

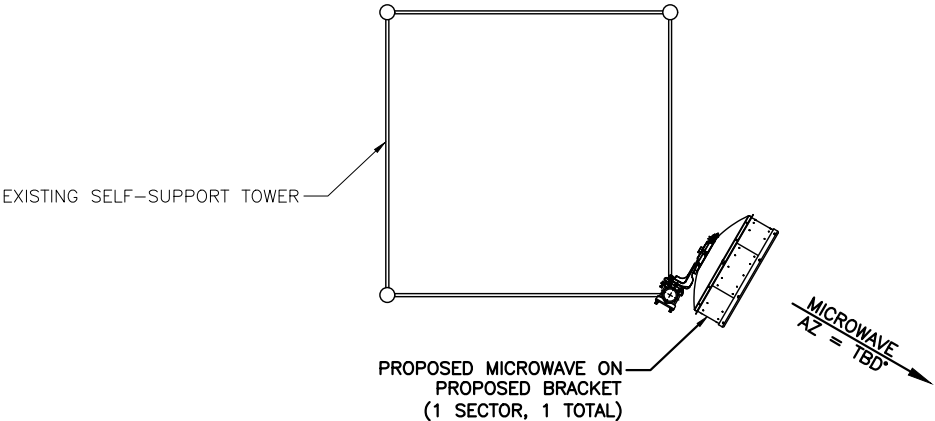
TOWER ELEVATION (PROPOSED)

SCALE: 3/32" = 1'-0" (11x17)

- NOTE:
1. REFER TO ANTENNA SCHEDULE FOR ADDITIONAL INFO.
 2. ADJUST MOUNTS AS REQUIRED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT RF SHADING.
 3. CONTRACTOR TO FIELD VERIFY TOWER DIAMETER PRIOR TO ORDERING MOUNTS.
 4. ANTENNA MOUNT BRACKET TO BE BASED UPON EXISTING CONDITIONS OF TOWER AT PROPOSED ATTACHMENT HEIGHT. BRACKET TO BE VERIFIED TO BE WITHIN DESIGN CRITERIA OF STRUCTURAL ANALYSIS BY OTHERS. ALL DETAILS OF ATTACHMENT OF BRACKET TO TOWER AND ANTENNAS TO BRACKET TO BE OBTAINED FROM MANUFACTURER OF BRACKET. ANTENNA MOUNT BRACKET TO BE DETERMINED BY CONTRACTOR AT TIME OF BID.

POWDER RIVER ENGINEERING SERVICES HAS NOT PERFORMED STRUCTURAL ANALYSES FOR THE NEW EQUIPMENT MOUNTS, NOR THE SUPPORTING STRUCTURE, AND ASSUMES NO RESPONSIBILITY FOR ITS ABILITY TO SUPPORT THE PROPOSED MODIFICATIONS. PRIOR TO CONSTRUCTION, STRUCTURAL ANALYSIS (BY OTHERS) SHALL BE PERFORMED FOR ALL TOWERS, ROOFTOPS, FLAGPOLES, LIGHT POLES AND ASSOCIATED EQUIPMENT MOUNTS.

PROPOSED MICROWAVE SCHEDULE							
MFG	PROPOSED MICROWAVE TYPE	# PER SECTOR	RAD CENTER	MECH DOWNTILT	AZIMUTH	(P) HYBRID CABLE	LENGTH
COMMSCOPE	VHLP3-11W	1	60'	0°	TBD	(1) 1/2" HYBRIDS	80'
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- NOTE:
- ORIENT MOUNTS TO PROVIDE ADEQUATE SEPARATION BETWEEN ANTENNAS AND TO AVOID CAUSING RF INTERFERENCE. (MOUNT AZIMUTHS ARE SHOWN FOR REFERENCE ONLY)



ANTENNA PLAN (PROPOSED)

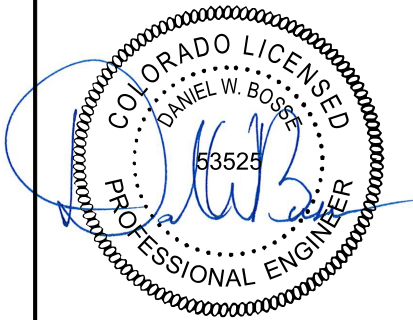
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POWDER RIVER
ENGINEERING SERVICES, LLC

BUSINESS LICENSE #: N/A

REVISIONS			
REV	DATE	DESCRIPTION	INT
2	12/13/18	REVISIONS	JED
1	09/26/18	REVISIONS	JED
0	09/11/18	100% CONSTRUCTION	JED
C	09/06/18	ISSUED FOR REVIEW 90%	JED
B	08/08/18	ISSUED FOR REVIEW 90%	JED
A	06/11/18	ISSUED FOR REVIEW 90%	JHT



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SITE INFORMATION:

SITE #: CO100A-MWB

FCC #: 1208834

5.6K WEST OF CALHAN
CALHAN, CO
80808
EL PASO COUNTY

SHEET TITLE:
**ELEVATION
& ANTENNA LAYOUT**

SHEET NUMBER:

C-2



VHLP3-11W/A
1.0 m | 3 ft ValuLine® High Performance Low Profile Antenna, single-polarized, 10.0–11.700 GHz

General Specifications

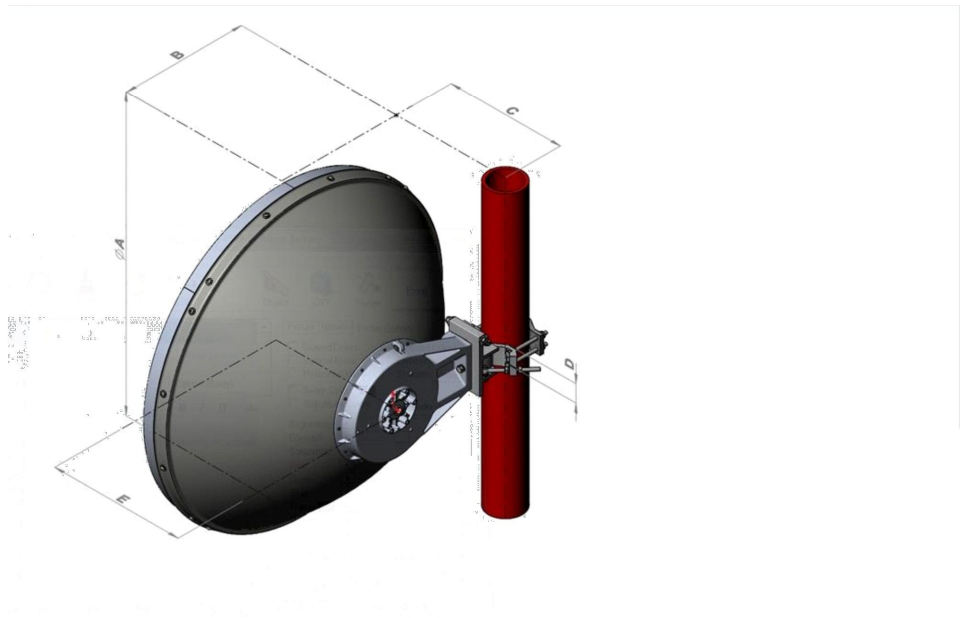
Antenna Type	VHLP - ValuLine® High Performance Low Profile Antenna, single-polarized
Diameter, nominal	1.0 m 3 ft
Polarization	Single

Electrical Specifications

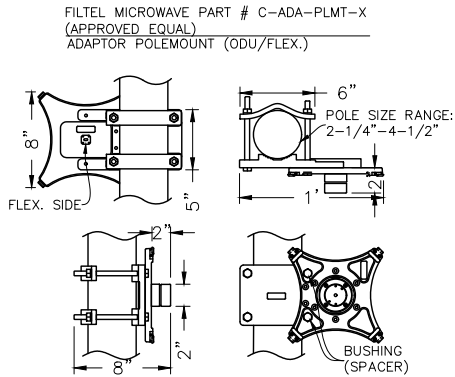
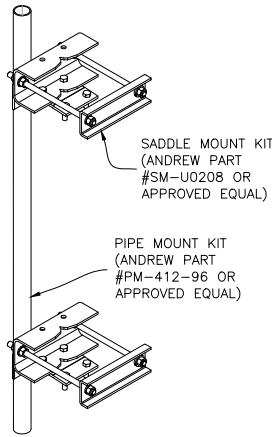
Beamwidth, Horizontal	2.0 °
Beamwidth, Vertical	2.0 °
Cross Polarization Discrimination (XPD)	30 dB
Electrical Compliance	Brazil Anatel Class 2 Canada SRSP 310.5 ETSI 302 217 Class 3 US FCC Part 101A @ 10.55–10.7 GHz US FCC Part 101A @ 10.7–11.7 GHz US FCC Part 101B @ 10.125–11.7 GHz
Front-to-Back Ratio	64 dB
Gain, Low Band	37.8 dBi
Gain, Mid Band	38.4 dBi
Gain, Top Band	39.0 dBi
Operating Frequency Band	10.125 – 11.700 GHz
Radiation Pattern Envelope Reference (RPE)	7164A 7166A
Return Loss	17.7 dB
VSWR	1.30

Mechanical Specifications

Fine Azimuth Adjustment	±15°
Fine Elevation Adjustment	±15°
Mounting Pipe Diameter	90 mm–120 mm 3.5 in–4.7 in
Net Weight	17 kg 37 lb
Side Struts, Included	0
Side Struts, Optional	1 inboard
Wind Velocity Operational	180 km/h 112 mph
Wind Velocity Survival Rating	250 km/h 155 mph



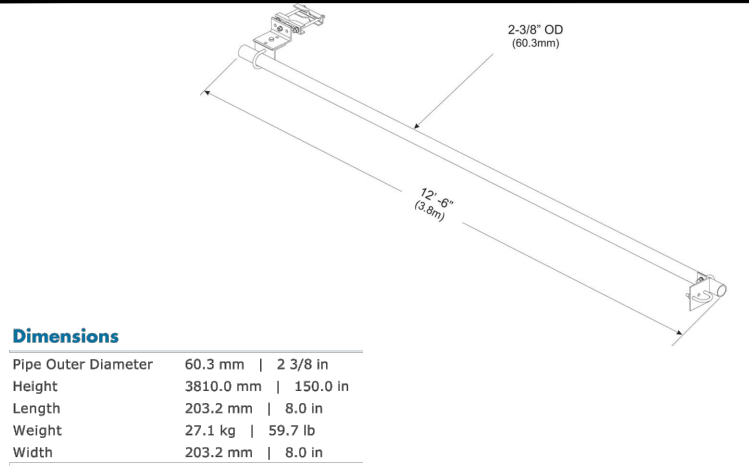
Dimension in Inches (mm)					
Antenna size, ft (m)	A	B	C	D	E
3 (1.0)	39.3 (999)	16 (407)	15.2 (387)	2.4 (60)	17.2 (437)



MICROWAVE ANTENNA MOUNT DETAIL

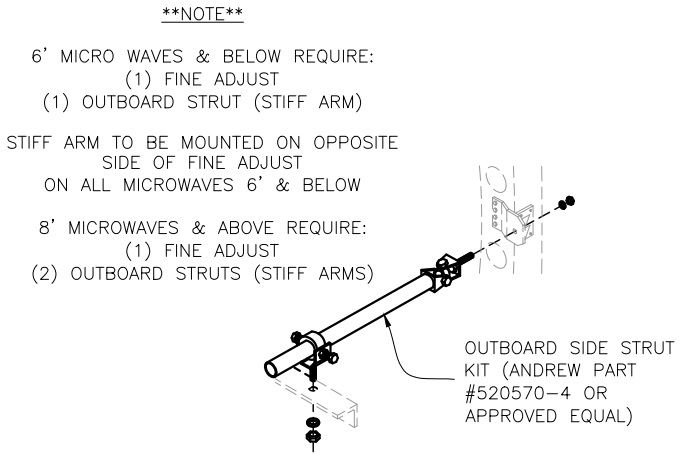
SCALE: N.T.S.

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Dimensions

Pipe Outer Diameter	60.3 mm 2 3/8 in
Height	3810.0 mm 150.0 in
Length	203.2 mm 8.0 in
Weight	27.1 kg 59.7 lb
Width	203.2 mm 8.0 in



SA-B12 (STIFF ARM BRACKET) DETAIL

SCALE: N.T.S.

2

SIDE STRUT (STIFF ARM) DETAIL

SCALE: N.T.S.

3



HORIZON QUANTUM
HIGH CAPACITY PACKET MICROWAVE

MECHANICAL

Radio (without antenna)	20 cm x 20 cm x 9 cm; 3.2 kg 7.8" x 7.8" x 3.6"; 7 lbs
Antenna Wind Loading	110 kph (70 mph) Operational 200 kph (125 mph) Survival
Antenna Mount Adjustment	+/- 45° Azimuth; +/- 22° Elevation

MICROWAVE DETAIL

SCALE: N.T.S.

4

ODU RADIO UNIT DETAIL

SCALE: N.T.S.

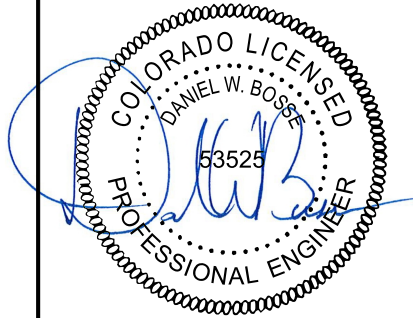
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