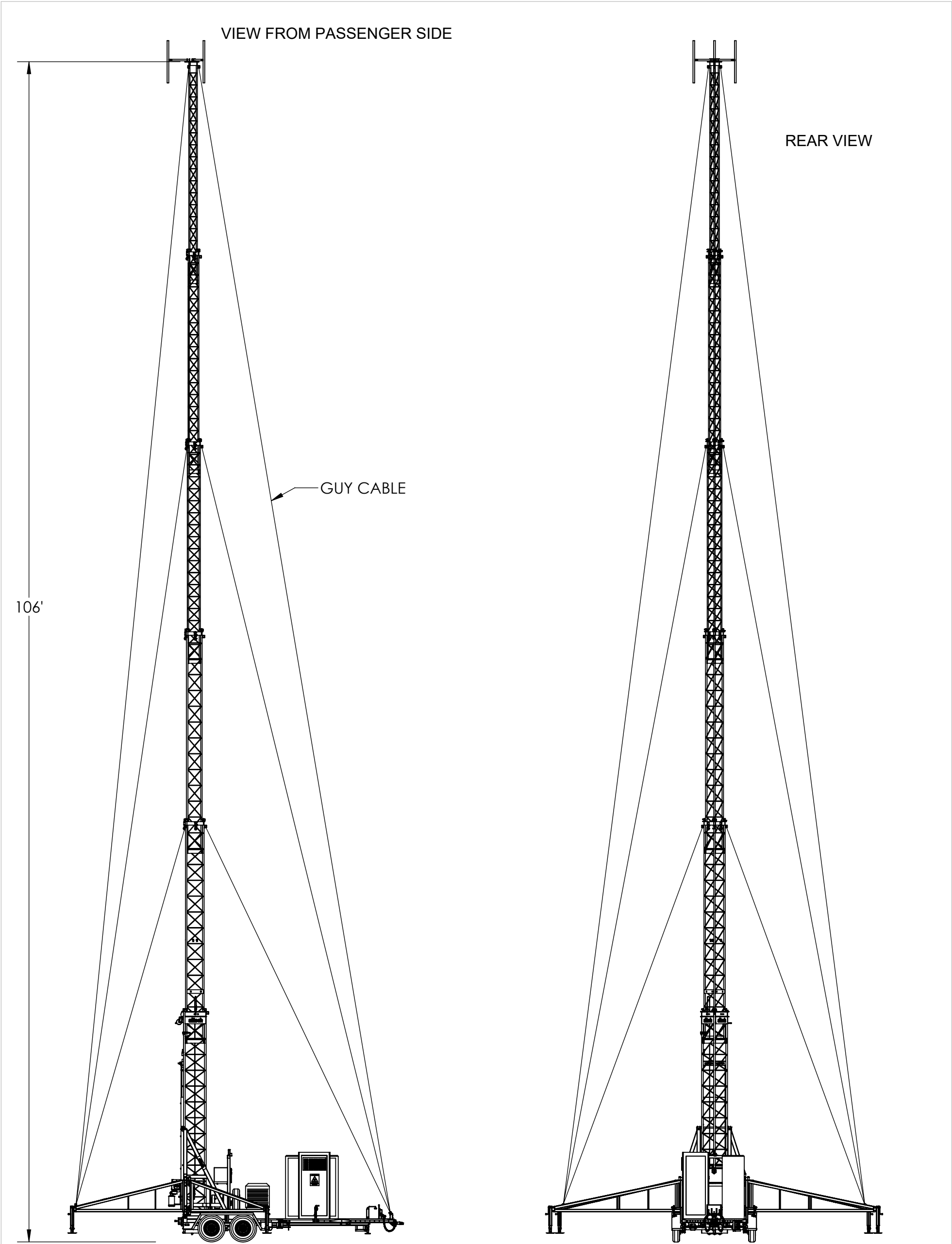
Sheet Title: Electrical Details
Sheet #: E10

Drawing File Name:
1stEng_DMASCUS_E10R0.dwg



DRAWING ONLY FOR PRESENTATION

			UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Alltech Communications, LLC 10 E 3rd St., Ste 300 - Tulsa, OK 74103		
			DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16" ANGULAR: MACH ± 2° BEND ± 2° TWO PLACE DECIMAL ± .030" THREE PLACE DECIMAL ± .005"	DRAWN	NAVEEN	2018-01-07	TITLE: <		



DRAWING ONLY FOR PRESENTATION

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Alltech Communications, LLC 10 E 3rd St., Ste 300 - Tulsa, OK 74103		
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16" ANGULAR: MACH ± 2° BEND ± 2° TWO PLACE DECIMAL ± .030" THREE PLACE DECIMAL ± .005"	DRAWN	NAVEEN	2018-01-07	TITLE: ATC106		
			CHECKED	RRM				
			ENG APPR.	RRM				
			MFG APPR.					
			Q.A.					
		INTERPRET GEOMETRIC TOLERANCING PER:	COMMENTS:			SIZE DWG. NO. REV B		
		MATERIAL						
		-						
		FINISH						
NEXT ASSY	USED ON							
APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:64 WEIGHT: - SHEET 6 OF 7		

App No:

2019111036

Application General Information

Applicant Name	Potomac Edison	Updated	12/3/2019
Application Type	New	Ann. Plan?	No
Carrier	Other	Will site be used to support government telecommunications facilities or other equipment for government use?	No
Solution Type	Macro		
Existing	New	Gvt. Use Desc.	

Application Description

Install a COW, temporary equipment shelter, security fencing and overhead electric service. On the tower, we will be installing a 4ft parabolic dish (Quickfire QF4-52-N) connected to a Carlson Wireless Long Haul TDM unlicensed 5.8GHz radio. The P25 mobile radio system will consist of one each transmit and receive antenna (Sinclair SD214-SF2P4SNF) connect to a filter system and Kenwood TKR-740 repeaters operating in the VHF High band.

Site Information

Site Id	697	Zoning	CRT
Structure Type	Tower	Latitude	39.2909917
Address	10041 Lewis Drive, Damascus, MD	Longitude	-77.2069361
County Site Name	Lewis Dr. COW	Ground Elevation	854
Carrier Site Name	Damascus COW	City	Damascus, MD
Site Owner	Lewis Drive Limited Partnership	Lease Status	In Process
Structure Owner	Pillar Innovations	Does the structure require an antenna structure registration under FCC Title 47	No
Existing Structure Height	0	Distance to Residential Property (New, Replacement, Colocation Only)	460
Provide the proposed height of the replacement structure without any antenna (New, Replacement Apps Only)		Distance to Commercial Property (New, Replacement, Colocation Only)	35

Justification of why this site was selected:

This spot offered a clear, flat area with access to the site already established with a gravel driveway. It would be tucked back off the street with one side screened by a large commercial building and the other by a stand of trees. The elevation, AMSL, was also very advantageous.

Nearby Sites (New, Replacement Apps Only):

Crown Castle monopole on Lewis Drive - offered good height and was in a good location, offered no equipment shelter or means to get off of the tower to one. Water Tower off of Ridge Road - Does not offer a way to provide the needed separation between our Tx and Rx antennas.

Tuesday, December 3, 2019

9:30:07 AM

App No:

2019111036

Screening considerations(New, Colocations, Replacement Apps Only):

Since this is temporary, no screening options were considered

App No:

2019111036

6409 Questions

Does this qualify as a 6409 application? (Minor Mod, Colocations Only)

For towers outside the public ROW will the proposed installation increase the height of the structure by: (1) more than 10% or (2) more than 20 feet, whichever is greater?

Will the proposed installation increase the width by adding appurtenance to the body of the structure that would protrude from the edge of the structure by more than 6 feet?

For towers outside the public ROW will the proposed installation increase the width by adding appurtenance to the body of the structure that would protrude from the edge of the structure by more than 20 feet?

More than four Equipment Cabinets? YN

Will the proposed installation require excavation or expansion outside the current boundaries of the site?

Does the structure or current installation have concealment elements/measures?

No

Will the proposed installation increase the height of the structure by: (1) more than 10% or (2) more than 10 feet, whichever is greater?

If yes, describe how the proposed installation does not defeat the existing concealment.

Small Wireless Facility Informatio

Small Wireless Facility Questions

Small Wireless Facility?

No

Is the structure 10% taller than adjacent structures?

Yes

Cumulative volume of the proposed wireless equipment(s) exclusive of antennas in cubic feet

2.2

Please list adjacent structure heights

Cumulative volume of the proposed antenna antenna(s) exclusive of equipment

Tribal Lands?

No

ROW Information

PROW?

No

Pole Number

ROW owner

ROW width

Tuesday, December 3, 2019

9:30:11 AM

App No:

2019111036

Antenna Information

Antenna Compliance

Compliance Desc

Antenna Location

Antenna Loc. Desc.

Env. Assessment

Cat. Excluded?

Routine Env. Evaluation

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

Antenna Model

Frequency

RAD Center Max ERP Antenna Dimensions Quantity

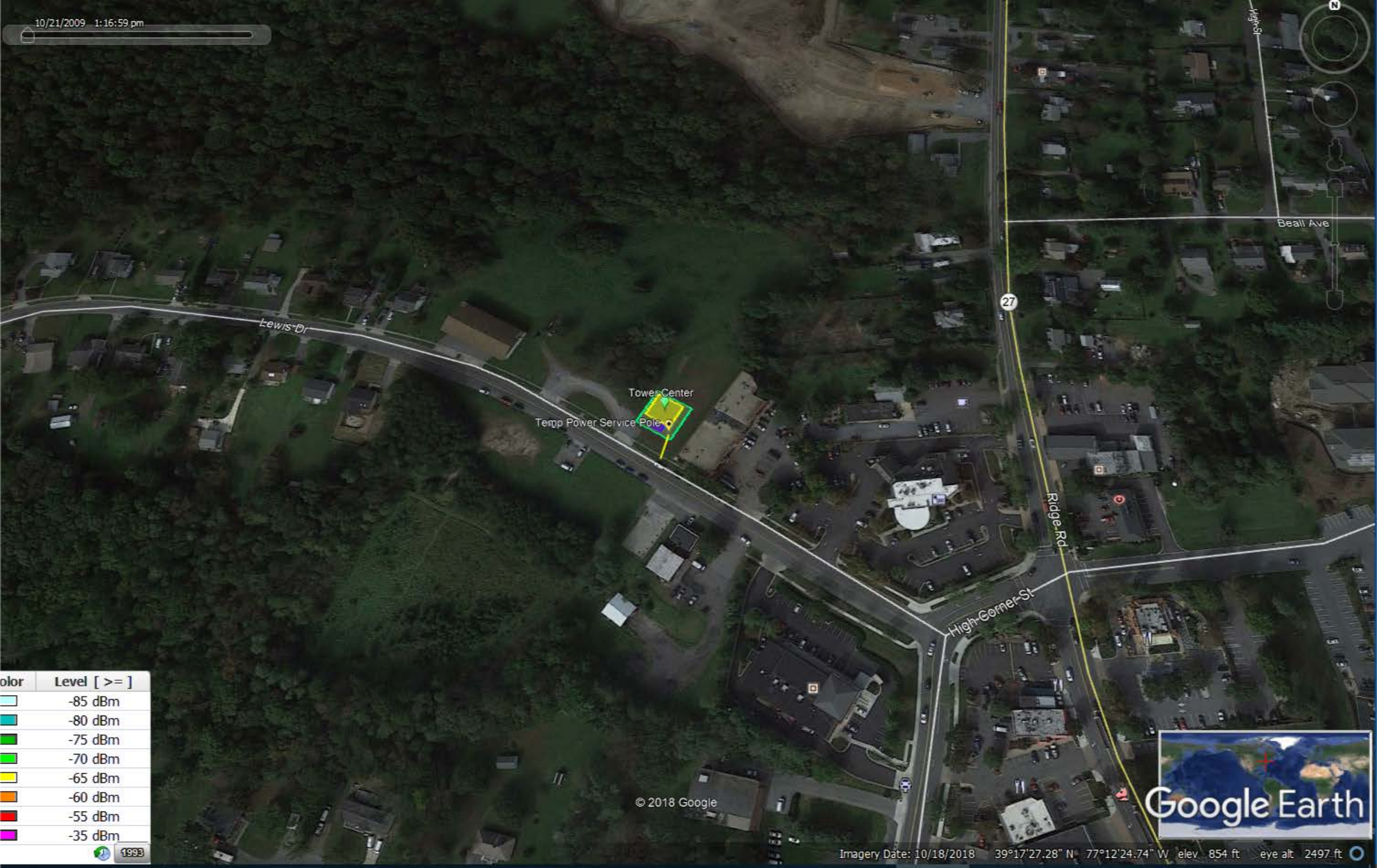
Antenna Model










Frequency

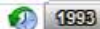
RAD Center Max ERP Antenna Dimensions Quantity

Tuesday, December 3, 2019

9:30:11 AM



Color	Level [>=]
	-85 dBm
	-80 dBm
	-75 dBm
	-70 dBm
	-65 dBm
	-60 dBm
	-55 dBm
	-50 dBm
	-45 dBm



© 2018 Google

Imagery Date: 10/18/2018

39°17'27.28" N 77°12'24.74" W elev 854 ft eye alt 2497 ft





*NEW FIRSTENERGY
RADIO ANTENNA COW*

STREET VIEW PHOTO

5.250 – 5.850 GHz – QuickFire Parabolic

5.250 – 5.850 GHz Parabolic

Features:

- Spread Spectrum – Unlicensed 5GHz Band
- Solids & High Performance.
- mWAVE – Gabriel “Best In Class” Quality and Dependability .
- Type “N” Female connector, 50 ohm.
- **QuickFire™** feeds allow for easy installation and inspection.
- mWAVE – Gabriel antennas meet or exceed Standard ANSI/TIA-222.
- 2-foot (0.6-m) models are supplied with mWAVE – Gabriel’s Patented **Quick Align Mount™**.
- The feed assembly on 2-ft (0.6-m) models is front insertable.



Electrical Specifications

Frequency GHz	Model No.	Pol.	Size		Mnt	Gain, nominal dBi			HPBW Deg.	XPD dB	F/B dB	VSWR max	R.L. dB
			ft.	m		Low	Mid	High					
5.250 – 5.850	QF2-52	LP	2	0.6	QAM	28.1	28.5	29.0	5.6	28	35	1.35:1	16.5 †
	QF2.5-52	LP	2.5	0.8	SM	30.7	31.2	31.6	4.4	28	38	1.35:1	16.5 †
	QF4-52	LP	4	1.2	SM	34.4	34.8	35.3	2.7	28	42	1.35:1	16.5 †
	QF6-52	LP	6	1.8	SM	37.4	37.8	38.3	1.9	28	46	1.35:1	16.5 †
5.250 – 5.850	QFD2-52	DP	2	0.6	QAM	28.0	28.4	28.9	5.6	28	35	1.4:1	15.5 †
	QFD2.5-52	DP	2.5	0.8	SM	30.6	31.3	31.5	4.4	28	38	1.4:1	15.5 †
	QFD4-52	DP	4	1.2	SM	34.3	34.7	35.2	2.7	28	42	1.4:1	15.5 †
	QFD6-52	DP	6	1.8	SM	37.3	37.7	38.2	1.9	28	46	1.4:1	15.5 †

Notes:

- Mount types
 - QAM = Quick Align Mount
 - SM = Standard Mount
- † Improved VSWR (R.L.) available.
- Patents and Trademarks pending.
- Copyright mWAVE Industries LLC – Gabriel Antennas
- QuickFire™** and **Quick Align Mount™** are trademarks of mWAVE Industries LLC - Gabriel Antennas.

SD212-SF2P2SNM(DXX) 2 dipole, 5.0 dBd, bi-directional, 138-174 MHz

Also referred as: SRL210C2NM*2-2

- Covers the entire 138-174 MHz frequency range
- 5.0 dBd gain with bi-directional pattern
- 300 Watt power handling
- Can be top or side mounted (Universal mount)

**Recommend SMK-125-A3 or SMK-125-A7 for Offset Side Mount.
Available from Sinclair separately.**

The SD212 series is a 2-bay exposed dipole antenna designed for applications where moderate gain is required. These premium-quality antennas are well suited to public safety applications.

The design of these antennas provides for coverage from 118 to 225 MHz in 3 sub bands, 118-138 MHz for civil aviation applications, 138-174 MHz for private mobile networks, and public safety, and 220-225 MHz for transportation networks.

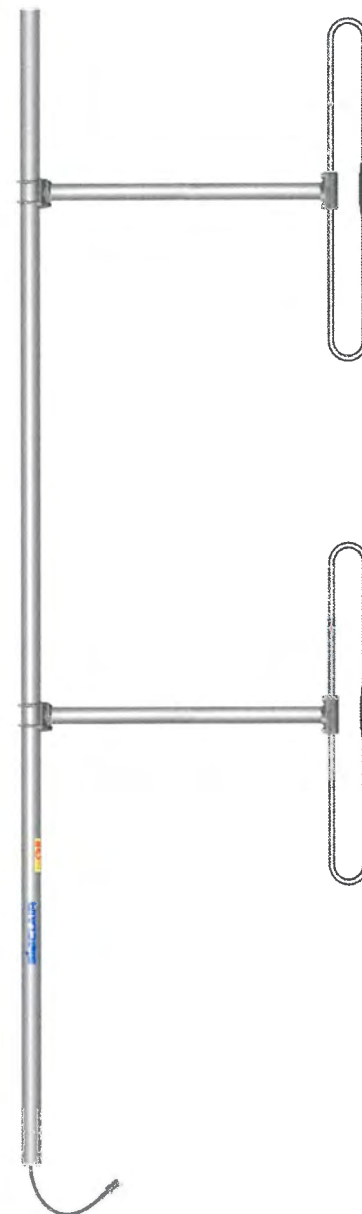
The standard connector offered is N-male which is terminated on a 1 foot cable.

When ordering, please refer to the chart below for the model number. Downtilt configurations are subject to various list price. Please contact your Sinclair Sales Representative or Customer Service Representative for more information.

Model Number	Downtilt
SD212-SF2P2SNM(D00)	0°
SD212-SF2P2SNM(D02)	2°
SD212-SF2P2SNM(D04)	4°
SD212-SF2P2SNM(D06)	6°
SD212-SF2P2SNM(D08)	8°
SD212-SF2P2SNM(D10)	10°

Application Notes

- The SD212 is available with a bi-directional pattern (P2) providing 5.0 dBd gain or with a offset pattern (P4) providing a 5.5 dBd gain (gain varies slightly with frequency).
- Sub bands:
118-138 MHz (F1)
138-174 MHz (F2)
190-225 MHz (F3)



Region	United States	Europe, Middle East and Africa	Caribbean and Latin America	Canada and rest of the world
Telephone	USA: 1 800 263 3275	International: +44 (0) 1487 84 28 19	International: +1 905 726 7676	Canada: 1 800 263 3275 International: +1 905 727 0165
E-mail	salesusa@sinctech.com	salesuk@sinctech.com	salesla@sinctech.com	salescan@sinctech.com
Product Specification Sheet EPR 016865 Customer Tech Manual 005130		SD212-SF2P2SNM(DXX)	Issue: 10	Dated: 06-10-17 Dated: 06-10-17

Electrical Specifications

Frequency Range	MHz	138 to 174
Bandwidth	MHz	36
Connector		N-Male
Gain (nominal)	dBd (dBi)	5 (7.1)
Input VSWR (max)		1.5:1
Polarization		vertical
Impedance	Ω	50
Pattern		Bi-directional
Vertical beamwidth (typ)	degrees	34
Average Power Input (max)	W	300
Lightning protection		DC ground
Electrical tilt (available)		0,2,4,6,8, or 10 degrees

Notes

*1 : Qty 2 required

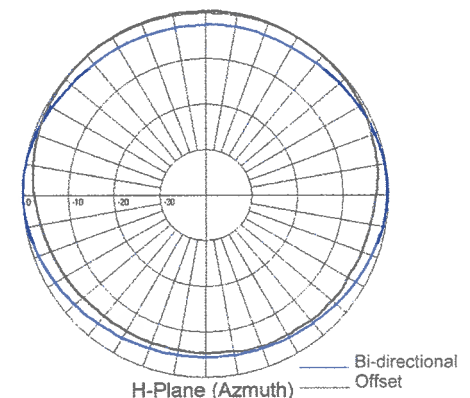
Mechanical Specifications

Width	in (mm)	40 (1016)
Depth	in (mm)	3 (76)
Length/ Height	in (mm)	120 (3048)
Base pipe diameter	in (mm)	1.9 (48)
Base pipe mounting length	in (mm)	36 (914)
Radiating element material		aluminum
Base pipe material		aluminum
Weight	lbs (kg)	22.5 (10.22)
Weight iced (1/2" ice)	lbs (kg)	55 (24.97)
Mounting Hardware (Optional)		Clamp005, Clamp015, or Clamp130
Recommended For Offset Side Mount:		SMK-125-A3 or SMK-125-A7
Mounting configurations		Universal Mount
Actual shipping weight	lbs (kg)	45 (20.43)
Shipping dimensions	in (mm)	124x48x6 (3150x1219x152)

Ordering Information

Clamps must be ordered separately.

When ordering, please refer to the model list on the previous page for specific model numbers and downtilt configurations.



Environmental Specifications

Temperature range	°F (°C)	-40 to +140 (-40 to +60)
Wind Loading Area (Flat Plate Equivalent)	ft² (m²)	2.14 (0.2)
Wind Loading Area (1/2" ice)	ft² (m²)	3.71 (0.34)
Rated wind velocity (no ice)	mph (km/h)	140 (225)
Rated wind velocity (1/2" radial ice)	mph (km/h)	105 (169)
Lateral Thrust (100 mph No Ice)	lbs (N)	77 (342.5)
Torsional moment (100 mph No Ice)	ft-lbs (Nm)	83 (112.1)
Bending moment (100 mph No Ice)	ft-lbs (Nm)	247 (333.5)
Tip deflection (100 mph No Ice)	degrees	1.02

Region	United States	Europe, Middle East and Africa	Caribbean and Latin America	Canada and rest of the world
Telephone	USA: 1 800 263 3275	International: +44 (0) 1487 84 28 19	International: +1 905 726 7676	Canada: 1 800 263 3275 International: +1 905 727 0165
E-mail	salesusa@sinctech.com	salesuk@sinctech.com	salesla@sinctech.com	salescan@sinctech.com
Product Specification Sheet		SD212-SF2P2SNM(DXX)	Issue: 10	Dated: 06-10-17
EPR 016865				Dated: 06-10-17
Customer Tech Manual 005130				

KENWOOD

VHF/UHF FM Repeater-Base Units

TKR-740/840

High-performance features, repeater mode, 32 channel simplex/full-duplex base mode, flash memory, DSP-based tone decoding, PC programmability, PC tuning, interface ports, test ports and programmable auxiliary ports make Kenwood's Systems utilizing the embedded TKR-740/840 receiver-exciter units the first choice for demanding industrial and public service applications.

32 CHANNEL SIMPLEX/FULL-DUPLEX BASE MODE & PRIORITY SCAN

The 32 channel simplex/full-duplex base mode provides a perfect platform for high-end conventional base station systems. The priority scan capability permits multiple channel usage full-time or on command while monitoring a primary dispatch channel. The remote control and programmable ports permit full dispatch console access to all base station controls and functions. The front panel programmable function-keys (PF keys) with status LED's provide full equipment room/on-site control and can be concealed and/or disabled all together. The two-digit LED display provides channel display, operational status, programming status and fault indications.

REPEAT MODE & INTERNAL CONTROLLER

The TKR-740/840 repeater systems possess all the remote control, programmability and site control attributes as in base mode. Front panel PF key functions as Takeover (remote disable), TX Disable and Repeat On/Off can be assigned for site setup and maintenance use.

The internal conventional repeater mode supports up to 16 user groups (16 QT/DQT) using Digital Signal Processing techniques. This also supports the traditional CW-ID, time-out timer, hang time, reverse burst squelch tail elimination, etc., repeater operations. The internal controller can be bypassed and an external conventional or trunking logic controller option used in its place.

MULTI-TONE/CODE TABLES & DSP PROCESSING

There are 16 programmable multi-tone/code tables each with 16 QT/DQT tone/code pairs that can be assigned on a per channel basis. This provides multi-channel base stations up to 16 users groups per channel. This feature can also be used for fail-safe standby base or repeater units that can be activated into use in the event of a system failure (additional fail-safe systems engineering and components required).

LOW PROFILE DESIGN AND DIE-CAST CHASSIS

The low profile design saves site rack for other system components on multi-channel base systems and repeaters. The all metal encased panels and die-cast chassis with integrated heat sink are key to the TKR-740/840's durability, superior service level and reduced weight. The unit is sealed to provide long-term protection from dust, moisture and foreign ingress even in the most abusive operating conditions.

AUXILIARY MACRO PORTS

The 25-pin D-Sub controller interface port also provides six AUX Outputs and three AUX Inputs. The AUX Outputs are software programmable with functions such as PLL unlock, transmit sense, supply voltage sense, RSSI, exciter temperature, etc., for site monitoring equipment and backup power and environmental systems. These AUX Outputs are programmable for active high or low and can be controlled by the AUX Input ports using signals from remote console termination panels or site control equipment. The AUX Inputs are programmable active high or low and can be programmed for any front panel PF function, perform direct channel access or AUX Output port control (turned on, turned off or toggled on/off the AUX output). Each AUX input has a "macro" capability and can control up to three AUX Output ports simultaneously. The 12-pin accessory connector has 5 macro-capable AUX I/O ports that are programmable for either AUX Input or Output functions.



CONTINUOUS DUTY/HIGH STABILITY RF POWER OUTPUT

The 100% duty cycle, 1.5 PPM high stability RF power output is continuously adjustable from a 100 mw to 5 W. The filtered impedance-matched output is the heart of the TKR-7400/8400 Series systems as the exciter stage for high-power systems or for direct output low power applications.

FLASH MEMORY ADVANTAGE

Flash memory permits updates, advanced feature sets and system architectural changes to be made electronically without ever opening the unit. This means faster modifications for system operators and less downtime for users.

LED INDICATORS

The LED indicators provide clear system status information at a glance, including transmit, receive, external standard input and power. If the transmitter or receiver synthesizer become unlocked, the LEDs flash for quick problem assessment.



WIDE/NARROW CHANNEL SPACING

The TKR-740/840 are programmable for wide/narrow channel spacing* on a per channel basis (TKR-740: 25 (30) kHz wide/12.5 (15) kHz narrow; TKR-840: 25 kHz wide /12.5 kHz narrow). The enhanced synthesizer PLL channel step programmability accommodates channel allocations now and in the future.

*Both models operate with no less than 25 kHz wide and 12.5 kHz narrow channel bandwidth.

PC PROGRAMMING AND TUNING

The TKR-740/840 can be programmed/tuned quickly and efficiently without ever opening the case. Programming/tuning can be done through front panel microphone/handset jack with the KPG-47D software, KPG-46 interface cable, and any PC-compatible computer. The same can also be done via the rear panel 25-pin connector. The PC tuning parameters available are shown below:

- | | |
|----------------------------------|------------------------------|
| ■ Squelch (Analog/RSSI) | ■ Signaling Deviation (TD) |
| ■ RX audio signal output (RA) | ■ Signaling balance |
| ■ RX detector signal output (RD) | ■ DQT deviation |
| ■ RF output power | ■ DQT deviation |
| ■ Maximum Deviation | ■ Test tone deviation |
| ■ TX audio input (TA) | ■ CW ID deviation |
| ■ Remote TX audio input (RTA) | ■ Repeat gain |
| | ■ Voting tone level |
| | ■ Digital pager shift level |
| | ■ Digital pager wave balance |

Manual tuning is available for the following settings: RX helical resonator block bandwidth, MCF waveform, Quad detector coil, and MIC sensitivity.

EXTERNAL REFERENCE INPUT

The internal oscillator already provides an excellent ± 1.5 PPM stability figure, but for more demanding applications such as simulcast or paging systems, you can inject an external oscillator standard to obtain a much higher stability factor. The "REF" LED on the front panel changes from green to red when the external signal is applied.

LOCAL SPEAKER & MICROPHONE/TEST SWITCH

The built-in front panel speaker provides excellent audio for on-site monitoring and can be controlled via the volume on/off knob. The TEST switch allows you to activate the transmitter and the supplied hand microphone for air checks and the Intercom function.

OTHER FEATURES

- COMPANDED AUDIO
- EIGHT CW MESSAGE MEMORIES
- VOTER TONE GENERATION
- DIGITAL PAGING ENCODER INPUT (bi-level type; e.g. POCsAG)
- VOICE SCRAMBLER PORT/CONTROL



Options

KMC-27A

Microphone (with Noise Canceling)



KMC-27B

Microphone (supplied mobile-style hand mic. with hanger)



KMC-9C

Desktop Microphone



KES-4

External Speaker



* Not all accessories may be available, please contact dealers for details.

Specifications

	TKR-740	TKR-840
GENERAL		
Frequency Range	R X Type 1: 146 - 162 MHz Type 2: 158 - 174 MHz Type 3: 136 - 150 MHz T X Type 1: 136 - 174 MHz Type 2: 136 - 174 MHz Type 3: 136 - 174 MHz	R X Type 1: 450 - 480 MHz Type 2: 480 - 512 MHz Type 3: 400 - 430 MHz T X Type 1: 450 - 480 MHz Type 2: 480 - 512 MHz Type 3: 400 - 430 MHz
Number of Channels	32	
Channel Spacing	30, 25 kHz (wide) 15, 12.5 kHz (narrow) (PLL channel stepping 2.5, 5, 6.25 kHz)	25 kHz (wide) 12.5 kHz (narrow) (PLL channel stepping 5, 6.25 kHz)
Operating Voltage	13.8 V DC $\pm 15\%$	
Current Drain	Less than 1.0 A	
Standby	Less than 1.5 A	
Receive	Less than 3.5 A	
Transmit/Receive	Less than 3.5 A	
Duty Cycle	Receive: 100%, Transmit: 100%	
Frequency Stability	$\pm 0.00015\%$ (-22°F - $+140^{\circ}\text{F}$)	
Operating Temperature Range	-22°F - $+140^{\circ}\text{F}$ (-30°C - $+60^{\circ}\text{C}$)	
Dimensions (W x H x D)	19 x 1-3/4 x 12 in. (483 x 44 x 305 mm)	
Weight (net)	8.8 lbs. (4kg)	
FCC ID	Type 1: ALH30633110 Type 2: ALH30633120 Type 3: ALH30633130	Type 1: ALH30643110 Type 2: ALH30643120 Type 3: ALH30643130
FCC Compliance	Type 1: 22, 74, 90 Type 2: 90 Type 3: 90	Type 1: 22, 74, 90, 95 Type 2: 90 Type 3: 90
CANADA IC (RSS119)	Type 1: 282195598A Type 2: 282195598A Type 3: 282195598A	Type 1: 282195600A Type 2: None Type 3: 282195600A

	TKR-740	TKR-840
RECEIVER (Measurements made per EIA/TIA-204-D)		
Antenna Impedance	50 Ω	
Sensitivity:	0.3 μV 0.4 μV	
12 dB SINAD		
20 dB quieting		
Selectivity	95 dB at ± 30 kHz (wide) 89 dB at ± 15 kHz (narrow) 87 dB at ± 12.5 kHz (narrow)	90 dB at ± 25 kHz (wide) 82 dB at ± 15 kHz (narrow)
Intermodulation	90 dB at ± 30 , 60 kHz (wide) 85 dB at ± 15 , 30 kHz (narrow)	85 dB at ± 25 , 50 kHz (wide) 80 dB at ± 12.5 , 25 kHz (narrow)
FM Hum & Noise	60 dB (wide) 55 dB (narrow)	
Audio Output (Ext. Speaker)	4 W (at 4 Ω , less than 5% distortion)	
Spurious & Image Rejection	100 dB	
Audio Distortion (Ext. Speaker)	Less than 2% at 1000 Hz	
Band Spread	Type 1: 3 MHz Type 2: 3 MHz Type 3: 3 MHz	Type 1: 5 MHz Type 2: 5 MHz Type 3: 5 MHz

	TKR-740	TKR-840
TRANSMITTER (Measurements made per EIA-152-C)		
RF Power Output	5 W adjustable to 0.1 watts	
Antenna Impedance	50 Ω	
Type of Emission	16K0F3E (wide) 11K0F3E (narrow)	
Spurious & Response	70 dB	70 dB (60 dB at 100 mW)
FM Hum & Noise	55 dB (wide) 50 dB (narrow)	
Microphone Impedance	600 Ω	
Audio Distortion	Less than 0.5% at 1000 Hz	Less than 1% at 1000 Hz
Band Spread	Type 1: 38 MHz Type 2: 38 MHz Type 3: 38 MHz	Type 1: 30 MHz Type 2: 32 MHz Type 3: 30 MHz

	TKR-740	TKR-840
REPEATER CONTROL (Measurements made per TIA/EIA-603)		
Signaling (simultaneously)	16	
Maximum number of tones		
QT decoder/encoder	67.0-210.7Hz (0.1 Hz step)	
Tone frequency	250 ms or less	
Response time	140 to 200 ms	
Squelch tail elimination time	$\pm 0.3\%$ or less	
Encoder frequency error	SINAD 8 dB or less	
Sensitivity		
DQT decoder/encoder	23 bits total: a 3-digit octal number (0-7, 12 bits) with error correction (11 bits)	
DQT code	250 ms or less	
Decoder response time	140 to 200 ms	
Turn-off code	SINAD 8 dB or less	
transmission time		
Sensitivity		
Time-out timer	Off - 30 min.	
Repeater hold time	Off - 10 sec.	

	TKR-740	TKR-840
EXTERNAL CONTROL		
CW ID	Maximum deviation of 40% $\pm 10\%$	
Maximum modulation	400 Hz to 2000 Hz, (default 800 Hz)	
CW tone frequency	5 to 30 word per minute, (default 20 WPM)	
Morse code speed	Up to 20 characters	
Maximum character memory		
CW Message	Up to 20 characters per bank	
Maximum character	8 banks	
Number of bank		
Test tone	Maximum deviation of 60%	
Maximum modulation	300 Hz to 3000 Hz (default 1000 Hz)	
Test tone frequency		
Voting pilot tone	1950 Hz, 2175 Hz, 2700 Hz, (default 1950 Hz)	
Tone frequency	400 mVrms at 1950 Hz	
Output level (RA terminal)		

Kenwood follows a policy of continuous advancement in development.
For this reason specifications may be changed without notice.

KENWOOD CORPORATION

14-6, 1-chome, Dogenzaka, Shibuya-ku, Tokyo 150-8501, Japan

KENWOOD COMMUNICATIONS CORPORATION

P.O. BOX 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745, U.S.A.

KENWOOD ELECTRONICS CANADA INC.

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CARLSON
WIRELESS TECHNOLOGIES

BROADBAND AND VOICE PRODUCTS



LongHaul™ TDM Series

EASY-TO-USE BACKHAUL RADIOS GO THE DISTANCE

The LongHaul™ TDM Series of Ethernet and T1/E1 bridges provides unparalleled range, signal strength, reliability and capacity while still remaining affordable and easy to use. Carlson's revolutionary SWiFT™ synchronous platform allows LongHaul™ TDM Series radios to operate as point-to-point IP bridges that eliminate packet collisions, optimizing wireless voice and data communications.

An optional T1/E1 interface makes it possible to backhaul multiple carrier-class T1s with wayside Ethernet.

APPLICATIONS:

- Public Safety Networks
- WISP Networks
- VoIP PBX Links
- Cellular Backhaul
- Remote Equipment Monitoring
- Remote Video Surveillance
- Disaster Restoration Communications
- Rural Broadband
- Streaming Media
- UDP Intensive Applications
- SCADA polling
- SmartGrid
- Substation Isolation & Control
- Distributed Generation
- WiMax Backhaul

The SWiFT™ radio platform performs with ultra-low fixed latency to meet the speed and precision requirements of today's critical telecommunications, public safety and utilities networks. LongHaul™ TDM Series radios support TDM to IP migration, making this series both legacy-compatible and future-proof. High performance features and unparalleled range capabilities, combined with ease of installation and an extremely easy to use GUI, make the LongHaul™ TDM Series the most flexible, affordable and truly interoperable microwave backhaul solution available.

FEATURES:

Powerful and Flexible Throughput

- Up to 108 Mb/s CSMA or 32 Mb/s TDM throughput per link
- Range of 60+ miles (96 km)
- Low fixed latency (bounded delay)
- Synchronous transmission structure

Fast Deployment and Easy Network Control

- Self configures MAC addresses, encryption and SSIDs
- Simple Alignment System (SAS)

Equipment, Network and Environmental Monitoring

- Monitor status and control radios from anywhere
- User configurable alarms via GUI or e-mail
- Integrated power and temperature monitoring capabilities (rack mount models only)

Low Power Use for Remote Applications

- Power consumption 6 to 8 watts
- Easily solar powered using 12 to 24 volt power supply

Built Rugged for Extreme Weather and Industrial Applications

- IP67 rated ODU with highest level lightning protection
- Optional extended temperature range from -40°C to +60°C
- Hazardous location and explosion proof enclosures are also available
- Solid aluminum indoor rackmount (IDU) available

Security and Encryption

- Secure 64, 128 and 152 bits WPA and AES encryption

US/International Frequency Plans

- Carlson Wireless radios are available in a wide range of US licensed and unlicensed frequencies, including 4.9 GHz and 5x GHz.
- International frequencies are also available.



Carlson Wireless Technologies, Inc.
2700 Foster Avenue
Arcata, CA 95521

T: 707.822.7000
F: 707.822.7010
E: info@carlsonwireless.com



Made in the U.S.A.


CARLSON
WIRELESS TECHNOLOGIES

BROADBAND AND VOICE PRODUCTS

LongHaul™ TDM Series

USER DATA THROUGHPUT

Data Throughput (IP Mode)	60+ Mb/s asymmetric throughput in CSMA (802.11a/n)
Data Throughput (TDM Mode)	16/32 Mb/s symmetric throughput in TDM
Over the Air Data Rate	Up to 108 Mb/s per radio

RF PERFORMANCE

Frequency Bands Supported	2.4, 3.65, 4.9, 5.1-5.2, 5.7-5.8, and 5.9 GHz
RF Channel Width	5/10/20/40 MHz
Modulation	OFDMA - BPSK, QPSK, 16QAM, 64QAM
Tx Power 6-2	4 Mb/s +23 dBm, 54 Mb/s +18 dBm
Receiver Sensitivity	54 Mb/s -72 dBm, 48 Mb/s -77 dBm, 36 Mb/s -82 dBm, 24 Mb/s -85 dBm, 18 Mb/s -89 dBm, 6 - 12 Mb/s -90 dBm
Duplexing	TDD (Time Division Duplexing)
End-to-End Latency	CSMA (IEEE 802.3+ propagation) or TDM @ 5 or 2.5 ms
Range	60+ miles without repeaters (96 km)

ENVIRONMENTAL

Ingress Protection	IP67 (dust tight, 1 m water immersion)
Outdoor Unit Temperature	-40°C to 60°C
Outdoor Unit Humidity	Up to 100% humidity (non-condensing)
Indoor Unit Temperature	-20°C to 45°C
Indoor Unit Humidity	Up to 90% humidity (non-condensing)
Safety	UL 60950, CAN-CSA C22.2 60950, EN 60950, IEC 60950
EMC	FCC 47CFR class B part 15, subpart B, CAN/CSA-CEI/IEC CISPR 22-02, EN300 386, EN301 489, EN55022, EN61000, EN55024, AS/NZS CISPR 22
Environmental	IEC 60721 class 4M5 IP67

ETHERNET INTERFACE

Type	10/100 BaseT with Auto-negotiation
Number of Ethernet Ports	1 data port and 1 management port
Framing/Coding	IEEE 802.3/U
Bridging	Self-learning up to 2047 MAC addresses
Connector	RJ-45
QoS Services	WME - Prioritizes traffic according to voice, video, best effort and background

NETWORK MANAGEMENT INTERFACE

User Interface	Browser based access via Ethernet port w/Flash GUI
Setup and Alignment	Audio tone varies with signal strength
Protocol	HTTPS
Upgrade Capabilities	Local and remote software upgrades
Telemetry Alerts Mechanism	Email and GUI
Diagnostics	Local and remote loopback testing
Management Port	DHCP based
Configuration Management	Sys. Built-in w/full history
Voltage Input/Monitoring	Range 9-56 V at $\pm 3\%$
Temperature Monitor Range	-40 to 124°C at $\pm 2^\circ$
Programmable Alert System	Email and GUI

SECURITY

Security Mechanism	WPA2 PSK
Encryption	AES (NIST/FIPS 140-2 compliant), WEP, WEP2, WPA, AES-128, 64, 128, 152 -bit WEP data encryption

POWER SUPPLY

Voltage	100-240 VAC, -24 VDC or -48 VDC optional
Power Consumption	6 - 8 watts typical, ODU with IDU-E

PHYSICAL/MECHANICAL

ODU	POE injector connects via outdoor CAT-5e cable (300 ft max length) to the Outdoor Unit containing the LongHaul radio with either N connector or an integrated panel antenna.
IDU	Standard 1u rack enclosure with N connector

ODU INTEGRATED ANTENNA

Gain	23 dBi
Beamwidth	8°
Polarization	Vertical or Horizontal

DIMENSIONS AND WEIGHTS

ODU Dimensions (HxWxD)	15.5" x 15" x 4"
ODU Weight	4 lb 8.5 oz
IDU Dimensions	1.75" (1 EIA unit) x 19"x6"
IDU Weight	1 lb 1.6 oz



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2700 Foster Avenue
Arcata, CA 95521

T: 707.822.7000
F: 707.822.7010
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Updated 12.12.14



Made in the U.S.A.

ACCESS AGREEMENT

This Agreement ("Agreement") is entered into as of the _____ day of _____ 2019, between **THE POTOMAC EDISON COMPANY**, a Maryland and Virginia corporation, with an address at 10802 Bower Avenue, Williamsport, MD 21795 ("POTOMAC EDISON"), and **LEWIS DRIVE LIMITED PARTNERSHIP**, a Maryland limited partnership, with an address of 10041 Lewis Drive, Damascus, MD 20872 ("Owner").

1. Statement of Purpose. POTOMAC EDISON is accessing Owner's parcel of land comprising of an approximate sixty by sixty (60' x 60') foot area for the purpose of erecting a temporary communications tower and electric distribution line consisting of poles, wires, guy wires, anchors and other incidental equipment and fixtures as deemed necessary, also the right to place an office trailer to be used as an equipment shelter and the right to construct and enclose with an appropriate fence. Located in the city of Damascus, Montgomery County, State of Maryland, as further shown on Exhibit "A", attached hereto and made a part hereof (the "Property"), with such personnel and equipment as POTOMAC EDISON may deem necessary or convenient.

2. Right of Access. Owner, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, grants to POTOMAC EDISON a temporary license for a period of seven (7) months, ("Initial Term") commencing on the date of December 1, 2019 and extending through June 30, 2020, to enter upon the Property for the sole purpose set forth above, and for no other purpose, and subject to the terms and conditions as set forth herein. Prior to the end of the Initial Term, POTOMAC EDISON shall have the option to notify Owner, in writing, of POTOMAC EDISON'S intent to extend the term of the Agreement and continue on a month-to-month basis ("Extended Term").

3. Consideration. Consideration for the Initial Term shall be paid in advance in the amount of Nineteen Thousand Six Hundred Dollars (\$19,600.00). Consideration for the Extended Term shall be paid at a rate of Three Thousand Dollars (\$3,000.00) per month for each month the Agreement is continued in effect up to a period of one year, November 30, 2020. Escalation clause will commence after one year anniversary of 2.5 percent and continue each year thereafter.

4. Obligations.

- a. As of the date of December 1, 2019, POTOMAC EDISON shall have the right to enter upon the Property for the purpose set forth above.
- b. POTOMAC EDISON may bring equipment and accessories onto the Property as may be required for the purposes set forth above, provided that all such equipment and accessories shall be maintained and operated in compliance with all applicable laws and regulations.
- c. POTOMAC EDISON, its agents, contractors and other parties acting on behalf of or in conjunction with POTOMAC EDISON, may conduct such tests, borings or investigations as it deems necessary during the term of this Agreement, including, but not limited to, environmental tests, borings or samplings.

- d. POTOMAC EDISON agrees to pay for all labor and materials used upon the Property and shall save Owner harmless from any lien, or claim of lien, in respect thereto.
- e. POTOMAC EDISON shall, at all times relevant hereto, comply with all applicable laws, rules and regulations. POTOMAC EDISON, at its own expense, shall obtain all necessary permits, licenses and approvals in connection with its assessment of the Property.
- f. POTOMAC EDISON shall take all reasonable steps to preserve and to avoid damage to the Property. POTOMAC EDISON shall repair or replace Owner's buildings, driveway, structures, or other real or personal property damaged by POTOMAC EDISON.
- g. Following completion of all work to be conducted by POTOMAC EDISON on the Property, POTOMAC EDISON shall restore the Property to its former condition, including but not limited to, filling all coreholes, grading and/or compacting soil, reseeding, replanting and other landscaping.
- h. Upon completion of all work to be conducted by POTOMAC EDISON shall remove from the Property all of POTOMAC EDISON's equipment and appurtenances at its sole expense and leave the Property in as good order and condition as existed prior to the commencement of work by POTOMAC EDISON.
- i. POTOMAC EDISON will be responsible for all communications with the property owners along Lewis Drive and the greater Damascus community about the project and will handle all public inquiries concerning the project.

5. Release of Liability. POTOMAC EDISON shall enter the Property at its own risk, and hereby releases Owner from any and all claims for damages and liability arising out of POTOMAC EDISON 's use of or entry onto the Property under this Agreement, except for willful or negligent acts of Owner.

6. Indemnity. POTOMAC EDISON hereby releases and agrees to indemnify and hold harmless Owner from and against any and all claims, damages, actions or causes of action asserted by any person or persons for bodily injury, including death at any time resulting therefrom, damage to or loss or destruction of personal property, or damage to or loss or destruction of real property, resulting from or arising out of POTOMAC EDISON's entry, presence, work, maintenance, equipment, and personnel on the Property during the term of this Agreement, except that POTOMAC EDISON shall have no liability for losses solely resulting from or arising out of the negligent, willful or wanton acts or omissions of Owner, nor shall POTOMAC EDISON's actions relative to this Agreement, except as expressly provided for herein, create any obligations for POTOMAC EDISON .

7. Owner shall have the option to terminate the Agreement at any time during the Extended Term upon providing 90-day advance written notice to POTOMAC EDISON. No later than thirty (30) days after providing such notice to POTOMAC EDISON, Owner shall return to

POTOMAC EDISON prepaid consideration (if any) allocable to any period on or after the termination date.

8. This Agreement shall be governed by, construed, and interpreted in accordance with the laws of the state of Maryland.

IN WITNESS WHEREOF, this Agreement is executed as of the date first above written.

WITNESSED BY:

LEWIS DRIVE LIMITED PARTNERSHIP, a
Maryland limited partnership

SIGNATURE

By:

SIGNATURE

PRINTED NAME

PRINTED NAME

Its:

TITLE

Date:

WITNESSED BY:

THE POTOMAC EDISON COMPANY, a
Maryland and Virginia corporation

SIGNATURE

By:

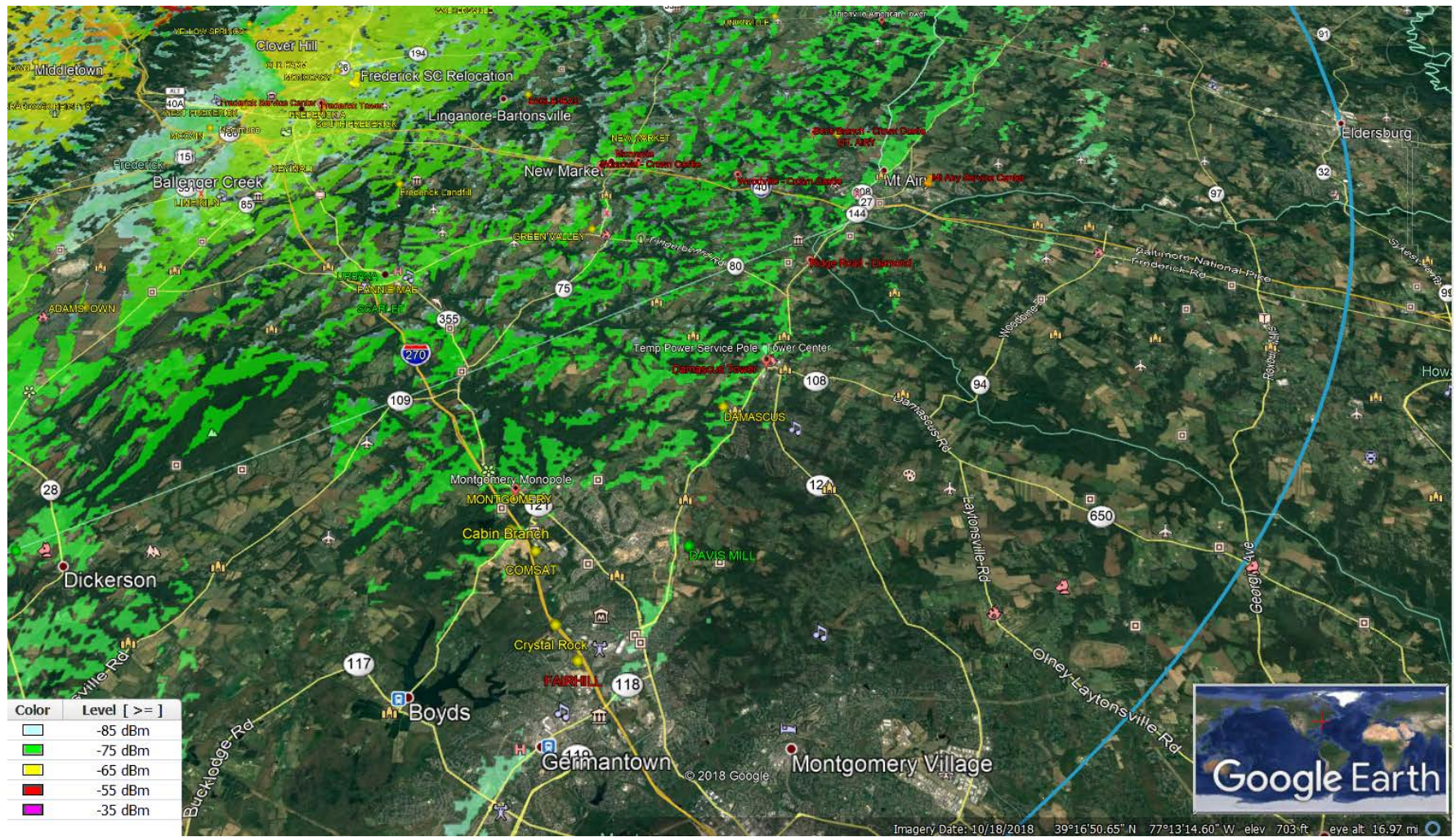
William Beach
Director, Real Estate
for FirstEnergy Service Company on
behalf of The Potomac Edison
Company

PRINTED NAME

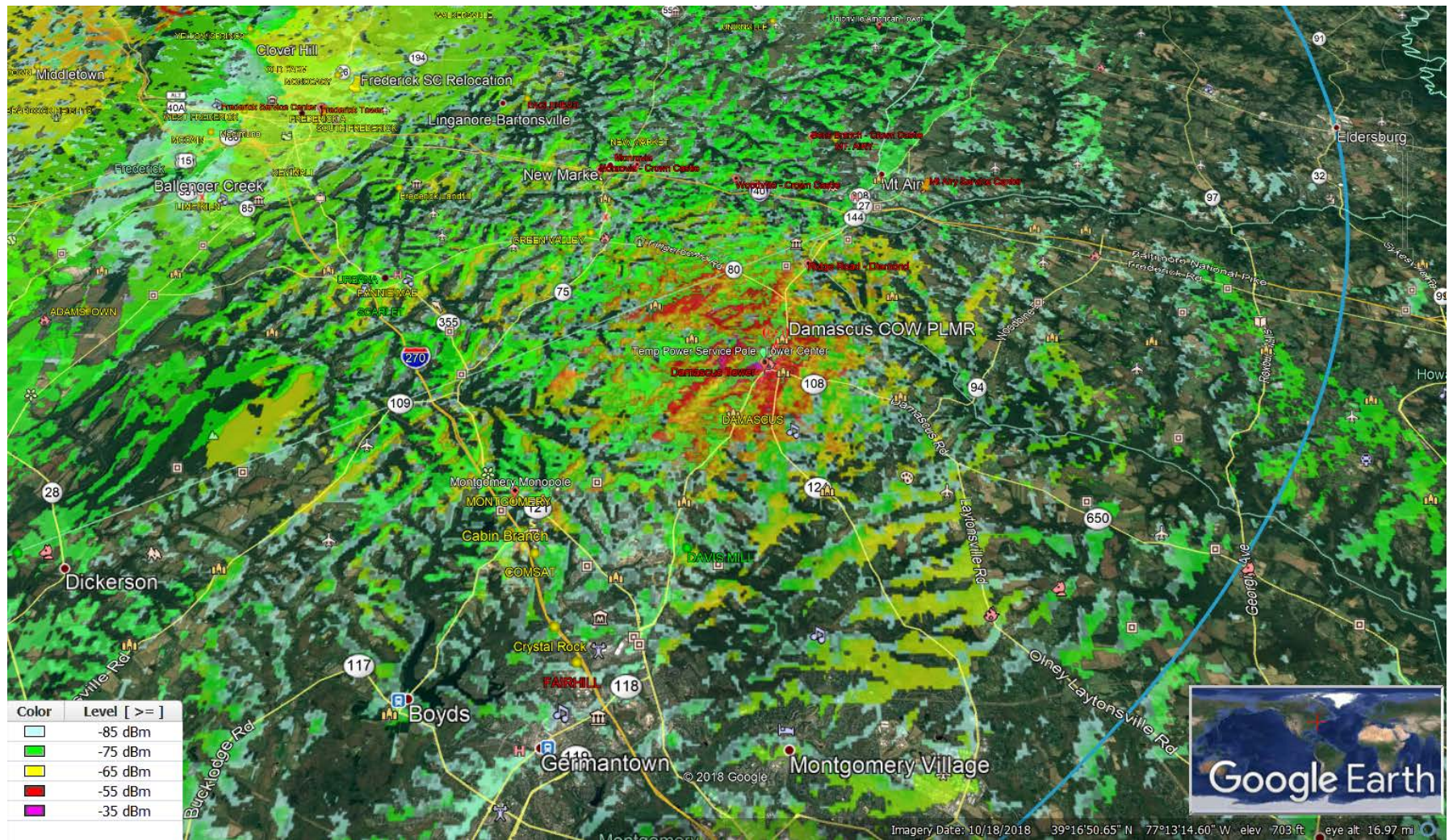
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Prepared By: The Potomac Edison Company

First Energy Mobile Radio Coverage Without Damascus COW



First Energy Mobile Radio Coverage With Damascus COW





***NEW FIRSTENERGY
RADIO ANTENNA COW***

STREET VIEW PHOTO

FirstEnergy

*76 South Main
Street
Akron, Ohio 44308*

Prepared by:



Robert J. Heath PE, LLC

*1116 WALNUT LANE,
LANSDALE, PA 19446
TEL: 267-250-9931*

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Engineer's Seal:

DRAWING REVISION HISTORY		DESCRIPTION	DATE	NO.
		CONSTRUCTION DRAWINGS	2019-11-21	0

***FIRSTENERGY
RADIO SYSTEM***

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Site Info:
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Sheet Title: Street View Photo
Sheet #: C22

Drawing File Name:
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