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August 19, 2015

BY EMAIL & FEDEX
Hon. Robert Stein, Chairman
and Members of the Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Development and Management Plan ("D&M Plan")
Connecticut Siting Council Docket No. 449
Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation ("Certificate") of a Telecommunications Facility at Redding Ridge Fire Department
186 Black Rock Turnpike, Redding, Connecticut

Dear Chairman Stein and Members of the Council:

On behalf of Message Center Management, Inc. ("MCM"), and in furtherance of the captioned Certificate, please accept for review and Council approval this Development Management Plan ("D&M Plan") filing for the captioned Facility as approved in Docket No. 449.

Tower, Compound & Other Equipment
Enclosed are an original and fifteen (15) sets of 11" x 17" D&M Plan drawings prepared by All Points Technology Corporation (APT) last revised August 12, 2015 being filed in accordance with the Siting Council's ("Council") Decision and Order dated November 3, 2014 ("Decision and Order"). Two full sized sets of the D&M Plan drawings are also enclosed.

As per order number 1 of the Council's Decision and Order, the D&M Plan incorporates a 150' monopole tower extending up to and not exceeding 154' AGL with appurtenances. Please note that beginning a few months ago the Town of Redding indicated that it had a need for a point-to-point (PTP) microwave dish at the top of the 150' tower to improve police communications in the Town. As an accommodation to this request MCM, AT&T and Verizon arranged to lower slightly the centerline height of the wireless service antennas on the tower so that the overall appurtenance height did not exceed the Council's 154' height limitation. Accordingly, the centerline of the 2' municipal dish is located at 153', AT&T is at 145' AGL centerline and Verizon is located at 135' AGL centerline. AT&T and Verizon are 5' lower than in the original application for Docket 449.

As per condition 2 of the Council's Decision and Order the tower incorporates a yield point to ensure the setback radius remains within the boundaries of the subject property. This is described in detail in the July 10, 2015 letter from Valmont Structures included with the structural analyses in Attachment 3 (fourth and third pages from the end of Attachment 2). Included in the D&M are the final site plans including specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access utilities and emergency

backup details of the associated compound and access drive. Of note, the D&M Plan also includes construction sequencing and site preparations, drainage, and erosion and sedimentation control measures consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended.

Please also find enclosed a geotechnical report (Attachment 1), tower and foundation drawings taking into account the designed yield point as noted (Attachment 2). Details of the antennas and equipment to be installed on the tower by Verizon (Attachment 3) and AT&T (Attachment 4) are also provided as are specifications of the shared generator (Attachment 5).

Required Notifications
In accordance with RCSA Section 16-50j-61(d) a copy of this filing is being provided to the Redding Fire District No. 1 as the property owner of record.

In accordance with the provisions of RCSA Section 16-50j-77, MCM hereby notifies the Council of its intention to begin site work immediately after Council approval of the D&M Plan. Construction of the tower and other site improvements will commence upon issuance of a local building permit. The supervisor for all construction related matters on this project is supervisor for all construction related matters on this project is Mr. Jim Maher. Mr. Maher is located at MCM's office in Hartford, Connecticut and can be reached by telephone at (203) 223-4665.

We respectfully request that this matter be included on the Council's next available agenda for review and approval.

Thank you for your consideration of the enclosed.

Very truly yours,

Daniel M. Laub

Attachments & Enclosures

cc: Redding Fire District No. 1
Maria Scotti, MCM
Virginia King, MCM
Christopher Gelinas, MCM
Scott Chasse, P.E., APT
Michael Libertine, APT
Dean Gustafson, APT
Michele Briggs, AT&T
Christopher B. Fisher, Esq.

CERTIFICATE OF SERVICE

I hereby certify that on this day, an original and 15 copies of the foregoing was sent electronically and by overnight delivery to the Connecticut Siting Council with copy to:

Intervenor:
Cellco Partnership d/b/a/ Verizon Wireless
Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
kbaldwin@rd.com

Facility Site Owner:
Redding Ridge Fire District No. 1
Bennet Pardee, Fire Commissioner
186 Black Rock Turnpike, Redding, CT 06896

Dated: August 19, 2015

Daniel M. Laub, Esq.

Geotechnical Engineering Report

Proposed Communications Tower
Redding Fire Department
Redding, Connecticut
November 15, 2013
Terracon Project No. J2135211

Prepared for:
All-Points Technology Corporation, P.C.
Killingworth, Connecticut

Prepared by:
Terracon Consultants, Inc.
Rocky Hill, Connecticut

November 15, 2013

Terracon

All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419

Attn: Mr. Scott M. Chasse, P.E., Principal
P: (860) 663 1697
F: (860) 663 0935
E: schasse@allpointstech.com

Re: Geotechnical Engineering Report
Proposed Communications Tower
Redding Fire Department
Redding, Connecticut
Terracon Project No. J2135211

Dear Mr. Chasse:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with the Authorization to Proceed, dated November 8, 2013. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design of foundations for the proposed communications tower and accompanying equipment cabinets.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Thiet K. Ta
Staff Engineer

Richard W.M. McLaren, P.E.
Senior Associate
Geotechnical Department Manager

/tkt/J2135211
Attachment

TABLE OF CONTENTS

GEOTECHNICAL ENGINEERING REPORT
PROPOSED COMMUNICATIONS TOWER
REDDING FIRE DEPARTMENT
REDDING, CONNECTICUT

Terracon Project No. J2135211
November 15, 2013

1.0 INTRODUCTION

A geotechnical engineering report has been completed for the proposed 150-foot high steel monopole communications tower to be located east of existing fire station at 186 Black Rock Turnpike in Redding, Connecticut. A single test boring was advanced to a depth of about 80 feet below existing ground surface close to the proposed tower center location. Terracon had previously advanced explorations at the site in 2008. Logs of the test borings, along with a Site Location Map (Exhibit A-1) and an Exploration Location Diagram (Exhibit A-2) are included in Appendix A of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork
- foundation design and construction
- seismic considerations
- slab design and construction

2.0 PROJECT INFORMATION

The project consists of the removal of an existing 80-foot high self-supporting steel lattice communications tower and construction of an approximately 150-foot high steel monopole communications tower with associated equipment cabinets within a 47-foot by 50-foot irregular shaped compound area. Access to the site will be provided by the existing paved parking area to the north of the fire station.

2.1 Project Description

Our knowledge of the project is based on review of the drawing titled "*Site Plan*", dated October 16, 2013, by All-Points Technology Corporation of Killingworth, Connecticut. A summary description of the project is presented below:

Item	Description
Site layout	Exploration Location Diagram on Exhibit A-2, Appendix A
Tower	A 150-foot high steel monopole communications tower

Item	Description
Estimated loads	Tower: 20 kips Slabs: 150 pounds per square foot (psf)
Grading	Site will remain close to current grades; only minor site grading expected

2.2 Site Location and Description

Item	Description
Location	186 Black Rock Turnpike, Redding, Connecticut
Existing improvements	2-story firehouse with a 80-foot AGL Lattice Tower and associated propane tank and fenced area
Current ground cover	Grass
Existing topography	Sloping down gently towards the south

3.0 SUBSURFACE EXPLORATIONS AND CONDITIONS

3.1 Typical Profile

Based on the results of the exploration and observations at the time of drilling, subsurface conditions on the project site can be generalized as follows:

Description	Approximate Depth to Bottom of Stratum (feet)	Material Encountered [1]	Consistency / Relative Density
Fill	12.5	Silty sand, with gravel, occasional cobbles, trace organics, brown to gray	Medium dense to very dense
Glacial Till	>80.4	Silty sand (SM), with gravel grayish brown to gray	Dense to very dense

1. Approximately 4 inches of topsoil was encountered at the ground surface of the boring.

Similar conditions were encountered in the 2008 explorations.

The *Surficial Materials Map of Connecticut, 1992*, identifies native soils in the vicinity of the site to be glacial till. The *Bedrock Geological Map of Connecticut, 1985*, indicates that bedrock at depth in the vicinity of the site consists of granitic gneiss. However, bedrock was not encountered in the exploration.

Conditions encountered at the exploration locations are indicated on the exploration logs in Appendix A of this report. Stratification boundaries on the exploration logs represent the approximate location of changes in soil types; *in situ*, the transition between materials may be gradual. Further details of the exploration can be found on the exploration logs.

3.2 In-situ Resistivity

On November 11, 2013, *in-situ* soil resistivity testing was completed by a Terracon field engineer. Resistivity testing was performed in general accordance with ASTM G57 by the Wenner Four Probe Method using a Megger DET5/4R Digital Earth Tester. Two resistivity lines were completed with electrodes spaced at 5, 10, 20, 30, and 40 feet. The location and orientation of the resistivity lines are shown on Exhibit A-2. The resistivity test results are tabulated below:

	Resistivity (ohm-cm)	
Electrode Spacing (ft)	Line 1	Line 2
5	29,590	36,580
10	27,770	35,620
20	29,030	39,370
30	22,980	39,065
40	15,320	32,480

3.3 Groundwater

Groundwater was encountered in B-101 at a depth of approximately 30.8 feet below existing grade at the time of the exploration.

Boring Number	Depth to groundwater while drilling (feet)
B-101	30.8

Fluctuations in groundwater level may occur because of seasonal variations in the amount of rainfall, runoff and other factors. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

During our subsurface investigation, fill was encountered within the proposed tower compound area to a depth of about 12.5 feet below the existing ground surface. The fill consists of silty sand with gravel, occasional cobbles, with trace amounts organic matter.

The proposed monopole steel communications tower may be supported on a monolithic mat or a pier-and-pad foundation bearing on compacted structural fill over the glacial till. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. Alternatively, the proposed communications tower may be supported on a drilled shaft foundation extending into the glacial till. The proposed equipment platform and other ancillary structures may derive support from the existing fill. Design recommendations are presented in the following sections.

Support of slabs on or above existing fill soils is discussed in this report. Even with the recommended construction testing services, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill, but can be reduced by performing additional testing and evaluation.

We recommend that the exposed subgrades be thoroughly evaluated after excavation to proposed grade. We recommend that the geotechnical engineer be retained to evaluate the bearing material for the foundation subgrade. We recommend that the geotechnical engineer review the construction of the drilled shaft.

4.2 Earthwork

Preparation of the site should include removal of topsoil or otherwise unsuitable materials. The soil subgrade should be proofrolled with a walk-behind vibratory roller or heavy plate compactor. Unstable subgrades should be removed and replaced with compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. If required, structural fill may then be placed within the compound area to attain the required grade.

Fill and backfill materials should meet the following material requirements:

Fill Type [1]	USCS Classification	Acceptable Location for Placement
Structural Fill [2,3]	GW	All locations and elevations. Based on observations, the existing fill may be selectively re-used as structural fill, provided it is free of organic and closely meets the gradation requirements in Note 2, below.
Common Fill [4]	Varies	Common fill may be used for general site grading to within 12 inches of finished grade. Common fill should not be used below sensitive structures. The existing fill may be re-used as common fill, provided it is free of organics and can be adequately compacted.

1. Compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used. Fill should not be placed on a frozen subgrade.
2. Imported structural fill should meet the following gradation:

Percent Passing by Weight

Sieve Size	Structural Fill
6"	100
3"	70 – 100
2"	(100)*
¾"	45 – 95
No. 4	30 – 90
No. 10	25 – 80
No. 40	10 – 50
No. 200	0 – 12

* Maximum 2-inch particle size within 12 inches of the underside of concrete elements

3. Recommendation for re-use of site soils as Structural Fill applies only to re-use on this site and only if Terracon is monitoring construction.
4. Imported common fill should have a maximum particle size of 6 inches and no more than 25 percent by weight passing the US No. 200 sieve.

4.2.1 Compaction Requirements

Item	Description
Fill Lift Thickness	8 inches or less in loose thickness
Compaction Requirements [1]	95 percent maximum modified Proctor dry density (ASTM D1557, Method C)
Moisture Content – Granular Material	Workable moisture levels

1. We recommend that fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested, as required, until the specified moisture and compaction requirements are achieved.

4.2.2 Grading and Drainage

Adequate drainage should be provided at the site to reduce the likelihood of an increase in moisture content of the foundation soils. Final site grading should be away from the tower to reduce the likelihood of water ponding near the structure.

4.2.3 Earthwork Construction Considerations

Although the exposed subgrade is anticipated to be relatively stable upon initial exposure, unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Should unstable subgrade conditions develop, stabilization measures will need to be employed.

Construction traffic over the completed soil subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared soil subgrades or in excavations. If the soil subgrade should become frozen, wet, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted.

As a minimum, temporary excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations may be required during grading operations. The contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations, as required, to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, State, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proofrolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of foundations.

4.3 Foundation Recommendations

4.3.1 Tower Foundations

We recommend that the proposed monopole communications tower be supported on either a monolithic mat or a pier-and-pad foundation placed on the glacial till or on compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. Alternatively, the proposed communications tower may be supported on a drilled shaft foundation extending into the glacial till. Design recommendations and construction considerations for the recommended foundation systems are presented in the following tables and paragraphs.

4.3.1.1 Mat/Pad Foundation Design Recommendations

Description	Value
Net allowable bearing pressure [1]	5,000 psf
Minimum embedment below finished grade for frost protection	42 inches
Approximate total settlement [2]	1 inch
Estimated differential settlement [2]	½ inch
Total soil unit weight (γ)	125 pcf
Passive pressure coefficient, K_p [3]	3.0 (ultimate)
Coefficient of sliding friction [4]	0.5 (ultimate)

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the mat/pad base elevation.
2. Foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the mat/pad the thickness of compacted fill, and the quality of the earthwork operations.
3. Passive pressure calculated with this parameter should be reduced by at least a factor of safety of 3, to reflect the amount of movement required to mobilize the passive resistance.
4. A factor of safety of at least 1.5 should be applied to the sliding resistance.

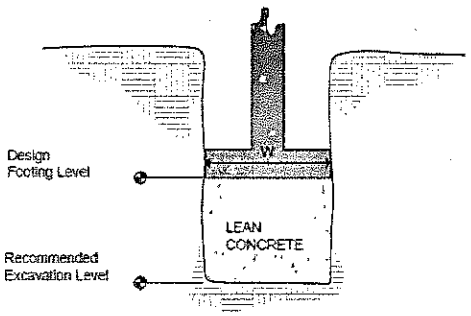
Uplift resistance for tower foundation may be computed as the sum of the weight of the foundation element and the weight of the soil overlying the foundation. For this computation, we recommend using a soil unit weight of 100 pounds per cubic foot (pcf) for engineered fill overlying the footing placed as described in this section of this report. A unit weight of 150 pcf may be used for reinforced foundation concrete. A factor of safety of 1.0 may be applied to calculations of dead load; a higher factor of safety may be appropriate for loadings resisted by dead load.

4.3.1.2 Mat/Pad Foundation Construction Considerations

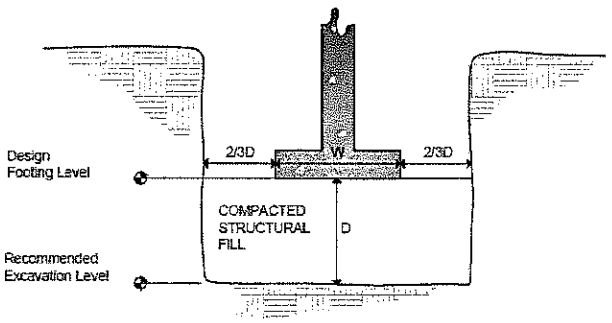
The base of foundation excavations should be free of water and loose soil prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing disturbance. Should the soils at bearing level become wet, disturbed or frozen, the affected soil should be

removed prior to placing concrete. The geotechnical engineer should be retained to observe and test the foundation bearing materials.

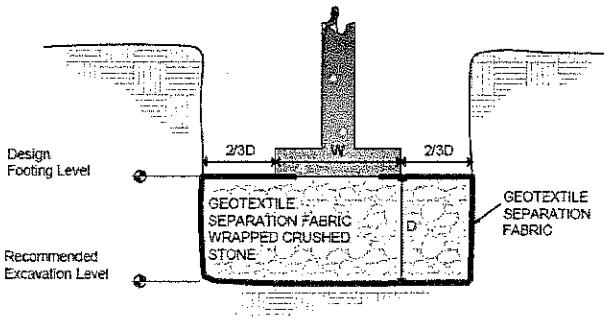
If unsuitable bearing soils are encountered in footing excavations, the excavation could be extended deeper to suitable soils and the footing could bear directly on these soils at the lower level. As an alternative, the footings could also bear on properly compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill extending down to the suitable soils. Overexcavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of overexcavation depth below footing base elevation. The overexcavation should then be backfilled up to the footing base elevation with well graded granular material placed in lifts of 8 inches or less in loose thickness and compacted to at least 95 percent of the modified Proctor maximum dry density (ASTM D1557, Method C). The overexcavation and backfill procedure is described in the following figure:



Lean Concrete Backfill



Overexcavation / Backfill



Crushed Stone Backfill

NOTE: Excavations in sketches shown vertical for convenience. Excavations should be sloped as necessary for safety.

The contractor should prevent groundwater, if encountered, and surface water runoff from collecting in the excavation. Subgrade soils that become unstable because of water and/or reworking by construction activity should be replaced with compacted structural, as necessary.

The predominant soil type at the recommended subgrade level will be the glacial till, portions of which have an elevated silt content. Soils with a higher silt content will be sensitive to excess moisture and lose strength quickly during wet periods. Contractors experienced in earthwork

construction in this region should be aware of the silty soil behavior and the effect that moisture and inclement weather can have on its workability. If a contractor bids construction knowing that earthwork must begin during the winter or wet months, the contractor should include a contingency in his bid to use off-site suitable fill, and to remove and dispose of on-site soils that become unsuitable.

4.3.1.3 Drilled Shaft Design Recommendations

Description	Value
Net Allowable Bearing Capacity [1]	
Glacial till (>20 feet)	8 ksf
Ultimate Side Friction [2]	
Fill (3.5 to 12.5 feet)	1 ksf
Glacial till (>12.5 feet)	3 ksf
Coefficient Lateral Subgrade Reaction [3]	
Fill (0 to 12.5 feet)	25 (z/D) kcf
Glacial till (>12.5 feet)	100 (z/D) kcf
Angle of Internal Friction	
Fill (0 to 12.5 feet)	30 degrees
Glacial till (>12.5 feet)	32 degrees
Estimated In-situ Soil Unit Weight	
Fill (0 to 12.5 feet)	125 pcf
Glacial till (>12.5 feet)	125 pcf
Approximate Groundwater Depth (11/11/2013)	30.8 feet
Concrete minimum 28-day unconfined compressive strength [4]	4,000 psi
Minimum drilled shaft diameter	Diameter of monopole base
Allowable deflection at top of shaft	0.5 inch

1. The allowable end bearing pressure assumes that loose soil at the base of the shaft has been removed and the base of the shaft has not been made unstable while excavating the shaft.
2. Contribution to shaft capacity from soil above a depth of 3.5 feet should be ignored. The uplift capacity of the shaft will be based on side friction and the dead weight of the shaft.
3. z is depth below the ground surface and D is diameter of shaft, both in feet.
4. Use air entrained concrete.

We anticipate that the design length of the shaft will be primarily dependent on the embedment/lateral capacity required to resist live loading, such as the combination of wind and ice loads. However, the base of the drilled shaft should be at least 20 feet below ground surface. The drilled shaft will be designed to resist tension loads and therefore should have reinforcing steel installed throughout the entire length of the shaft. Technical specifications should be prepared that require material and installation detail submittals, proof of experience in drilled shaft installation, concrete placement methods, and hole stabilization methods.

4.3.1.4 Drilled Shaft Construction Recommendations

The drilled shaft should be aligned vertically. The drilling method or combination of methods selected by the contractor should be submitted for review by the geotechnical engineer, prior to mobilization of drilling equipment. The contractor should take these aspects into account in his proposed drilling method(s).

A section of temporary casing may be required to reduce the likelihood of caving of the side walls of the shaft hole. The groundwater table was encountered at a depth of approximately 30.8 feet below existing ground surface in the explorations. Should the shaft extend below this depth, a bentonite slurry or other suitable drilling fluid may be required. Concrete should be placed by tremie methods.

4.3.2 Equipment Cabinet Foundations

Equipment cabinets and ancillary structures may be supported on a slabs-on-grade underlain by at least a 12-inch thickness of compacted structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill placed over the existing fill, the surface of which should be thoroughly compacted. Design recommendations for the proposed structure are presented in the following table:

4.3.2.1 Slab-on-Grade Design Recommendations

Description	Value
Slab support (compacted structural fill or minus ¾-inch crushed stone)	12-inch thick layer
Net allowable bearing pressure [1]	1,500 psf
Modulus of subgrade reaction	100 pounds per square inch per in (psi/in) for point loading
Minimum embedment below finished grade for frost protection [2,3]	42 inches
Approximate total settlement [4]	~1 inch
Estimated differential settlement [4]	½ to ¾ of total settlement
Coefficient of sliding friction [5,6]	0.5 (ultimate)

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the slab base elevation.
2. Consideration should be given to using dense insulation boards (Dow Styrofoam Highload, or similar) under and adjacent to lightly loaded slabs-on-grade, to provide the equivalent of 42 inches of earth cover, thus reducing frost penetration.
3. Air entraining admixtures should be used for concrete exposed to freezing.
4. Settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the thickness of compacted fill, and the quality of the earthwork operations.
5. A factor of safety of at least 1.5 should be applied to the sliding resistance.
6. If rigid insulation is used beneath the slab for frost protection, the coefficient of sliding friction between the concrete and the insulation should be based on the manufacturer's recommendation.

4.3.2.2 Slab-on-Grade Construction Considerations

On most tower sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrade may be disturbed by foundation excavations, construction traffic, rainfall, etc. As a result, the slab subgrade may not be suitable for placement of structural fill and corrective action will be required.

We recommend the area underlying the slabs be rough graded and then thoroughly compacted with a heavy plate compactor or roller prior to final grading and placement of structural fill. Minus ¾-inch crushed stone wrapped in geotextile separation fabric may be used in place of structural fill. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas previously filled or backfilled. Areas where unsuitable or unstable conditions are located should be repaired by removing and replacing the affected material with properly compacted structural fill or minus ¾-inch crushed stone, as necessary.

4.4 Seismic Considerations

Description	Value
Code Used [1]	Connecticut State Building Code (CBC)
Site Class [2]	C
Maximum considered earthquake ground motions (5 percent damping)	0.066g (1.0 second spectral response acceleration)
	0.288g (0.2 second spectral response acceleration)
Liquefaction potential in event of an earthquake	Not susceptible

1. The CBC incorporates the Seismic Design Category approach of the 2003 International Building Code (IBC).
2. The CBC uses a site soil profile determination extending a depth of 100 feet for seismic site classification. The current scope requested does not include a 100-foot soil profile determination; the boring performed for this report extended to a maximum depth of 80.4 feet. However, we expect soil as dense as that encountered above a depth of 80.4 feet will extend to at least 100 feet.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications, so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction, and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the exploration performed at the indicated location and from other information discussed in

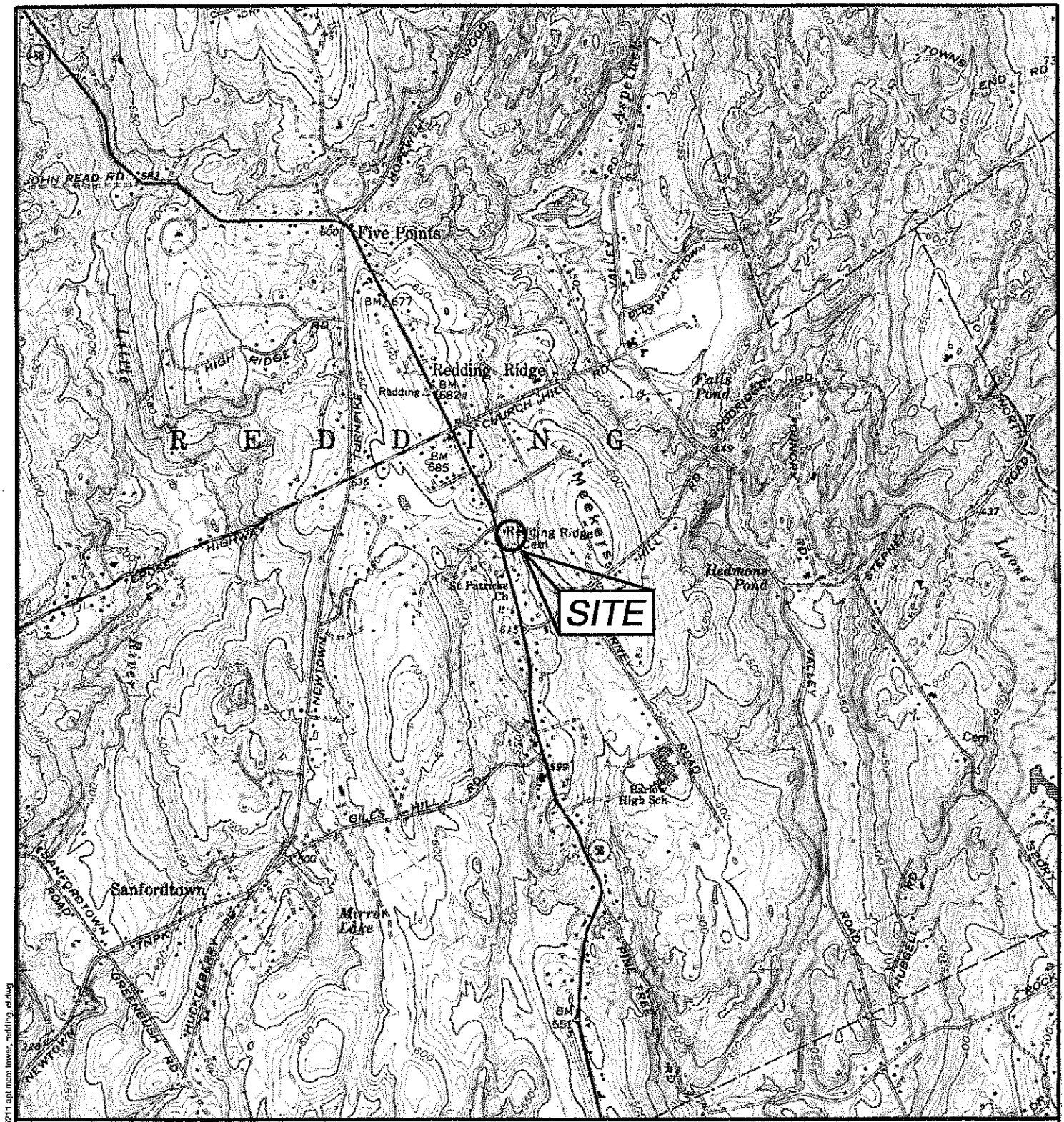
this report. This report does not reflect variations that may occur between the explorations, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified, so that further evaluation and supplemental recommendations can be provided.

Resistivity testing may be influenced by the presence of boulders, chain-link fences, existing utilities, or other anomalies within the test area. Resistivity results will also fluctuate depending on the degree of compaction, moisture content, soil constituent solubility, and temperature. Field resistivity values may vary depending upon season, precipitation, and other conditions, which may be different from those at the time of testing.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



N

SCALE: 1:24 000

1 0 1/2 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

Project Mngr:	TKT
Drawn By:	TKT
Checked By:	RWM
Approved By:	RWM

Project No.	J2135211
Quadrangle:	BOTFORD, CONN. - 1987
File No.	J2135211
Date:	November 2013

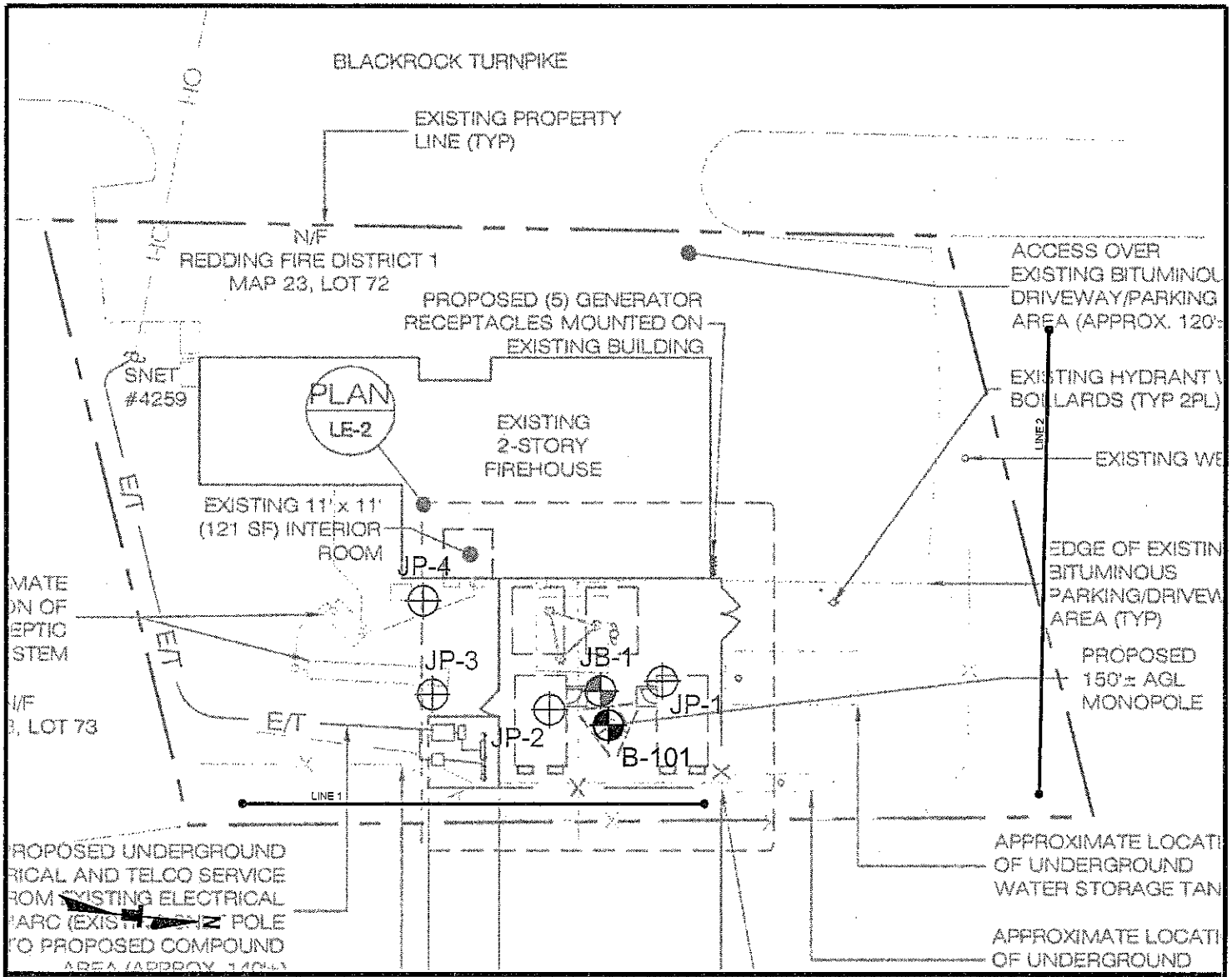
Terracon
Consulting Engineers and Scientists
201 Hammer Mill Road Rocky Hill, CT 06067
PH. (860)721 1900 FAX (860)721 1939

SITE LOCATION MAP

PROPOSED REDDING FIRE DEPARTMENT
COMMUNICATIONS TOWER
186 BLACK ROCK TURNPIKE
REDDING, CONNECTICUT

EXHIBIT
A-1

projects\2013\j2135211\working files\diagams-drawings-figures\j2135211 apt mcm tower, redding, ct.dwg



40 0 20 40

APPROXIMATE SCALE IN FEET

LEGEND

B-101 — TEST BORING LOCATION

JB-1 — PREVIOUS TEST BORING LOCATION (2008)

JP-1 — PREVIOUS TEST PROBE LOCATION (TYP) (2008)

LINE 1 — RESISTIVITY TEST LOCATION (TYP)

NOTES:

1. THIS DIAGRAM WAS PREPARED BASED ON A PLAN BY ALL-POINTS TECHNOLOGY CORPORATION, P.C. OF KILLINGWORTH, CONNECTICUT, FILING No. CT-242-310, SHEET No. LE-2, TITLED "*SITE PLAN*", DATED: OCTOBER 16, 2013.
2. THE TEST BORING B-101 WAS ADVANCED ON NOVEMBER 11, 2013 UNDER THE DIRECTION OF TERRACON WITH EQUIPMENT OWNED AND OPERATED BY NEW ENGLAND BORING CONTRACTORS, INC. OF GLASTONBURY, CONNECTICUT.
3. THE TEST BORING JB-1 AND TEST PROBES JP-1 THROUGH JP-4 WERE ADVANCED ON FEBRUARY 1, 2008 UNDER THE DIRECTION OF TERRACON WITH EQUIPMENT OWNED AND OPERATED BY NEW ENGLAND BORING CONTRACTORS, INC. OF GLASTONBURY, CONNECTICUT.
4. RESISTIVITY TESTING WAS PERFORMED ON NOVEMBER 11, 2013 BY A TERRACON FIELD ENGINEER.
5. THE APPROXIMATE LOCATIONS OF THE EXPLORATIONS AND RESISITIVITY TESTS WERE TAPED FROM SITE FEATURES. THE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
6. USE OF THIS DIAGRAM IS LIMITED TO THE ILLUSTRATION OF THE APPROXIMATE LOCATIONS OF THE EXPLORATIONS, RESISTIVITY TESTS, AND OTHER PERTINENT SITE FEATURES. ANY OTHER USE OF THIS DIAGRAM WITHOUT PERMISSION FROM TERRACON IS PROHIBITED.

Project Mngr:	TKT
Drawn By:	TKT
Checked By:	RWM
Approved By:	RWM
Project No.	J2135211
Scale:	1" = 40'
File No.	J2135211
Date:	November 2013

Terracon
Consulting Engineers and Scientists
201 Hammer Mill Road Rocky Hill, CT 06067
PH. (860)721 1900 FAX.(860)721 1939

EXPLORATION LOCATION DIAGRAM
PROPOSED REDDING FIRE DEPARTMENT COMMUNICATIONS TOWER
186 BLACK ROCK TURNPIKE
REDDING, CONNECTICUT

EXHIBIT A-2

projects\2013\J2135211\working files\diagrams-drawings-figures\J2135211 apt mcm tower redding ct.dwg

Field Exploration Description

The approximate test boring location, which is shown on Exhibit A-2, was measured by taping from existing features in the field and by estimating right angles. The exploration, which is shown on Exhibit A-2, was located as close to the tower center. The location of the explorations should be considered accurate only to the degree implied by the method used to define them. Ground surface elevations were not provided prior to the preparation of this report.

Terracon observed the advancement of one test boring (B-101) within the proposed tower compound area on November 11, 2013 using a truck-mounted rotary drill rig, owned and operated by New England Boring Contractors, Inc. of Glastonbury, Connecticut. B-101 was advanced using 3¼-inch inside diameter hollow stem augers to a depth of 50 feet then "open hole" to 80 feet with a 3-inch roller bit below the existing ground surface. B-101 terminated without refusal in the glacial till at 80.4 feet.

Terracon had previously monitored the advancement of one test boring (JB-1) and four test probes (JP-1 through JP-4) within the proposed tower compound area on February 1, 2008. The test boring and probes were advanced using a truck-mounted drill rig owned and operated by New England Boring Contractors Inc. of Glastonbury, Connecticut.

In the split-barrel sampling procedure utilized in B-101, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler typically the middle 12 inches of the total 24-inch penetration by means of a 140-pound safety hammer with a free fall of 30 inches is the Standard Penetration Test (SPT) resistance value "N". This "N" value is used to estimate the *in-situ* relative density of cohesionless soils and consistency of cohesive soils.

The soil samples were placed in labeled glass jars and transit to our office for further review and classification by a Terracon geotechnical engineer. Information provided on the boring log attached to this report includes soil descriptions, relative density and/or consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The boring was backfilled with auger cuttings prior to the drill crew leaving the site.

Field log of the exploration was prepared during drilling, which included visual classifications of the materials encountered during drilling as well as interpretation of the subsurface conditions between samples, were prepared. The final exploration logs included with this report represents further interpretation by the geotechnical engineer of the field logs.

BORING LOG NO. B-101

PROJECT: Redding Fire Department Communications Tower

CLIENT: All-Points Technology Corporation P C Killingworth, Connecticut

SITE: 186 Black Rock Turnpike Redding, Connecticut

GRAPHIC LOG	LOCATION See Exhibit A-2 / DEPTH	DEPTH (FL)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS
	0.3 **TOPSOIL**				
	FILL - SILTY SAND, with gravel, ocaasional cobbles, trace organics, brown to gray, medium dense to very dense				6-13-14-9 N=27
					7-6-8 N=12
		5			7-11-14-6 N=25
					6-5-8-15 N=13
		10			24-35-75/3"
	12.5				
	SILTY SAND (SM), with gravel, occasional cobbles, grayish-brown to gray, dense to very dense, (GLACIAL TILL)	15			14-17-16-15 N=33
		20			15-21-23-24 N=44
		25			19-22-30-32 N=52
		30	▽		33-32-26-24 N=58
		35			32-38-40-47 N=78
		40			37-26-37-56 N=63
		45			33-66
		50			

Stratification lines are approximate. In-situ, the transition may be gradual.
Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
3 1/4-inch inside diameter hollow stem augers to 50 feet then 3-inch roller bit to 80 feet

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Boring Started: 11/11/2013	Boring Completed: 11/11/2013
Drill Rig: Mobile B-53	Driller: M. St. John
Project No.: J2135211	Exhibit: A-4

BORING LOG NO. B-101

PROJECT: Redding Fire Department Communications Tower

CLIENT: All-Points Technology Corporation P C Killingworth, Connecticut

SITE: 186 Black Rock Turnpike Redding, Connecticut

GRAPHIC LOG	LOCATION See Exhibit A-2 DEPTH	DEPTH (FT)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS
	SILTY SAND (SM), with gravel, occasional cobbles, grayish-brown to gray, dense to very dense, (GLACIAL TILL) *(continued)*				50/5"
		55			40-53-60/1"
		60			
		65			73/6"
		70			
		75			46-42-50/1"
	80.4	80			50/5"
	Boring Terminated at 80.4 Feet				

Stratification lines are approximate. In-situ, the transition may be gradual.

Samples taken with a 2" O.D. split spoon sampler driven by a hammer operated by winch and cable.

Advancement Method:
3 1/4-inch inside diameter hollow stem augers to 50 feet then 3-inch roller bit to 80 feet

Abandonment Method:
Boring backfilled with soil cuttings upon completion.

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

Terracon
201 Hammer Mill Road
Rocky Hill, Connecticut

Boring Started: 11/11/2013	Boring Completed: 11/11/2013
Drill Rig: Mobile B-53	Driller: M. St. John
Project No.: J2135211	Exhibit: A-4

TEST BORING LOG

PROJ. NAME:	Sprint Comm. Tower CT54XC768	HAMMER		SAMPLER	CASING	SHEET 1 OF 1	
LOCATION:	Redding, Connecticut	TYPE:	Safety	SS	H S A	BORING:	JB-1
PROJECT NO.:	J2075430	SIZE:	140 lbs.	2" OD	4-1/4" ID	LOCATION:	See Plan
DATE START:	February 1, 2008	FALL:	30"	Drop Method:	Winch/Cable		
DATE END:	February 1, 2008					SURF. EL:	643' ±
BORING CO.:	New England Boring Contractors	GROUNDWATER OBSERVATIONS					
CO. LOCATION:	Glastonbury, Connecticut	DATE	DEPTH	CASING AT	DURATION AFTER DRILLING		
FOREMAN:	Mike St. John	2/1/08		Not Encountered			
JGI REP:	Brian Opp						

Depth (ft)	SAMPLING No.	Depth (ft.)	Blows/ 6"	Penet./ Rec. (in)	Sample Description	Strata Change Depth (ft)	Notes
					Topsoil	0.5	
	SS-1	0-2	31-18	24/14	SS-1: Medium dense to dense, brown, medium to fine SAND, little Gravel and Silt.		
			12-19				
	SS-2	2-4	16-11	24/10	SS-2: Medium dense, brown, medium to fine SAND, some Gravel, little Silt, occasional Cobbles.		
			10-25				
5							
	SS-3	5-7	7-4	24/12	SS-3: Medium dense, brown, medium to fine SAND, some Silt, trace Gravel.		
			6-5				
	SS-4	7-9	7-6	24/6	SS-4: Similar to SS-3.		
			5-5				
10							
	SS-5	10-12	7-7	24/6	SS-5: Medium dense, brown, medium to fine SAND, some Silt.		
			6-4				
	SS-6A	12-13	6-10	24/18	SS-6A: Similar to SS-5. (Fill)	13.0	
	SS-6B	13-14	10-10		SS-6B: Medium dense, olive brown, medium to fine SAND, some Gravel and Silt, occasional Cobbles.		
15							
	SS-7	15-17	80-30	24/2	SS-7: Very dense, GRAVEL (Cobble fragments).		
			27-25				
20							
	SS-8	20-22	50-44	24/12	SS-8: Very dense, gray-brown, coarse to fine SAND, some Gravel, trace Silt, occasional Cobbles and Boulders.		
			50-55				
25							
	SS-9	25-25.3	100/3"	3/3	SS-9: Very dense, gray, GRAVEL (Boulder fragments). (Glacial Till)		
					Auger Refusal on probable Boulder at 25.5'		
30							

EASTERN, Inc.
A Terracon COMPANY

Notes:

Proportions Used: trace (1-10%), little (10-20%), some (20-35%), and (35-50%).

Cohesive Consistency (Blows/ft.)		Cohesionless Relative Density (Blows/ft)	
very soft	0-2	very loose	0-4
soft	2-4	loose	4-10
medium stiff	4-8	medium dense	10-30
stiff	8-15	dense	30-50
very stiff	15-30	very dense	50+
hard	30+		

Boring No. JB-1

TEST PROBE LOG

PROJECT NAME:	Sprint Comm. Tower CT54XC768	EQUIPMENT	SHEET 1 OF 1
LOCATION:	Redding, Connecticut	TYPE: S S A	PROBE NO.: JP-1
PROJECT NO.:	J2075430	SIZE: 4" Dia.	LOCATION: See Plan
DATE START:	February 1, 2008		
DATE END:	February 1, 2008		SURFACE EL.: 643' ±
BORING CO.:	New England Boring Contractors	GROUNDWATER OBSERVATIONS	
CO. LOCATION:	Glastonbury, Connecticut	DATE / DEPTH / CASING AT / STABILIZATION PERIOD	
FOREMAN:	Mike St. John	2/1/08 — Not Encountered	
JGI INSPECTOR:	Brian Opp		

Depth (ft.)	SOIL DESCRIPTION	Strata Change Depth (ft)	Notes
1	Topsoil	0.5	
2			
3			
4			
5	Brown, medium to fine SAND, some Gravel and Silt, occasional Cobbles.		
6			
7			
8			
9			
10	(Fill)		
11	Exploration Terminated at 10.0'		
12			
13			
14			
15			
16			
17			
18			
19			
20			

NOTES:

REMARKS: The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test probes at times under conditions stated on the log. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.

Proportions Used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

JGI EASTERN, Inc.
A Terracon COMPANY

TEST PROBE LOG

PROJECT NAME:	Sprint Comm. Tower CT54XC768	EQUIPMENT	SHEET 1 OF 1
LOCATION:	Redding, Connecticut	TYPE: S S A	PROBE NO.: JP-2
PROJECT NO.:	J2075430	SIZE: 4" Dia.	LOCATION: See Plan
DATE START:	February 1, 2008		
DATE END:	February 1, 2008		SURFACE EL: 642' ±
BORING CO:	New England Boring Contractors	GROUNDWATER OBSERVATIONS	
CO. LOCATION:	Glastonbury, Connecticut	DATE / DEPTH / CASING AT / STABILIZATION PERIOD	
FOREMAN:	Mike St. John	2/1/08 — Not Encountered	
JGI INSPECTOR:	Brian Opp		

Depth (ft.)	SOIL DESCRIPTION	Strata Change Depth (ft)	Notes
1	Topsoil	0.5	
2			
3			
4			
5	Brown, medium to fine SAND, some Gravel and Silt, occasional Cobbles.		
6			
7			
8			
9			
10	(Fill)		
11	Exploration Terminated at 10.0'		
12			
13			
14			
15			
16			
17			
18			
19			
20			

NOTES:

REMARKS: The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test probes at times under conditions stated on the log. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.

Proportions Used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

JGI EASTERN, Inc.
A Terracon COMPANY

TEST PROBE LOG

PROJECT NAME:	Sprint Comm. Tower CT54XC768	EQUIPMENT	SHEET 1 OF 1
LOCATION:	Redding, Connecticut	TYPE: S S A	PROBE NO.: JP-3
PROJECT NO.:	J2075430	SIZE: 4" Dia.	LOCATION: See Plan
DATE START:	February 1, 2008		
DATE END:	February 1, 2008		SURFACE EL: 640' ±
BORING CO:	New England Boring Contractors	GROUNDWATER OBSERVATIONS	
CO. LOCATION:	Glastonbury, Connecticut	DATE / DEPTH / CASING AT / STABILIZATION PERIOD	
FOREMAN:	Mike St. John	2/1/08 — Not Encountered	
JGI INSPECTOR:	Brian Opp		

Depth (ft.)	SOIL DESCRIPTION	Strata Change Depth (ft)	Notes
1	Topsoil	0.5	
2			
3			
4			
5	Brown, medium to fine SAND, some Gravel and Silt, occasional Cobbles.		
6			
7			
8			
9			
10	(Fill)		
11	Exploration Terminated at 10.0'		
12			
13			
14			
15			
16			
17			
18			
19			
20			

NOTES:

REMARKS: The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test probes at times under conditions stated on the log. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.

Proportions Used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

JGI EASTERN, Inc.
A Terracon COMPANY

TEST PROBE LOG

PROJECT NAME:	Sprint Comm. Tower CT54XC768	EQUIPMENT	SHEET 1 OF 1
LOCATION:	Redding, Connecticut	TYPE: S S A	PROBE NO.: JP-4
PROJECT NO.:	J2075430	SIZE: 4" Dia.	LOCATION: See Plan
DATE START:	February 1, 2008		
DATE END:	February 1, 2008		SURFACE EL: 640' ±
BORING CO:	New England Boring Contractors	GROUNDWATER OBSERVATIONS	
CO. LOCATION:	Glastonbury, Connecticut	DATE / DEPTH / CASING AT / STABILIZATION PERIOD	
FOREMAN:	Mike St. John	2/1/08 — Not Encountered	
JGI INSPECTOR:	Brian Opp		

Depth (ft.)	SOIL DESCRIPTION	Strata Change Depth (ft)	Notes
1	Topsoil	0.5	
2			
3			
4			
5	Brown, medium to fine SAND, some Gravel and Silt, occasional Cobbles.		
6			
7			
8			
9			
10	(Fill)		
11	Exploration Terminated at 10.0'		
12			
13			
14			
15			
16			
17			
18			
19			
20			

NOTES:

REMARKS: The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Water level readings have been made in the test probes at times under conditions stated on the log. Fluctuations in the level of the groundwater may occur due to other factors than those present at the time measurements were made.

Proportions Used: trace (0-10%), little (10-20%), some (20-35%), and (35-50%)

JGI EASTERN, Inc.
A Terracon COMPANY

APPENDIX B
LABORATORY TESTING

Laboratory Testing

Descriptive classifications of the soils indicated on the Terracon boring log are in accordance with the enclosed General Notes and the Unified Soil Classification System (USCS). USCS symbols are also shown. A brief description of the USCS is attached to this report. Classification was by visual/manual procedures.

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING


Auger


Split Spoon


Shelby Tube


Macro Core


Ring Sampler


Rock Core


Grab Sample


No Recovery

WATER LEVEL


Water Initially Encountered


Water Level After a Specified Period of Time


Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, tsf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

Terracon

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

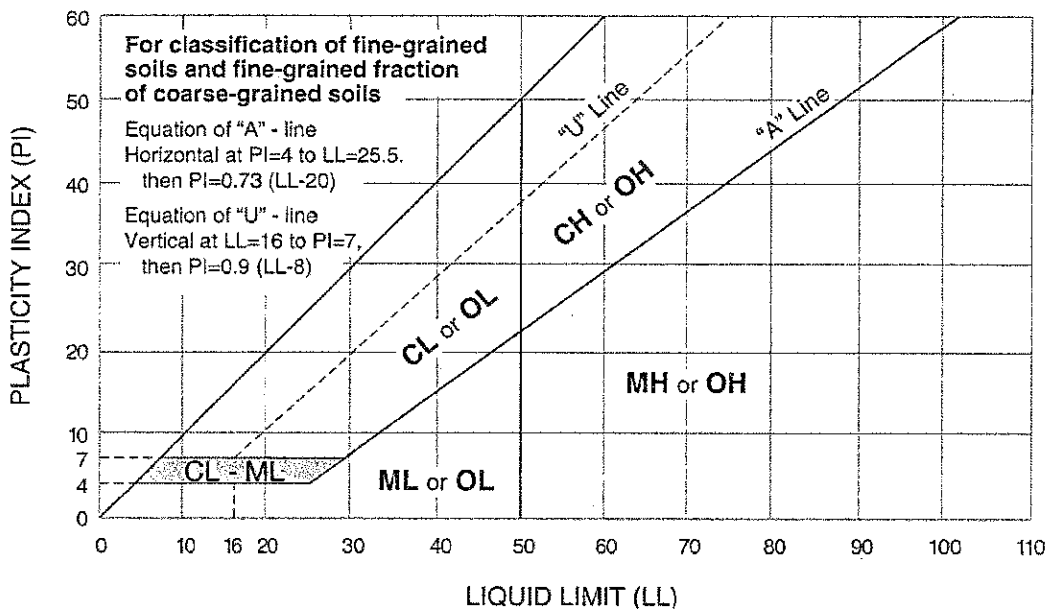
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Terracon

Exhibit C-2

valmont

STRUCTURES

VALMONT MICROFLECT
3575 25th St. SE
Salem, OR 97302
PHONE: 1-800-547-2151
ENGINEER: Jonathon Neumann
Reviewed by: JDN

COMMUNICATION POLE DESIGN CALCULATIONS

EXPIRES ON
JAN 31 2016

ISSUE 1 5 2015

STATE OF CONNECTICUT
JEFFREY E. GRASSMAN
No. 19224
LICENSED PROFESSIONAL ENGINEER

Message Center Management
VALMONT ORDER# 239975
SITE NAME: Redding-Blackrock Tower, CT
POLE HEIGHT: 149FT (150 FT AGL)

valmont

STRUCTURES

7/10/15
ENGINEERING DATA
for
Message Center Management
Redding-Blackrock Tower, CT
VALMONT QUOTATION 239975

1) STRUCTURE DESIGN CONFORMS TO EIA/TIA-222-F INCLUDING:
85.0 MPH FASTEST MILE BASIC WIND SPEED WITH NO ICE
73.6 MPH FASTEST MILE BASIC WIND SPEED WITH ICE
DESIGN ICE THICKNESS = 0.50 INCHES
60.0 MPH FASTEST MILE BASIC WIND SPEED WITH NO ICE FOR TWIST AND SWAY
2) FEEDLINES ARE ASSUMED TO BE PLACED INTERIOR TO THE POLE.
3) ALL MICROWAVE ASSUMED TO BE 6 GHz UNLESS OTHERWISE NOTED.
4) TOTAL POLE HEIGHT IS 150 FT AGL.
5) ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL).
6) POLE DESIGN MEETS TIA-222-G ADDENDUM 2.
7) CARRIER #4 AND #5 ARE EQUIVALENT TO THE LOADING AT 126' AGL.
8) POLE HAS A MAXIMUM 21 FT THEORETICAL FALL ZONE RADIUS.
9) LOADING AS FOLLOWS:
149.0' POLE
1 - CARRIER #4 @ 115.0
1 - CARRIER #5 @ 105.0
1 - 4ft lightning rod @ 149.0
1 - 2' HIGH PERFORMANCE (5 GHz) @ 149.0
12 - HPA-65R-BUU-H8 @ 145.0
9 - Ericsson RRUS-11 (19.7"x17"x7.2") @ 145.0
6 - Ericsson RRUS-12 (20.4"x18.6"x7.4") @ 145.0
6 - Ericsson RRUS A2 Module (15"x12.8" x3.4") @ 145.0
3 - RRUS-E2 (20" X 20.4" X 9.5") @ 145.0
3 - Ericsson RRUS-32 (29.9"x13.3"x9.5") @ 145.0
4 - Raycap DC6-48-60-18-F (24"x11") @ 145.0
1 - 12' SP1 LP Platform @ 145.0
6 - BXA-70063/6CF @ 135.0
6 - BXA-171063/12CF @ 135.0
3 - Alcatel-Lucent RRH2x40-AWS @ 135.0
3 - RRU (24" x 14" x5") @ 135.0
1 - Distribution Box (24"x24"x10") @ 135.0
1 - 12' SP1 LP Platform @ 135.0
12 - PANEL (8' X 1' X 6") @ 125.0
6 - RRU (24" x 14" x5") @ 125.0
3 - T-arm 6.5' S/O 13' C/A @ 125.0
3 - WHIP (2.5" X 20') @ 79.0
1 - LARGE YAGI @ 79.0
3 - 6' Pivot Side Arm (50" pipe) @ 79.0

STRUCTURE ANCHORAGE INFORMATION

POLE HEIGHT(FT):	149	NUMBER OF A.B.'s:	24
BOLT CIRCLE(IN):	67.68	DIA. OF A.B.'s(IN):	2.25
BASE VERTICAL(K):	60.97	LENGTH OF A.B.'s(IN):	66.00
BASE SHEAR(K):	41.37	PROJECTION LENGTH(IN):	12.50
BASE MOMENT(FT-K):	4808	TEMPLATE OD(IN):	71.18

valmont

STRUCTURES

BY_____ DATE _____
CHKD. BY _____ DATE _____

SHEET NO. _____

7/10/15
ENGINEERING DATA
for
Message Center Management
Redding-Blackrock Tower, CT
VALMONT QUOTATION 239975

EIA/TIA-222-F		
BASIC WIND:	85.0	MPH
WIND & ICE:	73.6	MPH AND 0.5 IN. ICE
TWIST & SWAY:	50.0	MPH

QTY	DESCRIPTION	HEIGHT	DATA W.O. ICE EPA	DATA W.O. ICE WT	DATA W/ ICE EPA	DATA W/ ICE WT
1	4ft lightning rod	@ 149.0 '	0.25	10	2.00	22
1	2' HIGH PERFORMANCE	@ 149.0 '	5.29	83	7.80	124
12	HPA-65R-BUU-H8	@ 145.0 '	107.64	1188	138.72	2808
9	Ericsson RRUS-11 (19.7"x17"x7.2")	@ 145.0 '	14.31	459	19.80	747
6	Ericsson RRUS-12 (20.4"x18.6"x7.4")	@ 145.0 '	10.62	348	14.46	558
6	Ericsson RRUS A2 Module (15"x12.8" x3	@ 145.0 '	4.92	126	7.68	222
3	RRUS-E2 (20" X 20.4" X 9.5")	@ 145.0 '	5.97	216	7.98	339
3	Ericsson RRUS-32 (29.9"x13.3"x9.5")	@ 145.0 '	6.90	231	9.15	360
4	Raycap DC6-48-60-18-F (24"x11")	@ 145.0 '	3.84	100	5.36	192
1	12' SP1 LP Platform	@ 145.0 '	31.42	1143	55.71	1491
6	BXA-70063/6CF	@ 135.0 '	30.60	234	41.70	708
6	BXA-171063/12CF	@ 135.0 '	23.58	222	34.50	576
3	Alcaltel-Lucent RRH2x40-AWS	@ 135.0 '	4.29	132	6.12	213
3	RRU (24" x 14" x5")	@ 135.0 '	4.65	120	6.51	204
1	Distribution Box (24"x24"x10")	@ 135.0 '	3.84	44	4.72	99
1	12' SP1 LP Platform	@ 135.0 '	15.71	1143	27.77	1491
12	PANEL (8' X 1' X 5")	@ 125.0 '	89.28	1188	119.16	2472
6	RRU (24" x 14" x5")	@ 125.0 '	9.3	240	12.96	408
3	T-arm 6.5' S/O 13' C/A	@ 125.0 '	13.77	960	23.61	1254
1	CARRIER #4	@ 115.0 '	112.35	2388	155.73	4134
1	CARRIER #5	@ 105.0 '	112.35	2388	155.73	4134
3	WHIP (2.5" X 20')	@ 79.0 '	20.70	213	52.56	468
1	LARGE YAGI	@ 79.0 '	9.06	81	13.38	112
3	6' Pivot Side Arm (50" pipe)	@ 79.0 '	8.76	387	17.76	576

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** SUMMARY ***

Design Code: EIA-222-F

DESIGN SUMMARY

Height Above Base Plate (ft)	149.00	Ground Line Diameter (in)	60.250	Pole Shaft Weight (lbs)	29534
		Top Diameter (in)	19.751		
		Pole Taper (in/ft)	0.28607	Shape:	18 Sides

Connections Between Sections	/First/	/Second/	/Third/	/Fourth/
Height Above Ground (ft)	52.50	85.00	111.00	129.75
Type	Slip Joint	Slip Joint	Slip Joint	Flange Joint
Overlap Length (in)	77	65	55	0
Maximum Axial Force (lbs)	38198	28063	19131	9826

Section Characteristics	/First/	/Second/	/Third/	/Fourth/	/Fifth/
Base Diameter (in)	60.250	47.942	39.109	31.933	25.258
Top Diameter (in)	45.231	36.809	30.122	25.258	19.751
Thickness (in)	0.50000	0.43750	0.37500	0.25000	0.18750
Length (ft)	52.500	38.917	31.417	23.333	19.250
Weight (lbs)	14810	7712	4357	1786	870

ANALYSIS SUMMARY

	Pt. of Fixity	Governing Level Sec.1	Governing Level Sec.2	Governing Level Sec.3	Governing Level Sec.4	Governing Level Sec.5	Pole Top
Governing Load Case	ICE + WIND	ICE + WIND	ICE + WIND	ICE + WIND	ICE + WIND	ICE + WIND	ICE + WIND
Height (ft)	0.00	29.00	52.50	85.00	111.00	129.75	149.00
Resultant Moment (in-kips)	57695	43522	32357	17438	7191	2305	9
Shear Force (lbs)	41433	40027	39031	34783	28021	15804	369
Axial Force (lbs)	57619	47311	38198	28063	19131	9826	107
Combined Stress (ksi)	41.89	42.63	45.95	43.66	40.62	25.62	0.17
Allowable Stress (ksi)	51.99	51.99	51.99	51.99	51.99	51.99	51.99
Allowable/Combined Stress	1.24	1.22	1.13	1.19	1.28	2.03	99.90
Total Deflection (in)	0.00	2.99	10.24	28.83	51.64	72.48	96.66

Note: Diameters are outside, measured across the flats
Forces and moments are reported in the local element coordinate system

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

SUMMARY OF SECTION DIMENSIONS AS DETAILED

Height Above Base Plate (ft) 149.00 Ground Line Diameter (in) 60.250 Pole Shaft Weight (lbs) 29534

Top Diameter (in) 19.751

Pole Taper (in/ft) 0.28607 Shape: 18 Sides

Connections Between Sections	/First/	/Second/	/Third/	/Fourth/
Height Above Ground (ft)	52.50	85.00	111.00	129.75
Type	Slip Joint	Slip Joint	Slip Joint	Flange Joint
Flange Thickness (in)				2.000
Weld Root Gap (in)				0.250

Theoretical Design Section Dimension	/First/	/Second/	/Third/	/Fourth/	/Fifth/
Base Diameter (in)	60.250	47.942	39.109	31.933	25.258
Top Diameter (in)	45.231	36.809	30.122	25.258	19.751
Thickness (in)	0.50000	0.43750	0.37500	0.25000	0.18750
Length (ft)	52.500	38.917	31.417	23.333	19.250

As Detailed Section Characteristic	/First/	/Second/	/Third/	/Fourth/	/Fifth/
Base Diameter (in)	60.250	47.942	39.109	31.933	25.204
Top Diameter (in)	45.231	36.809	30.122	25.311	19.751
Thickness (in)	0.50000	0.43750	0.37500	0.25000	0.18750
Length (ft)	52.500	38.917	31.417	23.146	19.063

Note: Diameter are outside, measured across the flats

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** POLE SHAFT POINT OF FIXITY REACTIONS ***

Loading Case Identifier	Moments About X-Axis (in-kips)	Moments About Y-Axis (in-kips)	Moments Resultant (X & Y) (in-kips)	Moments Torsional (in-kips)	Vertical Force (lbs)	Shear In X-Direction (lbs)	Shear In Y-Direction (lbs)	Shear Resultant (X & Y) (lbs)	Notes
WIND	42678	-35811	55713	0	43735	26772	31906	41650	
ICE + WIND	44197	-37086	57695	0	57665	26591	31690	41368	
T+S	14790	-12411	19308	0	43245	9271	11049	14423	

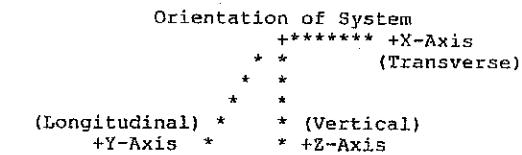
Note: Positive vertical force is downward.
Reactions are considered in the global coordinate system.

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** INPUT LOADS ***

Design Code EIA-222-F
Loading Case WIND

Basic Wind Velocity is 85.00 mph Ice Thickness 0.00
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.000
Exposure C, Gust Factor 1.69
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.00 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft



Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	115.00	115.00	0.00	50.00	3233	3853	2388	112.35	1-CARRIER #4
2	105.00	105.00	0.00	50.00	3151	3755	2388	112.35	1-CARRIER #5
3	149.00	151.00	0.00	50.00	8	9	10	0.25	1-4ft lightni
4	149.00	151.00	0.00	50.00	164	196	83	5.29	1-2' HIGH PER
5	145.00	145.00	0.00	50.00	3308	3942	1188	107.64	12-HPA-65R-BUU
6	145.00	145.00	0.00	50.00	440	524	459	14.31	9-Ericsson RR
7	145.00	145.00	0.00	50.00	326	389	348	10.62	6-Ericsson RR
8	145.00	145.00	0.00	50.00	151	180	126	4.92	6-Ericsson RR
9	145.00	145.00	0.00	50.00	183	219	216	5.97	3-RRUS-E2 [20
10	145.00	145.00	0.00	50.00	212	253	231	6.90	3-Ericsson RR
11	145.00	145.00	0.00	50.00	118	141	100	3.84	4-Raycap DC6-
12	145.00	145.00	0.00	50.00	966	1151	1143	31.42	1-12' SP1 LP
13	135.00	135.00	0.00	50.00	921	1098	234	30.60	6-BXA-70063/6
14	135.00	135.00	0.00	50.00	710	846	222	23.58	6-BXA-171063/
15	135.00	135.00	0.00	50.00	129	154	132	4.29	3-Alcaltel-Lu
16	135.00	135.00	0.00	50.00	140	167	120	4.65	3-RRU [24" x
17	135.00	135.00	0.00	50.00	116	138	44	3.84	1-Distributio
18	135.00	135.00	0.00	50.00	473	564	1143	15.71	1-12' SP1 LP

*** INPUT LOADS ***

Loading Case WIND - Continued

Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	Orientation of System 1-12' SP1 LP 1-12' SP1 LP 1-12' SP1 LP
19	125.00	125.00	0.00	50.00	2630	3135	1188	89.28	12-PANEL [8'
20	125.00	125.00	0.00	50.00	274	327	240	9.30	6-RRU [24" x
21	125.00	125.00	0.00	50.00	406	484	960	13.77	3-T-arm 6.5'
22	79.00	89.00	0.00	50.00	554	660	213	20.70	3-WHIP [2.5"
23	79.00	79.00	0.00	50.00	234	279	81	9.06	1-LARGE YAGI
24	79.00	79.00	0.00	50.00	227	270	387	8.76	3-6' Pivot Si

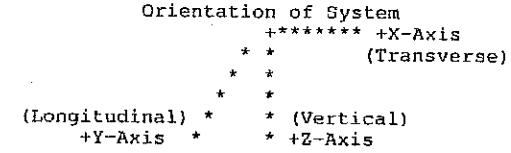
BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** INPUT LOADS ***

Design Code EIA-222-F
Loading Case ICE + WIND

Basic Wind Velocity is 73.61 mph Ice Thickness 0.50
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.000
Exposure C, Gust Factor 1.69
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.00 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft

Orientation of System



Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	115.00	115.00	0.00	50.00	3361	4005	4134	155.73	1-CARRIER #4
2	105.00	105.00	0.00	50.00	3275	3903	4134	155.73	1-CARRIER #5
3	149.00	151.00	0.00	50.00	47	56	22	2.00	1-4ft lightni
4	149.00	151.00	0.00	50.00	182	217	124	7.80	1-2' HIGH PER
5	145.00	145.00	0.00	50.00	3197	3810	2808	138.72	12-HPA-65R-BUU
6	145.00	145.00	0.00	50.00	456	544	747	19.80	9-Ericsson RR
7	145.00	145.00	0.00	50.00	333	397	558	14.46	6-Ericsson RR
8	145.00	145.00	0.00	50.00	177	211	222	7.68	6-Ericsson RR
9	145.00	145.00	0.00	50.00	184	219	339	7.98	3-RRUS-E2 [20
10	145.00	145.00	0.00	50.00	211	251	360	9.15	3-Ericsson RR
11	145.00	145.00	0.00	50.00	124	147	192	5.36	4-Raycap DC6-
12	145.00	145.00	0.00	50.00	1284	1530	1491	55.71	1-12' SP1 LP
13	135.00	135.00	0.00	50.00	942	1122	708	41.70	6-BXA-70063/6
14	135.00	135.00	0.00	50.00	779	929	576	34.50	6-BXA-171063/
15	135.00	135.00	0.00	50.00	138	165	213	6.12	3-Alcaltel-Lu
16	135.00	135.00	0.00	50.00	147	175	204	6.51	3-RRU [24" x
17	135.00	135.00	0.00	50.00	107	127	99	4.72	1-Distributio
18	135.00	135.00	0.00	50.00	627	747	1491	27.77	1-12' SP1 LP

*** INPUT LOADS ***

Loading Case ICE + WIND - Continued

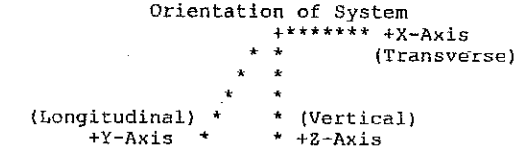
Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	1-12' SPl LP 1-12' SPl LP 1-12' SPl LP
19	125.00	125.00	0.00	50.00	2633	3138	2472	119.16	12-PANEL [8'
20	125.00	125.00	0.00	50.00	286	341	408	12.96	6-RRU [24" x
21	125.00	125.00	0.00	50.00	522	622	1254	23.61	3-T-arm 6.5'
22	79.00	89.00	0.00	50.00	1055	1257	468	52.56	3-WHIP [2.5"
23	79.00	79.00	0.00	50.00	260	309	112	13.38	1-LARGE YAGI
24	79.00	79.00	0.00	50.00	345	411	576	17.76	3-6' Pivot Si

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** INPUT LOADS ***

Design Code EIA-222-F
Loading Case T+S

Basic Wind Velocity is 50.00 mph Ice Thickness 0.00
Wind Orientation is 50.0 Degrees Clockwise From +X Axis
Structure Weight Overload Factor is 1.000
Exposure C, Gust Factor 1.69
Orientations are Measured Clockwise From +X Axis
Positive Y Axis is 90 Degrees Clockwise From +X Axis
Foundation Rotation of 0.00 Degrees
Elevation of structure base above surrounding terrain = 1.00 ft



Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	EPA (ft^2)	
1	115.00	115.00	0.00	50.00	1119	1333	2388	112.35	1-CARRIER #4
2	105.00	105.00	0.00	50.00	1090	1299	2388	112.35	1-CARRIER #5
3	149.00	151.00	0.00	50.00	3	3	10	0.25	1-4ft lightni
4	149.00	151.00	0.00	50.00	57	68	83	5.29	1-2' HIGH PER
5	145.00	145.00	0.00	50.00	1145	1364	1188	107.64	12-HPA-65R-BUU
6	145.00	145.00	0.00	50.00	152	181	459	14.31	9-Ericsson RR
7	145.00	145.00	0.00	50.00	113	135	348	10.62	6-Ericsson RR
8	145.00	145.00	0.00	50.00	52	62	126	4.92	6-Ericsson RR
9	145.00	145.00	0.00	50.00	63	76	216	5.97	3-RRUS-E2 [20
10	145.00	145.00	0.00	50.00	73	87	231	6.90	3-Ericsson RR
11	145.00	145.00	0.00	50.00	41	49	100	3.84	4-Raycap DC6-
12	145.00	145.00	0.00	50.00	334	398	1143	31.42	1-12' SP1 LP
13	135.00	135.00	0.00	50.00	319	380	234	30.60	6-BXA-70063/6
14	135.00	135.00	0.00	50.00	246	293	222	23.58	6-BXA-171063/
15	135.00	135.00	0.00	50.00	45	53	132	4.29	3-Alcaltel-Lu
16	135.00	135.00	0.00	50.00	48	58	120	4.65	3-RRU [24" x
17	135.00	135.00	0.00	50.00	40	48	44	3.84	1-Distributio
18	135.00	135.00	0.00	50.00	164	195	1143	15.71	1-12' SP1 LP

*** INPUT LOADS ***

Loading Case T+S - Continued

Load Number	Mounting Height (ft)	Load Height (ft)	Load Eccentricity (ft)	Orientation in XY Plane (Degrees)	Force-X (lbs)	Force-Y (lbs)	Force-Z (lbs)	Orientation of System EPA (ft^2)	1-12' SP1 LP 1-12' SP1 LP 1-12' SP1 LP
19	125.00	125.00	0.00	50.00	910	1085	1188	89.28	12-PANEL [8'
20	125.00	125.00	0.00	50.00	95	113	240	9.30	6-RRU [24" x
21	125.00	125.00	0.00	50.00	140	167	960	13.77	3-T-arm 6.5'
22	79.00	89.00	0.00	50.00	192	228	213	20.70	3-WHIP [2.5"
23	79.00	79.00	0.00	50.00	81	97	81	9.06	1-LARGE YAGI
24	79.00	79.00	0.00	50.00	78	93	387	8.76	3-6' Pivot Si

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** Properties ***

Connection Locations	Distance From Base (ft)	Diameter Across Flats (in)	Wall Thickness (in)	D/t Across Flats	w/t Across Flats	Moments of Inertia (in^4)	Area (in^2)
Top of Sect 5	149.00	19.751	0.1875	105.34	16.81	563	11.64
EPA 5	145.00	20.895	0.1875	111.44	17.89	667	12.32
	144.00	21.181	0.1875	112.97	18.16	695	12.49
	139.00	22.612	0.1875	120.60	19.50	847	13.34
EPA 13	135.00	23.756	0.1875	126.70	20.58	984	14.03
	134.00	24.042	0.1875	128.22	20.85	1020	14.20
	129.75	25.258	0.1875	134.71	21.99	1184	14.92
Top of Sect 4	129.75	25.258	0.2500	101.03	16.05	1567	19.84
	129.00	25.472	0.2500	101.89	16.20	1608	20.01
EPA 19	125.00	26.617	0.2500	106.47	17.01	1837	20.92
	124.00	26.903	0.2500	107.61	17.21	1897	21.15
	119.00	28.333	0.2500	113.33	18.22	2220	22.28
EPA 1	115.00	29.477	0.2500	117.91	19.03	2502	23.19
	114.00	29.763	0.2500	119.05	19.23	2576	23.42
	111.00	30.622	0.2500	122.49	19.83	2808	24.10
Top of Sect 3	111.00	30.122	0.3750	80.32	12.40	3957	35.40
	109.00	30.694	0.3750	81.85	12.67	4190	36.09
Base of Sect 4	106.42	31.433	0.3750	83.82	13.02	4503	36.97
EPA 2	105.00	31.838	0.3750	84.90	13.21	4682	37.45
	104.00	32.124	0.3750	85.66	13.34	4811	37.79
	99.00	33.554	0.3750	89.48	14.01	5491	39.49
	94.00	34.985	0.3750	93.29	14.69	6232	41.19
	89.00	36.415	0.3750	97.11	15.36	7037	42.90
	85.00	37.559	0.3750	100.16	15.90	7729	44.26
Top of Sect 2	85.00	36.809	0.4375	84.14	13.07	8439	50.50
	84.00	37.095	0.4375	84.79	13.19	8639	50.90
Base of Sect 3	79.58	38.359	0.4375	87.68	13.70	9564	52.66
EPA 22	79.00	38.526	0.4375	88.06	13.76	9691	52.89
	74.00	39.956	0.4375	91.33	14.34	10824	54.87
	69.00	41.386	0.4375	94.60	14.92	12042	56.86
	64.00	42.817	0.4375	97.87	15.49	13348	58.85
	59.00	44.247	0.4375	101.14	16.07	14746	60.83
	54.00	45.677	0.4375	104.41	16.65	16238	62.82
	52.50	46.106	0.4375	105.39	16.82	16705	63.41
Top of Sect 1	52.50	45.231	0.5000	90.46	14.19	17939	70.99
	49.00	46.233	0.5000	92.47	14.54	19171	72.58

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** Properties ***

Connection Locations	Distance From Base (ft)	Diameter Across Flats (in)	Wall Thickness (in)	D/t Across Flats	w/t Across Flats	Moments of Inertia (in^4)	Area (in^2)
Base of Sect 2	46.08	47.067	0.5000	94.13	14.84	20240	73.90
	44.00	47.663	0.5000	95.33	15.05	21027	74.85
	39.00	49.093	0.5000	98.19	15.55	22998	77.11
	34.00	50.524	0.5000	101.05	16.05	25089	79.38
	29.00	51.954	0.5000	103.91	16.56	27304	81.65
	24.00	53.384	0.5000	106.77	17.06	29645	83.92
	19.00	54.815	0.5000	109.63	17.57	32115	86.19
	14.00	56.245	0.5000	112.49	18.07	34720	88.46
	9.00	57.675	0.5000	115.35	18.58	37462	90.73
	4.00	59.106	0.5000	118.21	19.08	40344	93.00
Pt of Fixity	0.00	60.250	0.5000	120.50	19.48	42754	94.82

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
149.00	5	-4	7	0	177	211	276	66
145.00	19	-16	25	0	317	378	493	228
145.00	19	-16	25	0	6239	7435	9706	3126
144.00	109	-91	142	0	6275	7478	9762	3168
139.00	564	-473	736	0	6458	7696	10047	3407
135.00	938	-787	1224	0	6616	7885	10293	3592
135.00	938	-787	1224	0	9210	10976	14328	5113
134.00	1070	-898	1397	0	9245	11018	14383	5185
129.75	1637	-1374	2137	0	9423	11229	14659	5394
129.75	1637	-1374	2137	0	9417	11223	14650	5418
129.00	1738	-1459	2269	0	9445	11256	14693	5490
125.00	2284	-1916	2981	0	9624	11469	14972	5768
125.00	2284	-1916	2981	0	13054	15557	20308	7700
124.00	2471	-2073	3225	0	13088	15598	20362	7818
119.00	3415	-2866	4458	0	13304	15855	20697	8262
115.00	4182	-3509	5459	0	13499	16087	21001	8570
115.00	4182	-3509	5459	0	16836	20064	26192	10578
114.00	4423	-3711	5774	0	16873	20108	26249	10707
111.00	5150	-4321	6723	0	17023	20288	26484	10949
111.00	5150	-4321	6723	0	17008	20270	26460	11006
109.00	5638	-4731	7360	0	17111	20392	26619	11458
106.42	6273	-5264	8189	0	17249	20557	26835	12036
105.00	6623	-5558	8646	0	17325	20647	26953	12215
105.00	6623	-5558	8646	0	20575	24520	32008	14254
104.00	6918	-5805	9031	0	20607	24558	32058	14458
99.00	8401	-7049	10967	0	20842	24838	32424	15247
94.00	9902	-8308	12926	0	21080	25123	32795	16073
89.00	11419	-9582	14907	0	21327	25417	33179	16917
85.00	12646	-10611	16508	0	21563	25698	33546	17509
85.00	12646	-10611	16508	0	21538	25669	33508	17582
84.00	12955	-10870	16911	0	21579	25717	33571	17979
79.58	14327	-12022	18702	0	21846	26035	33987	19505
79.00	14509	-12175	18940	0	21881	26077	34041	19609
79.00	14589	-12242	19045	0	22889	27278	35609	20285
74.00	16237	-13624	21196	0	23136	27573	35994	21346
69.00	17902	-15022	23370	0	23385	27869	36380	22442
64.00	19585	-16434	25567	0	23633	28165	36767	23571
59.00	21286	-17861	27787	0	23881	28461	37153	24733
54.00	23005	-19303	30031	0	24151	28782	37572	25878
52.50	23524	-19739	30709	0	24244	28893	37717	26200

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
52.50	23524	-19739	30709	0	24213	28856	37669	26268
49.00	24742	-20761	32298	0	24408	29088	37972	27971
46.08	25764	-21619	33633	0	24569	29281	38223	29412
44.00	26498	-22234	34591	0	24651	29377	38350	30031
39.00	28271	-23723	36906	0	24887	29660	38718	31452
34.00	30062	-25225	39243	0	25119	29935	39078	32909
29.00	31868	-26741	41601	0	25344	30204	39429	34404
24.00	33691	-28270	43981	0	25574	30478	39786	35934
19.00	35531	-29814	46382	0	25808	30757	40150	37501
14.00	37388	-31372	48806	0	26046	31041	40520	39105
9.00	39261	-32944	51252	0	26288	31329	40897	40745
4.00	41153	-34531	53721	0	26542	31631	41292	42411
0.00	42678	-35811	55713	0	26803	31942	41698	43689

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case WIND

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
149.00	59.0	70.4	91.9	3.3	5.78	0.12	0.01	0.00	0.05	0.12	51.99	99.90
145.00	55.9	66.7	87.0	3.1	5.78	0.40	0.02	0.00	0.08	0.42	51.99	99.90
145.00	55.9	66.7	87.0	3.1	5.78	0.40	0.25	0.00	1.58	2.75	51.99	18.88
144.00	55.2	65.7	85.8	3.0	5.78	2.19	0.25	0.00	1.57	2.75	51.99	18.88
139.00	51.3	61.1	79.8	2.7	5.71	9.97	0.26	0.00	1.51	10.23	51.99	5.08
135.00	48.2	57.5	75.1	2.5	5.61	15.01	0.26	0.00	1.48	15.26	51.99	3.41
135.00	48.2	57.5	75.1	2.5	5.61	15.01	0.36	0.00	2.05	15.37	51.99	3.38
134.00	47.5	56.6	73.9	2.4	5.58	16.71	0.37	0.00	2.04	17.08	51.99	3.04
129.75	44.4	52.9	69.0	2.2	5.42	23.14	0.36	0.00	1.98	23.50	51.99	2.21
129.75	44.4	52.9	69.0	2.2	5.42	17.49	0.27	0.00	1.48	17.76	51.99	2.93
129.00	43.8	52.2	68.2	2.1	5.39	18.25	0.27	0.00	1.48	18.53	51.99	2.81
125.00	40.9	48.8	63.7	1.9	5.25	21.93	0.28	0.00	1.44	22.21	51.99	2.34
125.00	40.9	48.8	63.7	1.9	5.25	21.93	0.37	0.00	1.95	22.30	51.99	2.33
124.00	40.2	48.0	62.6	1.9	5.21	23.22	0.37	0.00	1.94	23.59	51.99	2.20
119.00	36.8	43.9	57.3	1.6	4.99	28.89	0.37	0.00	1.87	29.26	51.99	1.78
115.00	34.2	40.7	53.2	1.5	4.79	32.65	0.37	0.00	1.82	33.02	51.99	1.57
115.00	34.2	40.7	53.2	1.5	4.79	32.65	0.46	0.00	2.27	33.11	51.99	1.57
114.00	33.5	40.0	52.2	1.4	4.74	33.87	0.46	0.00	2.25	34.32	51.99	1.51
111.00	31.7	37.7	49.2	1.3	4.57	37.23	0.45	0.00	2.21	37.68	51.99	1.38
111.00	31.7	37.7	49.2	1.3	4.57	25.98	0.31	0.00	1.50	26.29	51.99	1.98
109.00	30.4	36.3	47.4	1.2	4.49	27.38	0.32	0.00	1.48	27.69	51.99	1.88
106.42	28.9	34.4	45.0	1.1	4.38	29.02	0.33	0.00	1.46	29.34	51.99	1.77
105.00	28.1	33.4	43.7	1.1	4.32	29.85	0.33	0.00	1.45	30.18	51.99	1.72
105.00	28.1	33.4	43.7	1.1	4.32	29.85	0.38	0.00	1.72	30.23	51.99	1.72
104.00	27.5	32.8	42.8	1.0	4.27	30.62	0.38	0.00	1.71	31.00	51.99	1.68
99.00	24.7	29.4	38.4	0.9	4.04	34.03	0.39	0.00	1.65	34.41	51.99	1.51
94.00	22.0	26.3	34.3	0.7	3.80	36.84	0.39	0.00	1.60	37.23	51.99	1.40
89.00	19.6	23.3	30.4	0.6	3.55	39.17	0.39	0.00	1.55	39.56	51.99	1.31
85.00	17.7	21.1	27.6	0.5	3.35	40.73	0.40	0.00	1.52	41.13	51.99	1.26
85.00	17.7	21.1	27.6	0.5	3.35	36.56	0.35	0.00	1.33	36.91	51.99	1.41
84.00	17.3	20.6	26.9	0.5	3.31	36.87	0.35	0.00	1.33	37.22	51.99	1.40
79.58	15.4	18.3	23.9	0.4	3.10	38.08	0.37	0.00	1.30	38.46	51.99	1.35
79.00	15.1	18.0	23.5	0.4	3.07	38.23	0.37	0.00	1.29	38.60	51.99	1.35
79.00	15.1	18.0	23.5	0.4	3.07	38.44	0.38	0.00	1.35	38.83	51.99	1.34
74.00	13.1	15.6	20.4	0.3	2.84	39.73	0.39	0.00	1.32	40.11	51.99	1.30
69.00	11.3	13.5	17.6	0.3	2.61	40.78	0.39	0.00	1.29	41.17	51.99	1.26
64.00	9.6	11.4	14.9	0.2	2.38	41.64	0.40	0.00	1.26	42.04	51.99	1.24
59.00	8.1	9.6	12.6	0.2	2.16	42.33	0.41	0.00	1.23	42.74	51.99	1.22
54.00	6.7	8.0	10.4	0.1	1.94	42.89	0.41	0.00	1.20	43.30	51.99	1.20

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case WIND

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
52.50	6.3	7.5	9.8	0.1	1.87	43.03	0.41	0.00	1.20	43.45	51.99	1.20
52.50	6.3	7.5	9.8	0.1	1.87	39.31	0.37	0.00	1.07	39.68	51.99	1.31
49.00	5.5	6.5	8.5	0.1	1.73	39.55	0.39	0.00	1.05	39.93	51.99	1.30
46.08	4.8	5.7	7.5	0.1	1.61	39.71	0.40	0.00	1.04	40.11	51.99	1.30
44.00	4.4	5.2	6.8	0.1	1.53	39.81	0.40	0.00	1.03	40.21	51.99	1.29
39.00	3.4	4.1	5.3	0.0	1.34	40.00	0.41	0.00	1.01	40.41	51.99	1.29
34.00	2.6	3.1	4.0	0.0	1.15	40.12	0.41	0.00	0.99	40.54	51.99	1.28
29.00	1.8	2.2	2.9	0.0	0.97	40.19	0.42	0.00	0.97	40.61	51.99	1.28
24.00	1.3	1.5	2.0	0.0	0.79	40.21	0.43	0.00	0.95	40.64	51.99	1.28
19.00	0.8	0.9	1.2	0.0	0.62	40.19	0.44	0.00	0.94	40.63	51.99	1.28
14.00	0.4	0.5	0.7	0.0	0.45	40.14	0.44	0.00	0.92	40.58	51.99	1.28
9.00	0.2	0.2	0.3	0.0	0.28	40.06	0.45	0.00	0.91	40.51	51.99	1.28
4.00	0.0	0.0	0.1	0.0	0.12	39.96	0.46	0.00	0.89	40.41	51.99	1.29
0.00	0.0	0.0	0.0	0.0	0.00	39.86	0.46	0.00	0.88	40.32	51.99	1.29

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case ICE + WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
149.00	7	-6	9	0	237	283	369	107
145.00	24	-20	31	0	353	421	550	319
145.00	24	-20	31	0	6745	8038	10493	6009
144.00	120	-101	157	0	6775	8074	10540	6063
139.00	610	-512	797	0	6921	8249	10768	6373
135.00	1010	-847	1318	0	7052	8404	10971	6614
135.00	1010	-847	1318	0	9990	11906	15542	9462
134.00	1153	-967	1505	0	10013	11933	15577	9553
129.75	1766	-1482	2305	0	10159	12107	15804	9826
129.75	1766	-1482	2305	0	10148	12094	15787	9854
129.00	1875	-1573	2448	0	10165	12114	15814	9941
125.00	2461	-2065	3212	0	10313	12290	16044	10282
125.00	2461	-2065	3212	0	13982	16663	21752	13909
124.00	2661	-2233	3474	0	13998	16682	21777	14050
119.00	3669	-3078	4789	0	14155	16869	22021	14589
115.00	4483	-3762	5852	0	14315	17059	22269	14967
115.00	4483	-3762	5852	0	17872	21299	27804	18680
114.00	4739	-3976	6186	0	17888	21318	27829	18834
111.00	5509	-4623	7191	0	18012	21466	28021	19131
111.00	5509	-4623	7191	0	17983	21432	27977	19195
109.00	6025	-5055	7865	0	18059	21521	28094	19715
106.42	6694	-5617	8739	0	18165	21649	28260	20380
105.00	7063	-5927	9220	0	18228	21723	28358	20586
105.00	7063	-5927	9220	0	21690	25849	33743	24333
104.00	7373	-6187	9625	0	21694	25854	33750	24566
99.00	8933	-7495	11661	0	21849	26038	33991	25470
94.00	10503	-8813	13711	0	22003	26223	34231	26415
89.00	12085	-10141	15776	0	22166	26417	34485	27381
85.00	13359	-11209	17438	0	22358	26645	34783	28063
85.00	13359	-11209	17438	0	22317	26596	34719	28143
84.00	13678	-11477	17856	0	22330	26612	34739	28588
79.58	15096	-12667	19707	0	22535	26857	35059	30311
79.00	15285	-12825	19953	0	22564	26891	35103	30429
79.00	15438	-12954	20152	0	24214	28857	37670	31528
74.00	17178	-14414	22424	0	24370	29043	37912	32725
69.00	18929	-15883	24710	0	24524	29227	38153	33961
64.00	20692	-17362	27011	0	24678	29410	38392	35233
59.00	22465	-18851	29326	0	24830	29592	38629	36542
54.00	24250	-20348	31656	0	25015	29811	38916	37834
52.50	24787	-20799	32357	0	25089	29900	39031	38198

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case ICE + WIND

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
52.50	24787	-20799	32357	0	25042	29844	38959	38272
49.00	26045	-21855	34000	0	25174	30001	39164	40166
46.08	27099	-22738	35375	0	25284	30133	39336	41770
44.00	27853	-23372	36360	0	25317	30172	39387	42456
39.00	29672	-24898	38734	0	25460	30341	39608	44035
34.00	31501	-26433	41122	0	25597	30505	39822	45653
29.00	33340	-27975	43522	0	25729	30662	40027	47311
24.00	35188	-29526	45935	0	25863	30822	40236	49010
19.00	37046	-31085	48360	0	26000	30985	40448	50749
14.00	38914	-32652	50798	0	26139	31151	40665	52527
9.00	40791	-34228	53249	0	26280	31319	40884	54346
4.00	42679	-35812	55714	0	26433	31502	41123	56194
0.00	44197	-37086	57695	0	26633	31739	41433	57619

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case ICE + WIND

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
149.00	62.1	74.0	96.7	3.7	6.12	0.16	0.01	0.00	0.06	0.17	51.99	99.90
145.00	58.8	70.1	91.5	3.4	6.12	0.49	0.03	0.00	0.09	0.52	51.99	99.90
145.00	58.8	70.1	91.5	3.4	6.12	0.49	0.49	0.00	1.71	3.00	51.99	17.30
144.00	58.0	69.1	90.3	3.3	6.12	2.43	0.49	0.00	1.70	3.06	51.99	16.99
139.00	53.9	64.3	83.9	3.0	6.04	10.79	0.48	0.00	1.62	11.27	51.99	4.61
135.00	50.7	60.4	78.9	2.7	5.93	16.16	0.47	0.00	1.57	16.63	51.99	3.13
135.00	50.7	60.4	78.9	2.7	5.93	16.16	0.67	0.00	2.23	16.83	51.99	3.09
134.00	49.9	59.5	77.7	2.7	5.90	18.01	0.67	0.00	2.21	18.68	51.99	2.78
129.75	46.6	55.5	72.5	2.4	5.73	24.96	0.66	0.00	2.13	25.62	51.99	2.03
129.75	46.6	55.5	72.5	2.4	5.73	18.86	0.50	0.00	1.60	19.36	51.99	2.69
129.00	46.0	54.8	71.6	2.4	5.70	19.68	0.50	0.00	1.59	20.18	51.99	2.58
125.00	43.0	51.2	66.9	2.1	5.54	23.63	0.49	0.00	1.54	24.12	51.99	2.16
125.00	43.0	51.2	66.9	2.1	5.54	23.63	0.66	0.00	2.09	24.30	51.99	2.14
124.00	42.2	50.3	65.7	2.1	5.50	25.01	0.66	0.00	2.07	25.67	51.99	2.03
119.00	38.6	46.0	60.1	1.8	5.26	31.04	0.65	0.00	1.99	31.69	51.99	1.64
115.00	35.9	42.7	55.8	1.6	5.05	35.00	0.65	0.00	1.93	35.65	51.99	1.46
115.00	35.9	42.7	55.8	1.6	5.05	35.00	0.81	0.00	2.41	35.81	51.99	1.45
114.00	35.2	41.9	54.7	1.6	4.99	36.29	0.80	0.00	2.39	37.09	51.99	1.40
111.00	33.2	39.6	51.6	1.4	4.82	39.82	0.79	0.00	2.34	40.62	51.99	1.28
111.00	33.2	39.6	51.6	1.4	4.82	27.80	0.54	0.00	1.59	28.34	51.99	1.83
109.00	31.9	38.0	49.6	1.4	4.73	29.25	0.55	0.00	1.56	29.80	51.99	1.74
106.42	30.3	36.1	47.1	1.3	4.61	30.97	0.55	0.00	1.54	31.52	51.99	1.65
105.00	29.4	35.1	45.8	1.2	4.55	31.83	0.55	0.00	1.52	32.38	51.99	1.61
105.00	29.4	35.1	45.8	1.2	4.55	31.83	0.65	0.00	1.81	32.48	51.99	1.60
104.00	28.8	34.3	44.8	1.2	4.50	32.63	0.65	0.00	1.80	33.28	51.99	1.56
99.00	25.9	30.8	40.2	1.0	4.25	36.18	0.64	0.00	1.73	36.82	51.99	1.41
94.00	23.1	27.5	35.9	0.8	4.00	39.08	0.64	0.00	1.67	39.72	51.99	1.31
89.00	20.5	24.4	31.9	0.7	3.73	41.45	0.64	0.00	1.62	42.09	51.99	1.24
85.00	18.5	22.1	28.8	0.6	3.52	43.03	0.63	0.00	1.58	43.66	51.99	1.19
85.00	18.5	22.1	28.8	0.6	3.52	38.62	0.56	0.00	1.38	39.18	51.99	1.33
84.00	18.1	21.5	28.1	0.6	3.47	38.93	0.56	0.00	1.37	39.49	51.99	1.32
79.58	16.1	19.1	25.0	0.5	3.26	40.13	0.58	0.00	1.34	40.71	51.99	1.28
79.00	15.8	18.8	24.6	0.5	3.23	40.27	0.58	0.00	1.33	40.85	51.99	1.27
79.00	15.8	18.8	24.6	0.5	3.23	40.68	0.60	0.00	1.43	41.27	51.99	1.26
74.00	13.7	16.3	21.3	0.4	2.98	42.03	0.60	0.00	1.39	42.62	51.99	1.22
69.00	11.8	14.0	18.3	0.3	2.74	43.12	0.60	0.00	1.35	43.71	51.99	1.19
64.00	10.0	11.9	15.6	0.2	2.50	43.99	0.60	0.00	1.31	44.59	51.99	1.17
59.00	8.4	10.0	13.1	0.2	2.26	44.68	0.60	0.00	1.28	45.28	51.99	1.15
54.00	7.0	8.3	10.9	0.1	2.02	45.21	0.60	0.00	1.25	45.81	51.99	1.13

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case ICE + WIND

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
52.50	6.6	7.8	10.2	0.1	1.96	45.34	0.60	0.00	1.24	45.95	51.99	1.13
52.50	6.6	7.8	10.2	0.1	1.96	41.42	0.54	0.00	1.10	41.96	51.99	1.24
49.00	5.7	6.8	8.9	0.1	1.81	41.63	0.55	0.00	1.08	42.18	51.99	1.23
46.08	5.0	6.0	7.8	0.1	1.69	41.77	0.57	0.00	1.07	42.33	51.99	1.23
44.00	4.5	5.4	7.1	0.1	1.60	41.85	0.57	0.00	1.06	42.41	51.99	1.23
39.00	3.5	4.2	5.5	0.1	1.40	41.98	0.57	0.00	1.03	42.55	51.99	1.22
34.00	2.7	3.2	4.1	0.0	1.20	42.04	0.58	0.00	1.01	42.62	51.99	1.22
29.00	1.9	2.3	3.0	0.0	1.01	42.05	0.58	0.00	0.99	42.63	51.99	1.22
24.00	1.3	1.6	2.0	0.0	0.82	42.00	0.58	0.00	0.96	42.58	51.99	1.22
19.00	0.8	1.0	1.3	0.0	0.64	41.91	0.59	0.00	0.94	42.50	51.99	1.22
14.00	0.4	0.5	0.7	0.0	0.47	41.78	0.59	0.00	0.92	42.37	51.99	1.23
9.00	0.2	0.2	0.3	0.0	0.30	41.62	0.60	0.00	0.91	42.22	51.99	1.23
4.00	0.0	0.0	0.1	0.0	0.13	41.44	0.60	0.00	0.89	42.05	51.99	1.24
0.00	0.0	0.0	0.0	0.0	0.00	41.28	0.61	0.00	0.88	41.89	51.99	1.24

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case T+S

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
149.00	2	-1	2	0	62	73	96	90
145.00	7	-6	9	0	110	131	171	253
145.00	7	-6	9	0	2168	2584	3373	3954
144.00	38	-32	49	0	2181	2599	3393	3996
139.00	196	-164	256	0	2244	2675	3491	4218
135.00	326	-274	426	0	2299	2740	3577	4404
135.00	326	-274	426	0	3200	3814	4979	6254
134.00	372	-312	485	0	3212	3828	4997	6305
129.75	569	-477	743	0	3274	3901	5093	6516
129.75	569	-477	743	0	3271	3899	5089	6519
129.00	604	-507	789	0	3281	3910	5104	6572
125.00	794	-666	1036	0	3343	3984	5200	6850
125.00	794	-666	1036	0	4534	5403	7053	9184
124.00	858	-720	1121	0	4545	5416	7071	9261
119.00	1186	-996	1549	0	4619	5504	7185	9639
115.00	1453	-1219	1896	0	4686	5585	7291	9949
115.00	1453	-1219	1896	0	5844	6964	9091	12291
114.00	1536	-1289	2005	0	5856	6979	9110	12376
111.00	1789	-1501	2335	0	5908	7041	9192	12619
111.00	1789	-1501	2335	0	5902	7034	9182	12626
109.00	1958	-1643	2556	0	5937	7076	9236	13040
106.42	2178	-1828	2844	0	5985	7132	9310	13584
105.00	2300	-1930	3002	0	6011	7164	9351	13763
105.00	2300	-1930	3002	0	7138	8507	11105	16109
104.00	2402	-2016	3136	0	7148	8519	11120	16246
99.00	2917	-2447	3807	0	7228	8614	11245	16920
94.00	3437	-2884	4487	0	7309	8711	11371	17623
89.00	3963	-3325	5173	0	7393	8811	11502	18354
85.00	4388	-3682	5729	0	7475	8908	11629	18947
85.00	4388	-3682	5729	0	7466	8898	11615	18955
84.00	4495	-3772	5868	0	7479	8914	11636	19288
79.58	4971	-4171	6489	0	7571	9023	11779	20756
79.00	5034	-4224	6572	0	7584	9038	11798	20860
79.00	5062	-4247	6608	0	7932	9453	12340	21541
74.00	5633	-4727	7353	0	8017	9554	12472	22475
69.00	6210	-5211	8106	0	8102	9655	12604	23443
64.00	6793	-5700	8868	0	8187	9757	12736	24444
59.00	7382	-6194	9637	0	8272	9858	12869	25480
54.00	7978	-6694	10414	0	8365	9969	13013	26543
52.50	8157	-6845	10649	0	8397	10007	13064	26865

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Forces and Moments for Pole in the Local Element Coordinate System

Loading Case T+S

Dist. From Base (ft)	Mx (in-kips)	My (in-kips)	Resultant Mx & My (in-kips)	Torsion (in-kips)	Shear X-Dir. (lbs)	Shear Y-Dir. (lbs)	Resultant Shear (lbs)	Axial (lbs)
52.50	8157	-6845	10649	0	8386	9994	13047	26873
49.00	8579	-7199	11199	0	8453	10074	13151	28502
46.08	8933	-7496	11661	0	8509	10141	13238	29885
44.00	9187	-7709	11993	0	8537	10174	13281	30424
39.00	9802	-8224	12795	0	8619	10271	13408	31732
34.00	10421	-8745	13604	0	8698	10366	13532	33078
29.00	11047	-9270	14421	0	8776	10459	13654	34463
24.00	11678	-9799	15245	0	8856	10554	13777	35886
19.00	12315	-10334	16077	0	8937	10651	13903	37348
14.00	12958	-10873	16916	0	9019	10749	14032	38848
9.00	13607	-11418	17763	0	9103	10849	14162	40386
4.00	14262	-11967	18618	0	9191	10954	14299	41962
0.00	14790	-12411	19308	0	9282	11061	14439	43240

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case T+S

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
149.00	20.5	24.4	31.9	0.4	2.01	0.04	0.01	0.00	0.02	0.05	51.99	99.90
145.00	19.4	23.1	30.2	0.4	2.01	0.14	0.02	0.00	0.03	0.16	51.99	99.90
145.00	19.4	23.1	30.2	0.4	2.01	0.14	0.32	0.00	0.55	1.01	51.99	51.69
144.00	19.1	22.8	29.8	0.4	2.01	0.76	0.32	0.00	0.55	1.09	51.99	47.72
139.00	17.8	21.2	27.7	0.3	1.98	3.47	0.32	0.00	0.53	3.78	51.99	13.74
135.00	16.7	20.0	26.0	0.3	1.95	5.22	0.31	0.00	0.51	5.53	51.99	9.40
135.00	16.7	20.0	26.0	0.3	1.95	5.22	0.45	0.00	0.71	5.66	51.99	9.18
134.00	16.5	19.6	25.6	0.3	1.94	5.81	0.44	0.00	0.71	6.25	51.99	8.32
129.75	15.4	18.3	23.9	0.3	1.88	8.04	0.44	0.00	0.69	8.48	51.99	6.13
129.75	15.4	18.3	23.9	0.3	1.88	6.08	0.33	0.00	0.52	6.41	51.99	8.12
129.00	15.2	18.1	23.6	0.3	1.87	6.34	0.33	0.00	0.51	6.67	51.99	7.79
125.00	14.2	16.9	22.1	0.3	1.82	7.62	0.33	0.00	0.50	7.95	51.99	6.54
125.00	14.2	16.9	22.1	0.3	1.82	7.62	0.44	0.00	0.68	8.06	51.99	6.45
124.00	14.0	16.6	21.7	0.2	1.81	8.07	0.44	0.00	0.67	8.51	51.99	6.11
119.00	12.8	15.2	19.9	0.2	1.73	10.04	0.43	0.00	0.65	10.47	51.99	4.97
115.00	11.9	14.1	18.4	0.2	1.66	11.34	0.43	0.00	0.63	11.77	51.99	4.42
115.00	11.9	14.1	18.4	0.2	1.66	11.34	0.53	0.00	0.79	11.87	51.99	4.38
114.00	11.6	13.9	18.1	0.2	1.64	11.76	0.53	0.00	0.78	12.29	51.99	4.23
111.00	11.0	13.1	17.1	0.2	1.59	12.93	0.52	0.00	0.77	13.45	51.99	3.86
111.00	11.0	13.1	17.1	0.2	1.59	9.02	0.36	0.00	0.52	9.38	51.99	5.54
109.00	10.6	12.6	16.4	0.2	1.56	9.51	0.36	0.00	0.51	9.87	51.99	5.27
106.42	10.0	11.9	15.6	0.2	1.52	10.08	0.37	0.00	0.51	10.44	51.99	4.98
105.00	9.7	11.6	15.1	0.1	1.50	10.36	0.37	0.00	0.50	10.73	51.99	4.84
105.00	9.7	11.6	15.1	0.1	1.50	10.36	0.43	0.00	0.60	10.80	51.99	4.82
104.00	9.5	11.4	14.8	0.1	1.48	10.63	0.43	0.00	0.59	11.06	51.99	4.70
99.00	8.6	10.2	13.3	0.1	1.40	11.81	0.43	0.00	0.57	12.24	51.99	4.25
94.00	7.6	9.1	11.9	0.1	1.32	12.79	0.43	0.00	0.55	13.22	51.99	3.93
89.00	6.8	8.1	10.6	0.1	1.23	13.59	0.43	0.00	0.54	14.02	51.99	3.71
85.00	6.1	7.3	9.6	0.1	1.16	14.13	0.43	0.00	0.53	14.56	51.99	3.57
85.00	6.1	7.3	9.6	0.1	1.16	12.69	0.38	0.00	0.46	13.06	51.99	3.98
84.00	6.0	7.1	9.3	0.1	1.15	12.79	0.38	0.00	0.46	13.17	51.99	3.95
79.58	5.3	6.3	8.3	0.1	1.08	13.21	0.39	0.00	0.45	13.61	51.99	3.82
79.00	5.2	6.2	8.2	0.1	1.07	13.26	0.39	0.00	0.45	13.66	51.99	3.81
79.00	5.2	6.2	8.2	0.1	1.07	13.34	0.41	0.00	0.47	13.75	51.99	3.78
74.00	4.6	5.4	7.1	0.1	0.99	13.78	0.41	0.00	0.46	14.19	51.99	3.66
69.00	3.9	4.7	6.1	0.0	0.91	14.15	0.41	0.00	0.45	14.56	51.99	3.57
64.00	3.3	4.0	5.2	0.0	0.83	14.44	0.42	0.00	0.44	14.86	51.99	3.50
59.00	2.8	3.3	4.4	0.0	0.75	14.68	0.42	0.00	0.43	15.10	51.99	3.44
54.00	2.3	2.8	3.6	0.0	0.67	14.87	0.42	0.00	0.42	15.30	51.99	3.40

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

Deflections and Stresses for Pole

Loading Case T+S

*** Deflections and Stresses ***

Distance From Base (ft)	Defl. X-Dir (in)	Defl. Y-Dir (in)	Defl. Resultant X & Y (in)	Defl. Z-Dir (in)	Rotation (deg.)	Applied Bending Stress (ksi)	Applied Axial Stress (ksi)	Applied Torsion Stress (ksi)	Applied Shear Stress (ksi)	Applied Combined Stress (ksi)	Allowable Stress (ksi)	Allowable Divided by Combined
52.50	2.2	2.6	3.4	0.0	0.65	14.92	0.42	0.00	0.41	15.35	51.99	3.39
52.50	2.2	2.6	3.4	0.0	0.65	13.63	0.38	0.00	0.37	14.01	51.99	3.71
49.00	1.9	2.3	2.9	0.0	0.60	13.71	0.39	0.00	0.36	14.11	51.99	3.69
46.08	1.7	2.0	2.6	0.0	0.56	13.77	0.40	0.00	0.36	14.17	51.99	3.67
44.00	1.5	1.8	2.4	0.0	0.53	13.80	0.41	0.00	0.36	14.21	51.99	3.66
39.00	1.2	1.4	1.8	0.0	0.46	13.87	0.41	0.00	0.35	14.28	51.99	3.64
34.00	0.9	1.1	1.4	0.0	0.40	13.91	0.42	0.00	0.34	14.33	51.99	3.63
29.00	0.6	0.8	1.0	0.0	0.34	13.93	0.42	0.00	0.34	14.35	51.99	3.62
24.00	0.4	0.5	0.7	0.0	0.27	13.94	0.43	0.00	0.33	14.37	51.99	3.62
19.00	0.3	0.3	0.4	0.0	0.21	13.93	0.43	0.00	0.32	14.36	51.99	3.62
14.00	0.1	0.2	0.2	0.0	0.16	13.91	0.44	0.00	0.32	14.35	51.99	3.62
9.00	0.1	0.1	0.1	0.0	0.10	13.88	0.45	0.00	0.31	14.33	51.99	3.63
4.00	0.0	0.0	0.0	0.0	0.04	13.85	0.45	0.00	0.31	14.30	51.99	3.64
0.00	0.0	0.0	0.0	0.0	0.00	13.81	0.46	0.00	0.31	14.27	51.99	3.64

MINIMUM DEFLECTION RATIO // DEFLECTION LIMIT / DEFLECTION // IS

F L A N G E A N A L Y S I S Version IMPAX-16.6.2015

FLANGE FOR THE D - E JOINT : CONTROLLING LOAD CASE ICE + WIND

Input Data

Applied Reactions			
Resultant Moment	=	2,305	in-kips
Torsion	=	0	in-kips
Resultant Shear	=	15,804	lbs
Axial	=	-9,826	lbs
Bolts			
Number of Bolts	=	8	
Bolt Diameter	=	1.00	in
Bolt Material	=	A325	
Bolt Circle	=	29.02	in
Flange			
Outside Diameter	=	31.52	in
Thickness	=	2.000	in
Yield Strength	=	50	ksi
Tensile Strength	=	65	ksi
Valmont Material Spec.	=	S-56	
Tube			
No. of sides	=	18	
Design Diameter	=	25.258	in
Detailed "D" Sect. Dia	=	25.311	in
Detailed "E" Sect. Dia	=	25.204	in
Thickness	=	0.2500	in
Yield	=	65	ksi

Results

Bolts			
Maximum Bolt Axial Force	=	40,944	lbs
Maximum Bolt Shear	=	1,976	lbs
Allowable Axial Stress	=	85	ksi
Combined Safety Factor	=	1.01	
Flange			
Weight	=	279	lbs
Controlling Stress	=	Shear	
Minimum Safety Factor	=	3.57	
Bending Safety Factor	=	6.52	
Shear Safety Factor	=	3.57	
Bearing Safety Factor	=	60.73	

*** BOLT COORDINATES ***

BOLT NO.	X-COORD	Y-COORD		BOLT NO.	X-COORD	Y-COORD
1	14.51	0.00	*	2	10.26	10.26
3	0.00	14.51	*			

BY VALMONT INDUSTRIES FOR: MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT DATE 07/10/2015
Fuse 1.13.0.0

*** ANCHOR BOLT CHARACTERISTICS GOVERNED BY LOADING CASE ICE ***

NUMBER OF BOLTS	DIAMETER (IN.)	LENGTH (IN.)	WEIGHT (LB.)	SHIPPED AS	PROJECTION LENGTH (IN.)	GALVANIZED LENGTH (IN.)	THREAD SIZE
24	2.250	66	2641	BOLTS, TEMPLATES	12.50	66.00	4.5-UNC-2A

STEEL SPECIF.	MAXIMUM BOLT FORCE (LB.)	MAXIMUM STRESS (PSI)	ALLOWABLE STRESS (PSI)	STRESS AREA (SQ. IN.)	SAFETY FACTOR	CONFIGURATION OF BOTTOM END OF ANCHOR BOLT
A615	144487	44466	59985	3.250	1.34	THREADED WITH HEAVY HEX HEAD NUT

*** BOLT COORDINATES AND FORCES ***

BOLT NO.	X-COORD	Y-COORD	MAX TENSION-LB	MAX FORCE-LB	*	BOLT NO.	X-COORD	Y-COORD	MAX TENSION-LB	MAX FORCE-LB
1	33.840	0.00	- 2403	2403	*	2	32.687	8.758	34370	39176
3	29.306	16.920	68637	73443	*	4	23.928	23.928	98063	102872
5	16.920	29.306	120646	125451	*	6	8.758	32.687	134840	139645
7	0.00	33.840	139681	144486	*					

MAX. BOLT CIRCLE = 67.68 IN. TEMPLATE DIAMETER = 73.68 IN.

*** BASE PLATE CHARACTERISTICS GOVERNED BY LOADING CASE ICE ***

DRAWING NUMBER	OVERALL LENGTH (IN.)	OVERALL WIDTH (IN.)	THICKNESS (IN.)	ACTUAL WEIGHT (LB.)	RAW MATERIAL WEIGHT (LB.)	SIDE LENGTH (IN.)
SD18-98	73.68	74.82	3.5000	3308	5466	13.00

TOP WIDTH (IN.)	POLE DIAM. (MAJOR DIAM.) (IN.)	CRITICAL FAILURE MODE	TOTAL LENGTH OF FAIL MODE LINE (IN.)	EFFECTIVE LENGTH (IN.)	TOTAL MOMENT ALONG FAIL LINE (IN.-LB.)
13.00	60.25	1	74.69	60.77	3027216

STEEL SPECIF.		BENDING STRESS (PSI)	ALLOWABLE STRESS (PSI)	MAX. VERTICAL SHEAR STRESS (PSI)
VALMONT	OTHER			
S56	A572	24400	50010	7280

** LOADS AT POLE BASE IN THE GLOBAL COORDINATE SYSTEM ********** LOADING CASES **********

LOADING CASE IDENTIFICATION	WIND	ICE	T+S
MOMENT ABT. X-AXIS (IN-KIP)	42678	44197	14790
MOMENT ABT. Y-AXIS (IN-KIP)	- 35811	- 37086	- 12411
SHEAR FORCE (LB.)	41650	41368	14423
VERTICAL FORCE (LB.)	43735	57665	43245

MAX CRITERION-	LOAD CASE
MOMENT ABT. X	ICE
MOMENT ABT. Y	ICE
RES. MOMENT	ICE
SHEAR FORCE	WIND
BOLT FORCE	ICE
BOLT TENSION	ICE

valmont
STRUCTURES

July 10, 2015

Ref: **Design and Failure Modes for a 150-ft AGL Tapered Monopole**
Quality of Steel and Fabrication of a Monopole Structure
Valmont Project No. 239975
Site: Redding-Blackrock Tower, CT
Pole Designed with a maximum Theoretical Fall Radius of 21'.

In order to assure you of the high quality of all Valmont products, we would like to offer the following comments:

- Communications monopole structures designed by Valmont are sized in accordance with the latest governing revision of the ANSI/TIA 222 standard unless otherwise requested by our customer. This standard has been approved by ANSI/ASCE-7, which has dealt with the design of antenna support structures for over 40 years. The TIA standard, based on provisions of this nationally known specification, has a long history of reliability. At its core philosophy is its first and foremost priority to safeguard and maintain the health and welfare of the public.
- The TIA standard designates a minimum wind loading for each county in the United States. Valmont uses the wind loading listed in the TIA standard unless a greater value is specified by our customer. Structures are also designed for radial ice at a code specified reduced design wind loading. Code designated coefficients are used to ensure that the structure will survive the designed wind speed. The structure can usually survive even a greater wind load than the basic design wind speed because of these conservative coefficients.
- Design and loading assumptions that are used for the analyses of these structures are very conservative in nature when compared to other codes, which makes structural failure highly improbable.
- Failure of a steel monopole occurs when a point is reached where the induced stresses exceed the yield strength of the material. At this point, the deflections induced in the material are no longer temporary. Hence, a permanent deflection in the monopole would exist.
- The term failure above refers to local buckling at a designated point on the pole. Local buckling does not cause a free falling pole; rather it relieves the stresses from the pole at this location. Monopoles are flexible, forgiving structures, which are not generally susceptible to damage by impact loads such as wind gust or earthquake shocks.
- When local buckling occurs, a relatively small portion of the shaft distorts and "kinks" the steel. When the pole begins to bend the exposure area is reduced and therefore, the force due to wind is decreased as well. Even though buckling exists, the cross section of the pole is capable of carrying the entire vertical load. Therefore, wind induced loads could not conceivably bring this type of structure to the ground due to the excellent ductile properties, design criteria, and failure mode.
- Valmont's communication poles have proven to be very reliable products. Valmont has provided structures that have performed well during earthquakes in California, hurricanes in the South (including Hugo, Andrew, Opal and Katrina), and a number of tornadoes. In over 25 years of engineering and fabricating thousands of monopoles, to our knowledge Valmont has never experienced an in service failure of a communication pole due to weather induced overloading, even though, as in the cases of Hurricanes Hugo, Andrew and Katrina, the wind speeds exceeded the design wind speed. We use the latest standards, wind speed information, and sophisticated analytical tools to ensure that we maintain our unblemished record for quality.

Valmont Microflect, LTCS, Valmont Industries, Inc.
3575 25th Street Salem, OR 97302-1123 USA
Toll Free: 800-547-2151 Fax: 503-316-2040 www.valmont.com

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STRUCTURES

Valmont Quality of Steel and Manufacturing:

- Monopoles are fabricated from ASTM A572 Grade 65 material with a controlled silicon content of 0.06% maximum to ensure a uniform galvanized coating. The base material is fabricated from Grade 50 material. All plate material meets a V-Notch toughness requirement of 15 ft-lbs. @ -20 degrees Fahrenheit. By meeting the strict toughness requirement, monopoles are best suited to resist the cyclic/fatigue type loading (i.e. wind induced loading) these structures exhibit.
- Valmont's anchor bolts are fabricated from A615 Grade 75 material. The bolts are 2 ¼ in diameter, made from #18J bar stock. Anchor bolts come complete with five (5) A194 Grade 2H hex nuts.
- For the past 40 years, our company has always guaranteed the quality of the steel used in building our structures. Material Certifications are available on all material at the time of fabrication. Fabrication of the monopole is performed in accordance with the provisions of the AISC Manual of Steel Construction and ASCE Design of steel Transmission Pole Structures. All welding and inspection is in accordance with the American Welding Society's Specification D1.1-latest revision. Testing and inspection reports are available upon request at the time of fabrication.

In addition, we have designed this monopole with a theoretical break point at approximately 130.75-ft elevation, by purposely over designing the pole sections below this point. In the unlikely event the pole were to fail at this point, the significant loading reduction caused by the removal of the tower wind area and weight above would greatly reduce any chance that the remaining tower would have any structural damage, thereby providing a theoretical failure zone of approximately 19.25-ft for the 150-ft AGL monopole.

I hope these comments address any issues that you might encounter relative to the anticipated performance of monopole structures and quality of steel fabrication. If you have additional questions or comments, I may be reached at 503-589-6626.

Sincerely,

Jonathon Neumann
Associate Engineer, EIT
Valmont Microflect

JUL 15 2015

EXPIRES ON
JAN 31 2016

STATE OF CONNECTICUT
JEFFREY E. GRASSMAN
No. 19224
LICENSED PROFESSIONAL ENGINEER

Valmont Microflect, LTCS, Valmont Industries, Inc.
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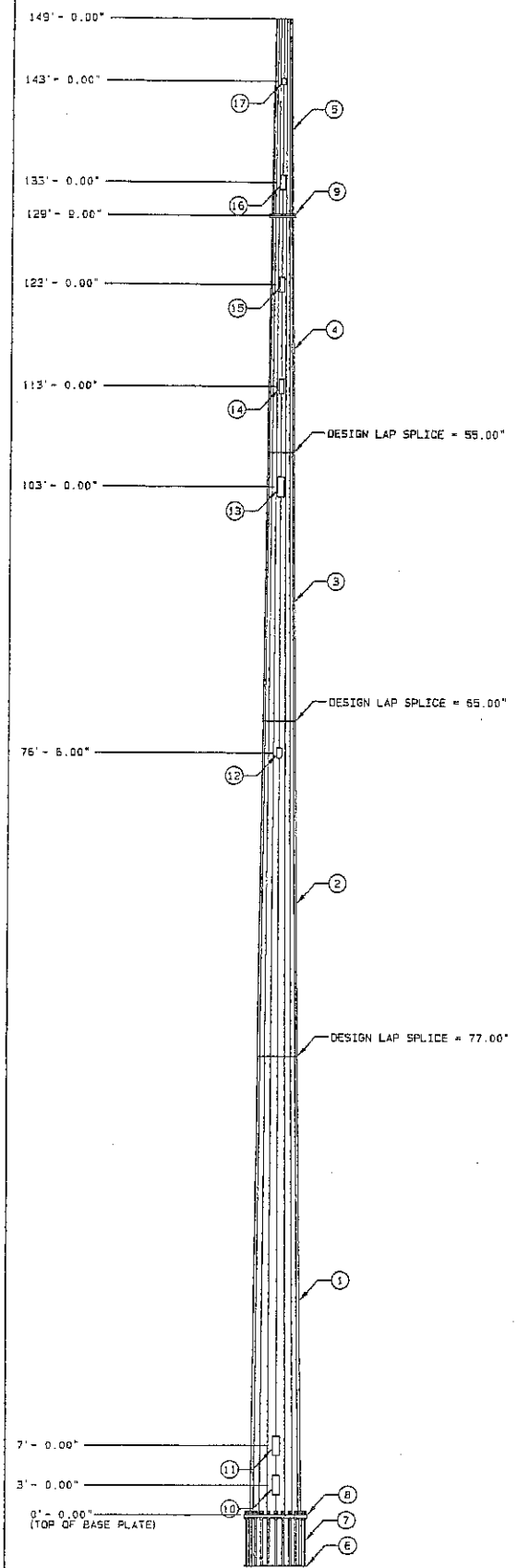
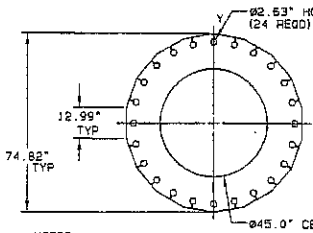


ITEM ID	NO. REQD	FEATURES	UNIT WEIGHT (LBS)	WEIGHT (LBS)
1	1	SECTION A VALMONT S-22 0.500" THK (A572 GR65)	14,810	14,810
2	1	SECTION B VALMONT S-22 0.438" THK (A572 GR65)	7,712	7,712
3	1	SECTION C VALMONT S-22 0.375" THK (A572 GR65)	4,357	4,357
4	1	SECTION D VALMONT S-22 0.250" THK (A572 GR65)	1,786	1,786
5	1	SECTION E VALMONT S-22 0.188" THK (A572 GR65)	870	870
6	1	BOTTOM CAGE PLATE	131	131
7	24	2.25" ANCHOR BOLT, LENGTH=5.50' A615 GR75	96	2,295
8	1	BASE PLATE VALMONT S-56 3.500" THK (A572 GR50)	3,308	3,308
9	2	FLANGE PLATE	279	558
	1	TOP CAGE PLATE (REMOVE BEFORE SETTING POLE)	174	174
	6	BOLT 1.00" DIA		
	1	SAFETY CLIMBING CABLE (LENGTH = 139.00')	108	108
	3	GROUNDING LUG	2	6
		GALVANIZING	505	505
	126	STEP AND CLIP (VALMONT STANDARD)	1	63
	7	BRACKET	10	70
10	3	HAND HOLE HVY (9" x 24")	66	198
11	3	HAND HOLE HVY (9" x 24")	66	198
12	2	HAND HOLE HVY (6" x 12")	26	52
13	3	HAND HOLE STD (9" x 24")	48	144
14	3	HAND HOLE STD (6" x 16")	18	54
15	3	HAND HOLE STD (6" x 18")	18	54
16	3	HAND HOLE STD (6" x 16")	18	54
17	3	HAND HOLE UR (6" x 16")		
	1	POLE CAP	21	21

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
33.84	0.00
32.69	8.76
29.31	16.92
23.93	23.93
16.92	29.31
8.76	32.69
0.00	33.84



NOTES:
1. BASE PLATE THICKNESS = 3.500"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 50
3. ANGLES ARE MEASURED CLOCKWISE FROM 0 DEGREES
4. MAXIMUM BOLT CIRCLE DIAMETER = 67.68"
5. MAXIMUM CAGE TEMPLATE DIAMETER = 73.68"

BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:

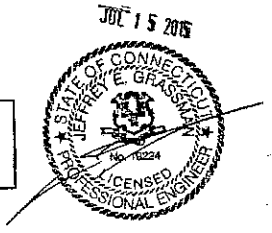
1. REACTIONS FOR FOUNDATION DESIGN
   MOMENT = 57,895 IN-KIPS
   SHEAR = 41,368 #
   VERTICAL = 60,973 #
2. GALVANIZED PER ASTM A-123.
3. DESIGN CRITERIA: EIA/TIA 222-F
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING:
   A. CASE 1: WIND = 85 MPH
   B. CASE 2: WIND = 74 MPH, ICE = 0.50 INCH
   C. CASE 3: WIND = 50 MPH
   D. EQUIPMENT

DESCRIPTION	MTG HT. (FT)	CENTROID HT. (FT)	WITHOUT ICE EPA (FT**2)	WITHOUT ICE WT (LBS)	WITH ICE EPA (FT**2)	WITH ICE WT (LBS)
1-CARRIER #4	115.00	115.00	112.35	2388	155.73	4134
1-CARRIER #5	105.00	105.00	112.35	2388	155.73	4134
1-4FT LIGHTNING ROD	149.00	151.00	0.25	10	2.00	22
1-2' HIGH PERFORMANCE	149.00	151.00	5.29	83	7.80	124
12-HPA-65R-BUU-H8	145.00	145.00	107.64	1188	138.72	2808
9-ERICSSON RRUS-11 (19.7"X17"	145.00	145.00	14.31	459	19.80	747
6-ERICSSON RRUS-12 (20.4"X18.	145.00	145.00	10.62	348	14.46	558
6-ERICSSON RRUS A2 MODULE (15	145.00	145.00	4.92	126	7.68	222
3-RRUS-E2 (20" X 20.4" X 9.5"	145.00	145.00	5.97	216	7.98	336
3-ERICSSON RRUS-32 (28.9"X13.	145.00	145.00	5.90	231	9.15	360
4-RAYCAP DC6-48-60-18-F (24"X	145.00	145.00	3.84	100	5.36	192
1-12' SPI LP PLATFORM	145.00	145.00	31.42	1143	55.71	1491
6-BXA-70063/6CF	135.00	135.00	30.60	234	41.70	708
6-BXA-171063/12CF	135.00	135.00	23.58	222	34.50	576
3-ALCALTEL-LUCENT RRH2X40-AWS	135.00	135.00	4.29	132	6.12	213
3-RRU (24" X 14" X5")	135.00	135.00	4.65	120	6.51	204
1-DISTRIBUTION BOX (24"X24"X1	135.00	135.00	3.84	44	4.72	99
1-12' SPI LP PLATFORM	135.00	135.00	15.71	1143	27.77	1491
12-PANEL (8' X 1' X 5")	125.00	125.00	89.28	1188	119.16	2472
6-RRU (24" X 14" X5")	125.00	125.00	9.30	240	12.96	408
3-T-ARM 6.5' S/O 13' C/A	125.00	125.00	13.77	960	29.61	1254
3-WHIP (2.5" X 20')	79.00	89.00	20.70	213	52.56	468
1-LARGE YAGI	79.00	79.00	9.06	81	13.38	112
3-6' PIVOT SIDE ARM (50° PIPE	79.00	79.00	8.76	387	17.76	576

5. FEEDLINES ARE PLACED INTERIOR TO POLE SHAFT (UNLESS NOTED OTHERWISE).
6. TOTAL POLE HEIGHT IS 150 FT AGL.
7. ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL).
8. POLE DESIGN MEETS TIA-222-G ADDENDUM 2.
9. POLE HAS A MAXIMUM 21 FT THEORETICAL FALL ZONE RADIUS.

JUL 15 2015

EXPIRES ON
JAN 31 2016



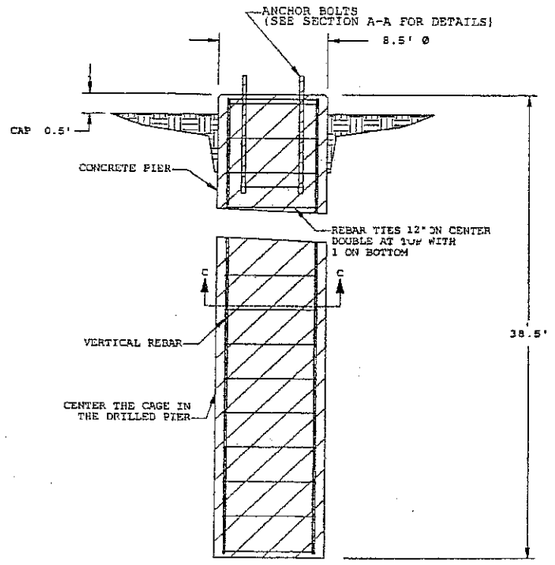
SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	52'- 6.00"	60.25"	45.23"	0.500"	A572 65 KSI
2	38'-11.00"	47.94"	36.61"	0.438"	A572 65 KSI
3	31'- 5.00"	39.11"	30.12"	0.375"	A572 65 KSI
4	23'- 4.00"	31.93"	25.26"	0.250"	A572 65 KSI
5	19'- 3.00"	25.26"	19.75"	0.188"	A572 65 KSI

REV	DESCRIPTION	DATE	ENGR
A	ADDED FALL ZONE	07/10/15	JDN4

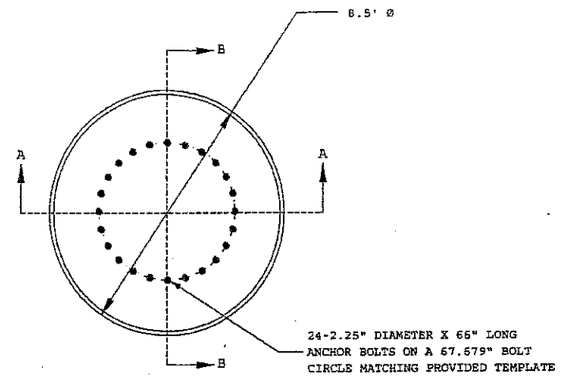
ORDER	PROJECT	FILE ID	SCALE	DATE	ENGR
239975	239975	239975RA	NONE	06/24/15	JDN4

DESCRIPTION
MESSAGE CENTER MANAGEMENT 150' POLE, SITE: REDDING-BLACKROCK TOWER, CT

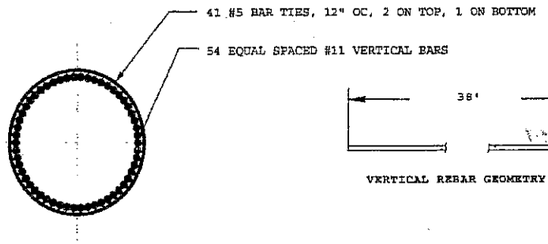
valmont



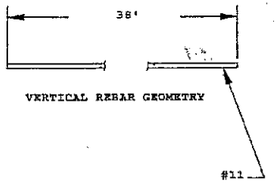
SECTION B-B
PIER ELEVATION
(NO SCALE)



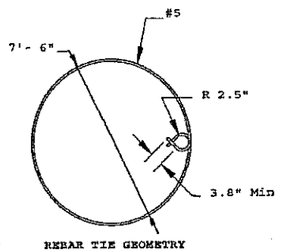
FOUNDATION & ANCHOR BOLT LAYOUT PLAN
(NO SCALE)



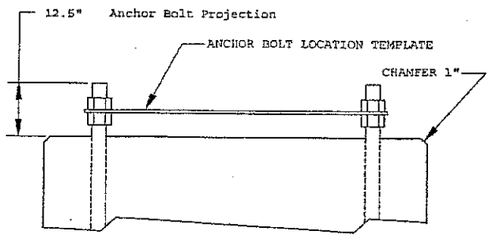
SECTION C-C
PIER REBAR LAYOUT
(NO SCALE)



VERTICAL REBAR GEOMETRY



REBAR TIE GEOMETRY



SECTION A-A TYP
ANCHOR BOLT ELEVATION
(NO SCALE)

Note: EXTREME CARE SHOULD BE TAKEN TO ENSURE THAT ALL BOLTS ARE LEVEL WITH RESPECT TO EACH OTHER TO ENSURE ADEQUATE NUT ENGAGEMENT

EXPIRES ON
JAN 31 2016

JUL 15 2015

STATE OF CONNECTICUT
JEFFREY E. GRASSMAN
No. 18224
LICENSED PROFESSIONAL ENGINEER

GENERAL NOTES: DRILLED PIER

1. Prior to excavation, check the area for underground facilities.
2. All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3. All concrete shall have a minimum compressive strength of 4000 psi @ 28 days. The requirement for the concrete shall be as given in the ACI "Building Code Requirements for Reinforced Concrete", ACI 318, the latest edition.
4. Trowel top of pedestal smooth.
5. Steel reinforcement and concrete should be placed immediately upon completion of the pier excavations. Contractor shall not allow a cold joint to form in the pier. Portion above grade should be formed. Temporary casing may be required to prevent caving prior to concrete placement.
6. The ground water was encountered at 30.8' below grade during boring.
7. Concrete is assumed to weigh 150 pcf.
8. Estimated concrete volume = 81 cubic yards total.
9. Design Based on the following loads from installation drawing for order No: 239975.

Moment	=	4807.9 FT-KIPS
Download	=	61 KIPS
Shear	=	41.4 KIPS

10. Reference: Terracon Project No. J2135211, Dated: November 15th, 2013
11. Concrete shall be placed using a tremie to the depth indicated on the foundation drawing.
12. Anchor bolts to be ASTM A615, Gr. 75 ksi.
13. Ref Soils Report for installation recommendations.

Reinforcement Steel Schedule						Total	Total
-	Type	Rebar size	Rebar Spacing	Bar Length (ft)	Bar Weight lb/ft	Weight (lb)	BAR Qty
1	Vertical	#11	EQUAL	38'	5.31	10896	54
2	Ties	#5	12"	25'- 1 3/16"	1.04	1070	41
TOTAL STEEL WEIGHT FOR COMPLETE FOUNDATION INSTALLATION =						11966#	

REBAR LAP SPLICE TABLE		Ref. ACI 318-95	
Rebar Size	Rebar Grade	CONCRETE STRENGTH PSI	VERTICAL REBAR OVERLAP
#11	60	3000	71"

NOTES: Splicing is an alternative to specified material listed in rebar schedule. Where vertical bars are to be spliced, splices should be staggered.

GRADE 60 REBAR TIES		HOOK GEOMETRY	
Rebar Size	ASK #	6db* ** Min Length	4db* Nominal Radius
#5	11-57205	3.8" Min	R 2.5"

* db = Bar Diameter
** Refers to (UBC-1997 1921.2.1.7) Stirrup hook detail 6db 3in min.

Rev	Description	Date	By/Ck
A	Revised Pole Loading	06/25/15	JDN
B	Added Fall Zone	07/10/15	JDN

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
X'- X X/X" = ± 1/8"
X X/X" = ± 1/16"
X' = ± 1/8"
X" = ± 1/16".

valmont MICROFLECT
3575 25TH STREET SE
SALEM, OR 97302
MAIN (503) 363-9267
FAX (503) 316-2040

By:	JDN
Check:	DDC
Date:	12/04/13

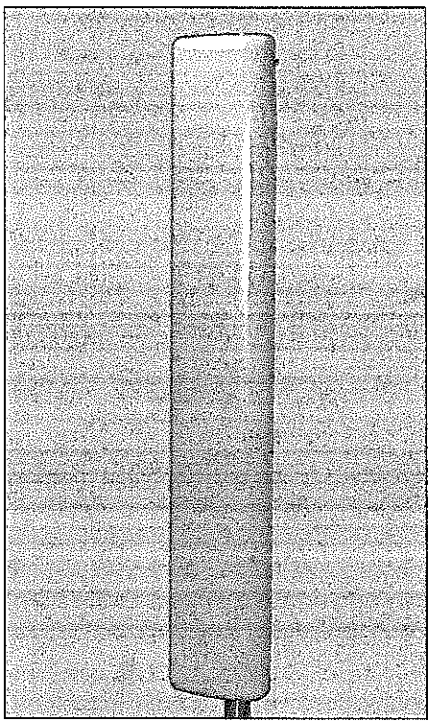
DRILLED PIER FOUNDATION LAYOUT
CUSTOMER: Message Center Management
SITE: Redding-Blackrock Tower

ANALYSIS VERSION: 1.14 | S.O.#239975 | SIZE - B | DWG NO.B-137941 | Sheet 1 of 1

Slant ±45° Dual Polarized, Panel 63° / 14.5 dBd
696-900 MHz

BXA-70063/6CF __

When ordering replace "__" with connector type.



Mechanical specifications

Length	1804	mm	71.0	in
Width	285	mm	11.2	in
Depth	127	mm	5.0	in
Depth with z-bracket	167	mm	6.5	in
Weight [4]	6.8	kg	14.9	lbs
Wind Area Fore/Aft	0.51	m^2	5.5	ft^2
Wind Area Side	0.23	m^2	2.5	ft^2
Max Wind Survivability	>241	km/hr	>150	mph
Wind Load @ 100 mph (161 km/hr)				
Fore/Aft	753	N	169	lbf
Side	378	N	85	lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter Ø50-160 mm; Ø2.0-6.3 in

Mounting Bracket Kit	TBD
Downtilt Bracket Kit	TBD

Electrical specifications

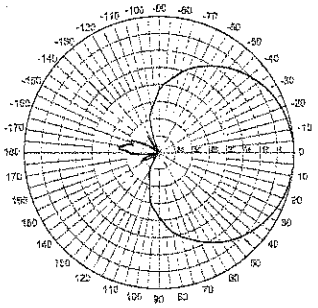
Frequency Range	696-900 MHz
Impedance	50Ω
Connector [3]	NE or E-DIN Female 2 ports / Center
VSWR [1]	≤ 1.35:1
Polarization	Slant ±45°
Isolation Between Ports [1]	< -25 dB
Gain [1]	14.5 dBd 16.5 dBi
Power Rating [2]	500 W
Half Power Angle [1]	
Horizontal Beamwidth	63°
Vertical Beamwidth	10°
Electrical downtilt [5]	0,2,4,6,8,10°
Null fill [1]	5%
Lightning protection	Direct ground

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

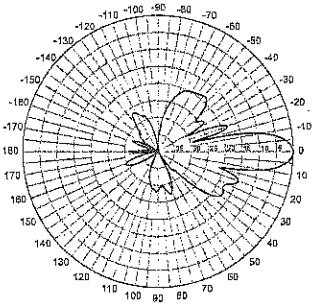
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
4) Antenna weight does not include brackets.
5) Add'l downtilts may be available. Check website for details.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern[1]
750 MHz

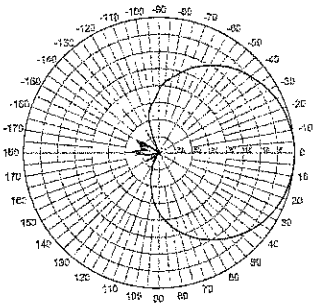


Horizontal



Vertical

850 MHz



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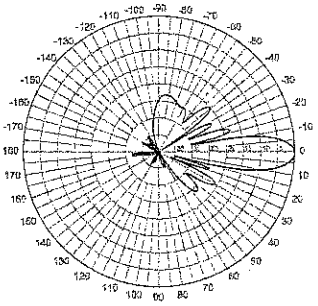


Vertical

696-900 MHz

Featuring our Exclusive 3T Technology™ Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:
This antenna is under a two-year limited warranty for repair or replacement.

Revision Date: 11/1/08 VZW1108

815.399.0001 • antel@antelinc.com • www.antelinc.com

BXA-171063-12CF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

Replace "X" with desired electrical downtilt.

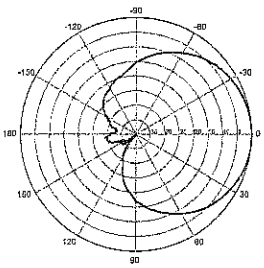
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	< -25 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1842 x 154 x 105 mm	72.5 x 6.1 x 4.1 in
Depth with z-brackets	133 mm	5.2 in
Weight without mounting brackets	5.8 kg	12.8 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²	Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 lbf

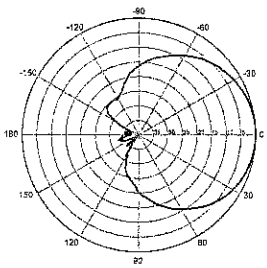
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12CF-EDIN-X-FP		

BXA-171063-12CF-EDIN-X



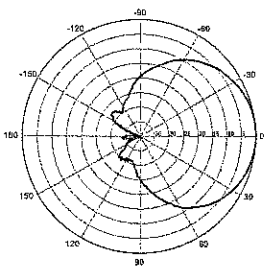
Horizontal | 1710-1880 MHz

BXA-171063-12CF-EDIN-X



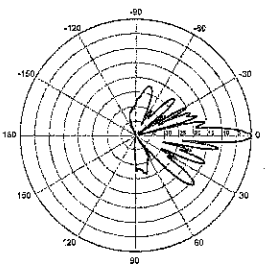
Horizontal | 1850-1990 MHz

BXA-171063-12CF-EDIN-X



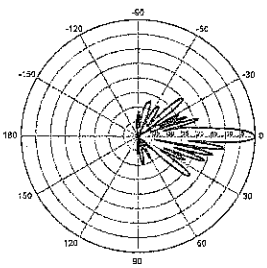
Horizontal | 1920-2170 MHz

BXA-171063-12CF-EDIN-0



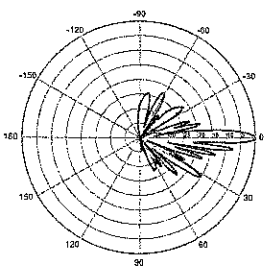
0° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-0

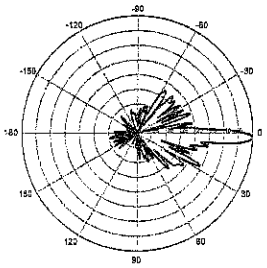


0° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-X

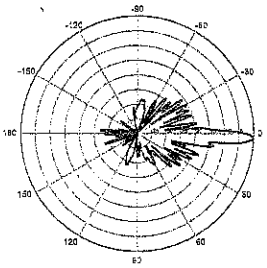
X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12CF-EDIN-2



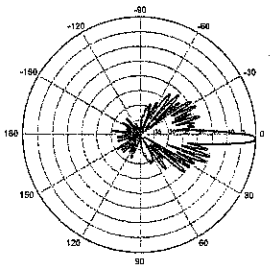
2° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-2



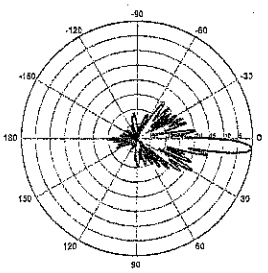
2° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-2



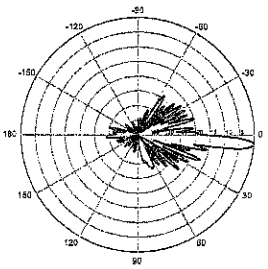
2° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-5



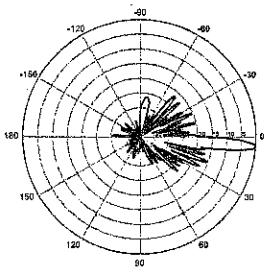
5° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-5



5° | Vertical | 1850-1990 MHz

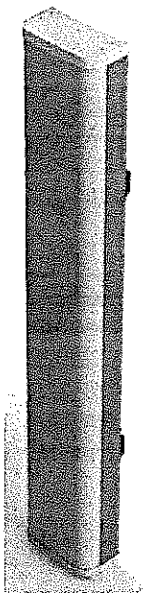
BXA-171063-12CF-EDIN-5



5° | Vertical | 1920-2170 MHz

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8



Hexport Multi-Band Antenna Array

The CCI Hexport Multi-Band Antenna Array is an industry first 6-port antenna with full WCS Band Coverage. With four high band ports and two low band ports, our hexport antenna is ready for 4X4 high band MIMO.

Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio.

Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost.

Full band capability for 700 MHz , Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2170 MHz and WCS 2300 MHz coverage in a single enclosure.

Benefits

- **Includes WCS Band**
- **Reduces tower loading**
- **Frees up space for tower mounted E-nodes**
- **Single radome with six ports**
- **All Band design simplifies radio assignments**
- **Sharp elevation beam eases network planning**

Features

- High Band Ports include WCS Band
- Four High Band ports with two Low Band ports in one antenna
- Sharp elevation beam
- Excellent elevation side-lobe performance
- Excellent MIMO performance due to array spacing
- Excellent PIM Performance
- A multi-network solution in one radome

Applications

- 4x4 MIMO on High Band and 2x2 MIMO on Low Band
- Adding additional capacity without adding additional antennas
- Adding WCS Band without increasing antenna count

ISO 9001:2008 Quality Management Systems Systèmes de Qualité www.cciglx.com

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

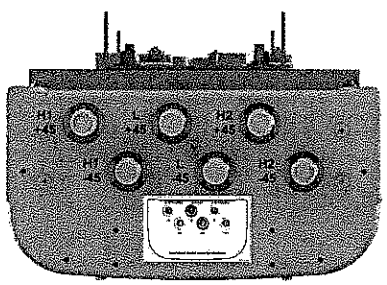
HPA-65R Multi-Band Antenna

Electrical Specifications

Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz		2305-2360 MHz
Gain	15.3 dBi	16.2 dBi	17.1 dBi	16.3 dBi	17.4 dBi	17.7 dBi
Azimuth Beamwidth (-3dB)	65°	61°	62°	68°	64°	60°
Elevation Beamwidth (-3dB)	10.1°	8.4°	5.6°	6.2°	5.0°	4.5°
Electrical Downtilt	2° to 10°	2° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -19 dB	< -18 dB	< -18 dB	< -17 dB
Front-to-Back Ratio @180°	> 29 dB	> 28 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 28 dB	> 27 dB	> 28 dB	> 27 dB	> 28 dB	> 28 dB
Cross-Polar Discrimination (at Peak)	> 24 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination (at ± 60°)	> 16 dB	> 14 dB	> 18 dB	> 18 dB	> 18 dB	> 18 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

Mechanical Specifications

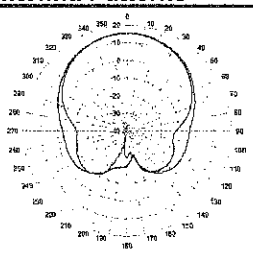
Dimensions (LxWxD)	92.4 x 14.8 x 7.4 inches (2348 x 376 x 189 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	332 lbs (1479 N) @ 100 mph (161 kph)
Side Wind Load	193 lbs (860 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.0 ft^2 (1.2 m^2)
Weight (without Mounting)	68 lbs (31 kg)
RET System Weight	5.0 lbs (2.25 kg)
Connector	6; 7-16 DIN female long neck
Mounting Pole	2-5 inches (5-12 cm)



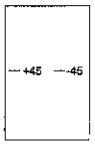
Bottom View

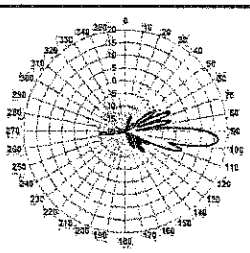
Rear View

Antenna Patterns*

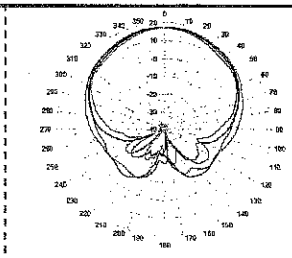


894 MHz Azimuth

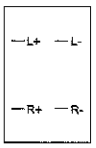


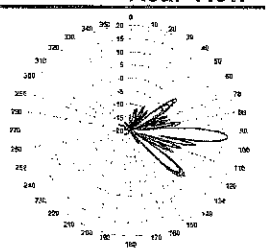


Elevation 5°



1920 MHz Azimuth





Elevation 4°

*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

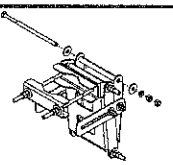
HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

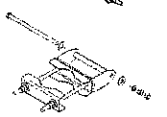
Ordering Information:

HPA-65R-BUU-H8	8 Foot Hexport Antenna with 65° Azimuth Beamwidth with Factory Installed Actuators (\3)
HPA-65R-BUU-H8-K	Complete Kit with Antenna, Factory Installed Actuators (3) and M03 Mounting Bracket
BSA-RET200	RET Actuator
BSA-M03	Mounting Bracket (Top & Bottom) with 0° through 10° Mechanical tilt Adjustment

M03 Top Mounting Bracket



M03 Bottom Mounting Bracket



RET [Remote Electrical Tilt] System

General Specification

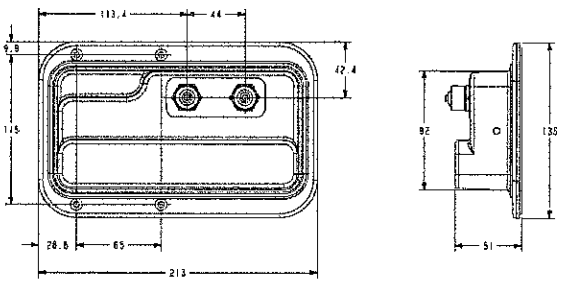
Part Number	BSA-RET200
Protocols	AISG 2.0
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C to +70°C

Electrical Specification

Interface Signal	Data | dc
Input Voltage Range	10-30 Vdc, Specifications at +24 VDC
Current consumption during tilting	120mA at Vin = 24V
Current consumption idle	55mA at Vin=24V
Hardware Interface	AISG - RS 485 A/B
Input Connector	1x8-pin Daisy Chain In Male
Output Connector	1x8-pin Daisy Chain Out Female

Mechanical Specification and Dimensions

Housing Material	ASA / ABS / Aluminum
Dimensions (H x W x D)	8 x 5 x 2 inches (213 x 135 x 51 mm)
Weight	1.5 lbs (0.68 kg)



Standards Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC 60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-2-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN60529 IP24

Regulatory Certification

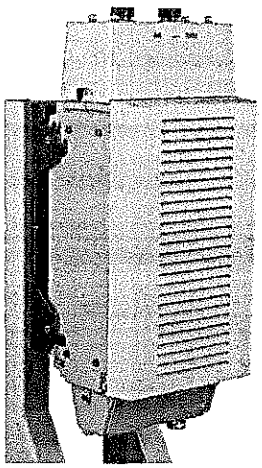
AISG, FCC Part 15 Class B, CE, CSA US

Alcatel·Lucent

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

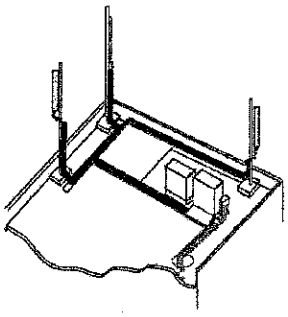
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced.
The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.

Features

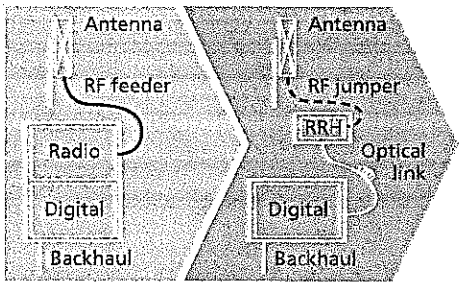
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

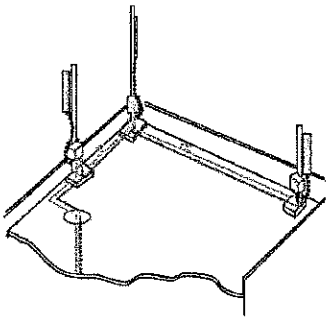
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

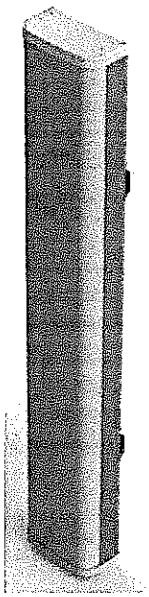
Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

Alcatel·Lucent

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8



Hexport Multi-Band Antenna Array

The CCI Hexport Multi-Band Antenna Array is an industry first 6-port antenna with full WCS Band Coverage. With four high band ports and two low band ports, our hexport antenna is ready for 4X4 high band MIMO.

Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio.

Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost.

Full band capability for 700 MHz , Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2170 MHz and WCS 2300 MHz coverage in a single enclosure.

Benefits

- **Includes WCS Band**
- **Reduces tower loading**
- **Frees up space for tower mounted E-nodes**
- **Single radome with six ports**
- **All Band design simplifies radio assignments**
- **Sharp elevation beam eases network planning**

Features

- High Band Ports include WCS Band
- Four High Band ports with two Low Band ports in one antenna
- Sharp elevation beam
- Excellent elevation side-lobe performance
- Excellent MIMO performance due to array spacing
- Excellent PIM Performance
- A multi-network solution in one radome

Applications

- 4x4 MIMO on High Band and 2x2 MIMO on Low Band
- Adding additional capacity without adding additional antennas
- Adding WCS Band without increasing antenna count

ISO 9001:2008 Quality Management Systems

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

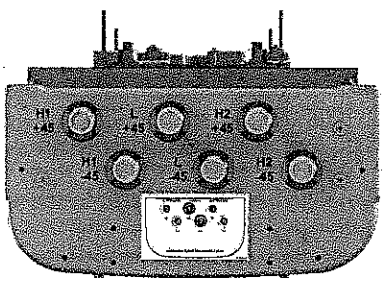
HPA-65R Multi-Band Antenna

Electrical Specifications

Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz	2305-2360 MHz	
Gain	15.3 dBi	16.2 dBi	17.1 dBi	16.3 dBi	17.4 dBi	17.7 dBi
Azimuth Beamwidth (-3dB)	65°	61°	62°	68°	64°	60°
Elevation Beamwidth (-3dB)	10.1°	8.4°	5.6°	6.2°	5.0°	4.5°
Electrical Downtilt	2° to 10°	2° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -17 dB	< -19 dB	< -18 dB	< -18 dB	< -17 dB
Front-to-Back Ratio @180°	> 29 dB	> 28 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Front-to-Back Ratio over ± 20°	> 28 dB	> 27 dB	> 28 dB	> 27 dB	> 28 dB	> 28 dB
Cross-Polar Discrimination (at Peak)	> 24 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination (at ± 60°)	> 16 dB	> 14 dB	> 18 dB	> 18 dB	> 18 dB	> 18 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

Mechanical Specifications

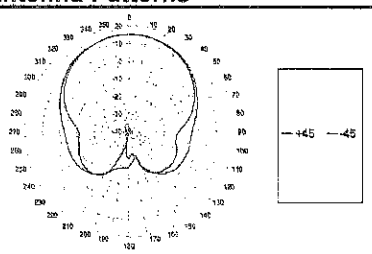
Dimensions (LxWxD)	92.4 x 14.8 x 7.4 inches (2348 x 376 x 189 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	332 lbs (1479 N) @ 100 mph (161 kph)
Side Wind Load	193 lbs (860 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.0 ft^2 (1.2 m^2)
Weight (without Mounting)	68 lbs (31 kg)
RET System Weight	5.0 lbs (2.25 kg)
Connector	6; 7-16 DIN female long neck
Mounting Pole	2-5 inches (5-12 cm)



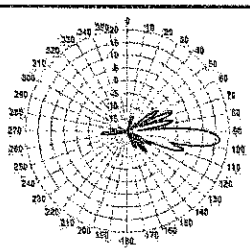
Bottom View

Rear View

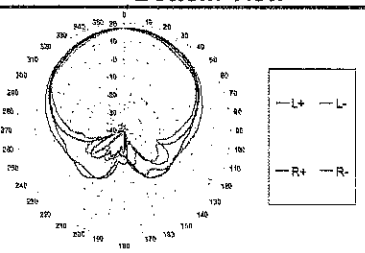
Antenna Patterns*



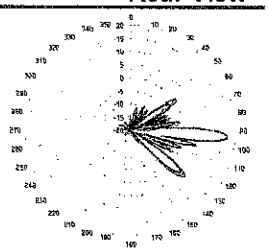
894 MHz Azimuth



Elevation 5°



1920 MHz Azimuth



Elevation 4°

*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

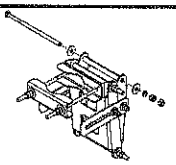
HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

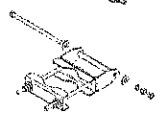
Ordering Information:

HPA-65R-BUU-H8	8 Foot Hexport Antenna with 65° Azimuth Beamwidth with Factory Installed Actuators (\3)
HPA-65R-BUU-H8-K	Complete Kit with Antenna, Factory Installed Actuators (3) and M03 Mounting Bracket
BSA-RET200	RET Actuator
BSA-M03	Mounting Bracket (Top & Bottom) with 0° through 10° Mechanical tilt Adjustment

M03 Top Mounting Bracket



M03 Bottom Mounting Bracket



RET [Remote Electrical Tilt] System

General Specification

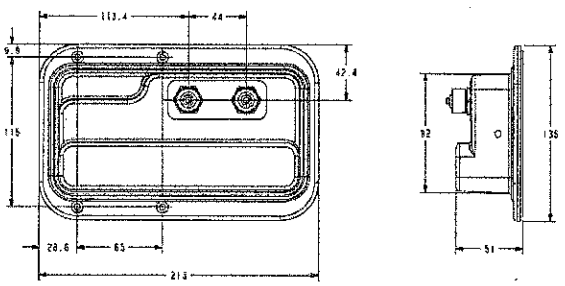
Part Number	BSA-RET200
Protocols	AISG 2.0
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C to +70°C

Electrical Specification

Interface Signal	Data | dc
Input Voltage Range	10-30 Vdc, Specifications at +24 VDC
Current consumption during tilting	120mA at Vin = 24V
Current consumption idle	55mA at Vin=24V
Hardware Interface	AISG - RS 485 A/B
Input Connector	1x8-pin Daisy Chain In Male
Output Connector	1x8-pin Daisy Chain Out Female

Mechanical Specification and Dimensions

Housing Material	ASA / ABS / Aluminum
Dimensions (H x W x D)	8 x 5 x 2 inches (213 x 135 x 51 mm)
Weight	1.5 lbs (0.68 kg)



Standards Compliance

Safety	EN 60950-1, UL 60950-1
Emission	EN 55022
Immunity	EN 55024
Environmental	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC 60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-2-30, IEC 60068-2-52, IEC 60068-2-64, GR-63-CORE 4.3.1, EN60529 IP24

Regulatory Certification

AISG, FCC Part 15 Class B, CE, CSA US

Description	Value
Dimensions with Solar Shield and Handle	
Height	500 mm
Width	431 mm
Depth	182 mm
Weight	
RRUS 11	23 kg
Color	
Gray	

(1) For RRUS 11 B7, 2x30W is guaranteed for operating ambient temperatures < +50 °C. For higher temperatures, 2x20W is guaranteed.
(2) Detailed information about LTE licences can be found in Licensing. Detailed information about WCDMA licences can be found in Licenses and Hardware Activation Codes.
(3) RRUS 11 for B12 has a bandwidth that is 2 MHz narrower than 3GPP. The supported frequency corresponds to EARFCN (Channel Numbers) of 5010-5169 in downlink and 23010-23169 in uplink.

The RRUS 11 size, height, width, and depth with solar shield, is shown in Figure 2.

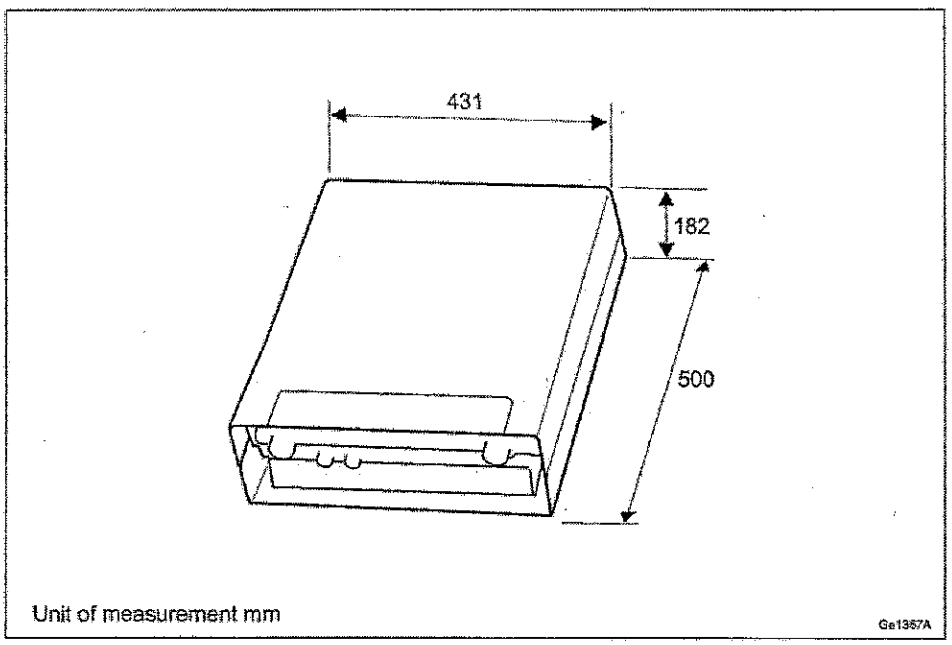
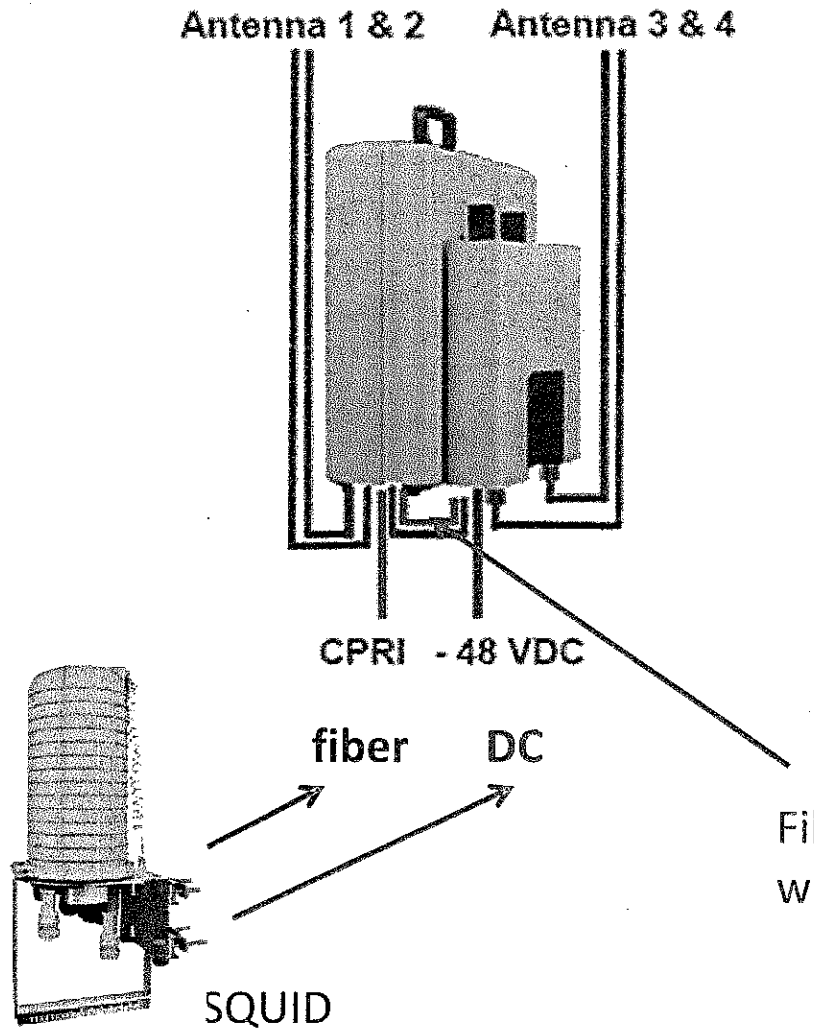


Figure 2 RRUS 11 Height, Width, and Depth with Solar Shield

Description	Value
Frequency	1,710 to 1,785 MHz uplink 1,805 to 1,880 MHz downlink IBW 25 MHz B3 for WCDMA and LTE (Type B)
Dimensions with Solar Shield and Handle and Feet	
Height	518 mm
Width	470 mm
Depth Type B	187 mm
Dimensions without Solar Shield and without Handle or Feet	
Height	418 mm
Width	458 mm
Depth Type B	159 mm
Weight	
RRUS 12 Type B	26.3 kg
Color	
Gray	

The RRUS 12 size, height, width, and depth with solar shield, is shown in Figure 2.

RRUS A2 is an additional 2-way RX only module that can be "bolted" to existing RRUS RRH. It will work with RRUS-12 and RRUS-11.



Band	PCS	PCS
Product Name	A2	RRUS-12 B2
Product Number	KRC 161 286/1	KRC 161 299/2
TX power	N/A	2x60W
RX branches	2	2
Dimensions (HxWxD)	16.4"x15.2"x3.4"	20.4"x18.5"x7.5"
Weight	22 lbs	58 lbs
HW Availability	Jan. '14	Jan. '14
SW Dependency	L13A	L13A

Fiber cascade cable (1m) + 2 SFPs will be included in A2 ordering

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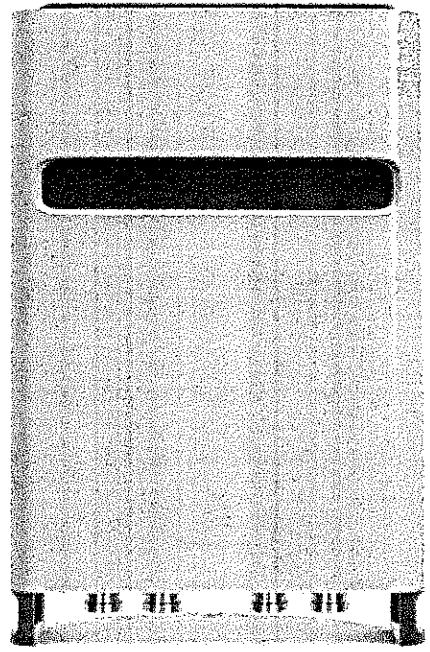
RRUS 32 B30 Data Sheet

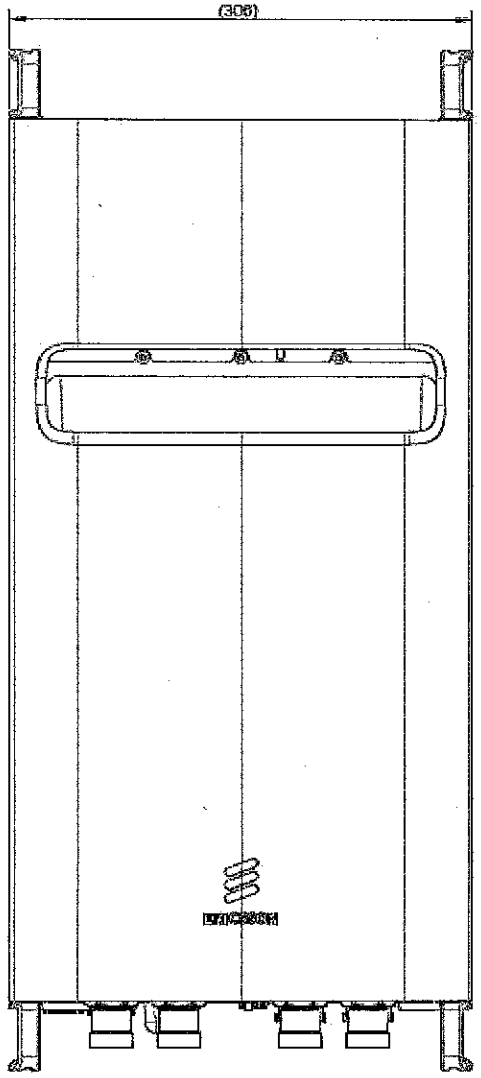
RRUS 32 B30

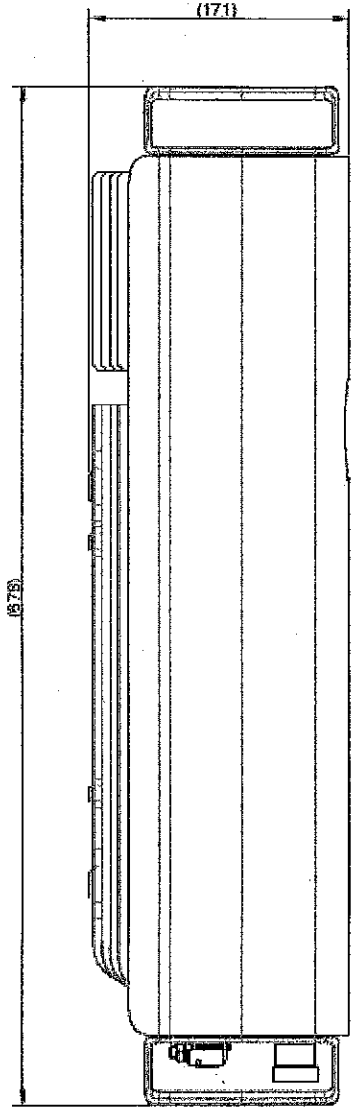
PRELIMINARY

- WCS A+B blocks
  - TX = 2350 – 2360 MHz
  - RX = 2305 – 2315 MHz
- RF output 4 x 25 Watts
- 4T4R FDD
- 10 MHz IBW for LTE
- CPRI 2 ports x 10 Gbps
- Dimensions (incl. feet and sunshield)
  - Height: 26.7" (678 mm)
  - Width: 12.1" (306 mm)
  - Depth: 6.7" (171 mm)
- Weight, excl. mounting hardware
  - 60 lbs (23 kg)



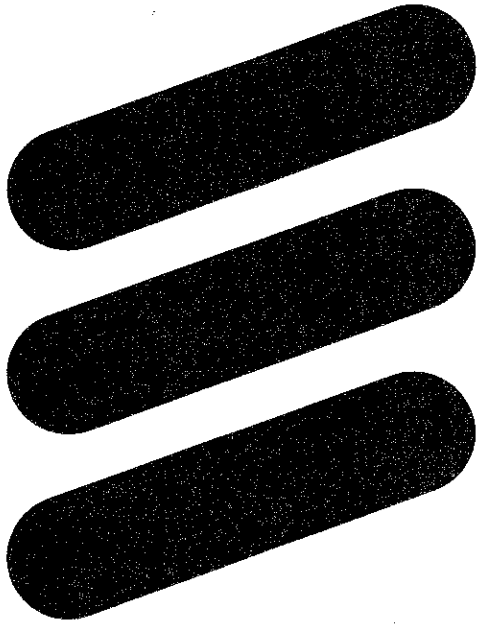
Mechanical Outline





(millimeters)

PRELIMINARY

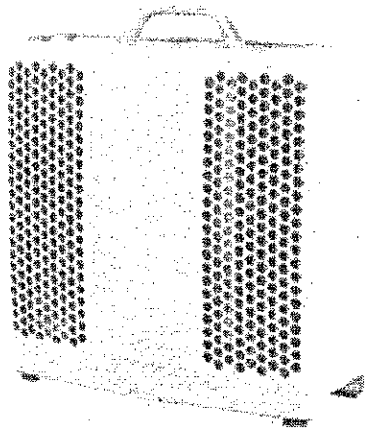


ERICSSON

RRUS E2 B29

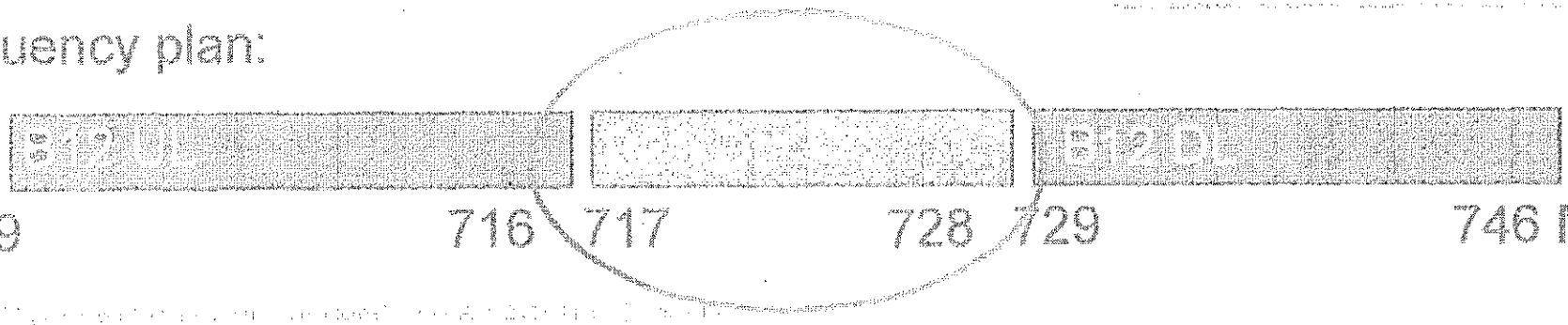
OVERVIEW

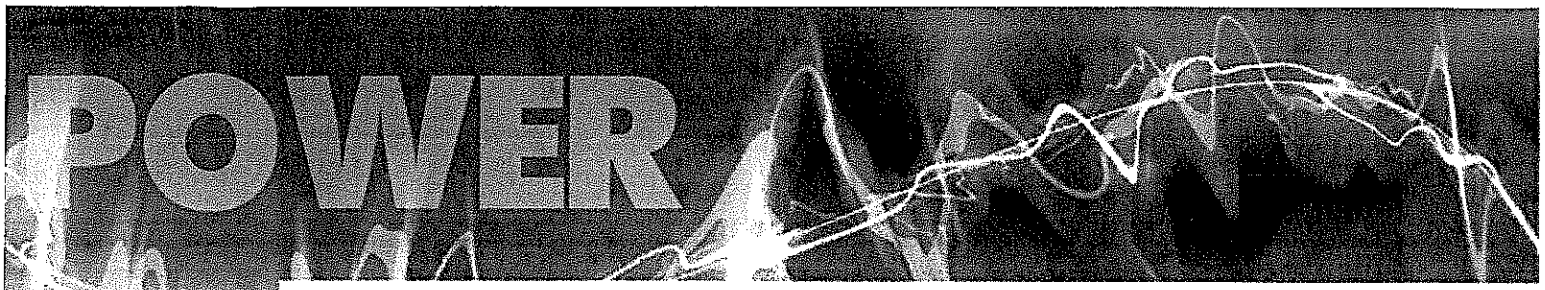
- Built on RRUS 12 platform
- RF Power 2x40 Watts
- Improved TX filter, to reduce spurious emissions into B17 (12) uplink
- LTE – DL only. Up to 10 MHz
- Type B chassi:
  - HxWxD = 20.4"x18.5"x7.5" (including sun shield and handle)
  - Weight: Less than 60 lbs



PRA: February, 2014

Frequency plan:





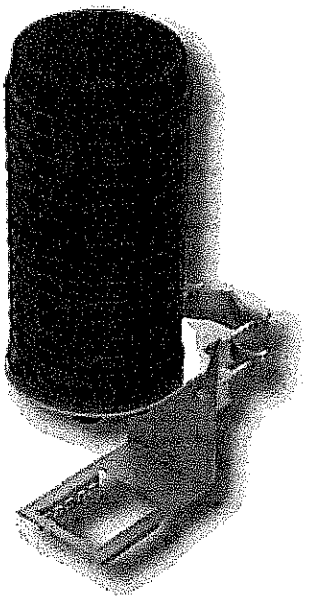
DC6-48-60-18-8F

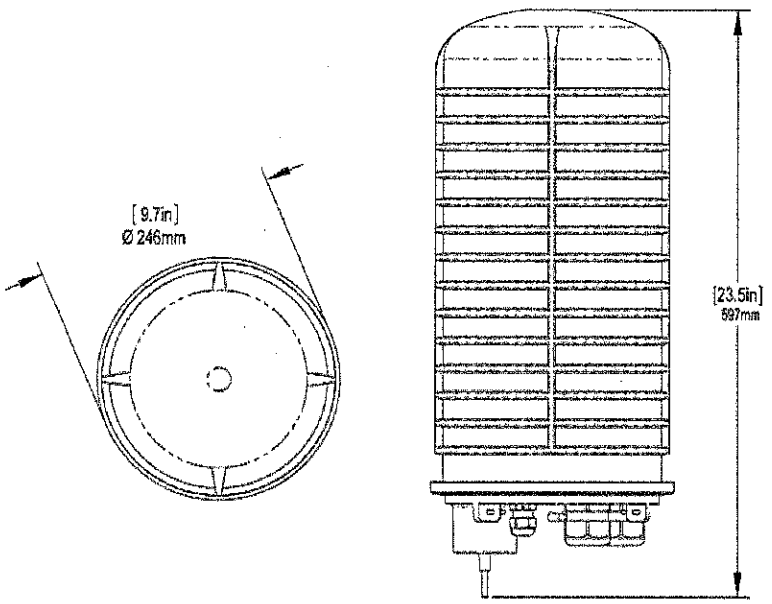
DC Surge Suppression Solution

The DC6-48-60-18 is a dual chambered, DC surge suppression system for use in multi-circuit, Distributed Antenna Systems. The system will protect up to 6 Remote Radio Heads from voltage surges and lightning, and connect up to 18 fiber pairs. The system is enclosed in a NEMA 4 rated, waterproof enclosure.

FEATURES

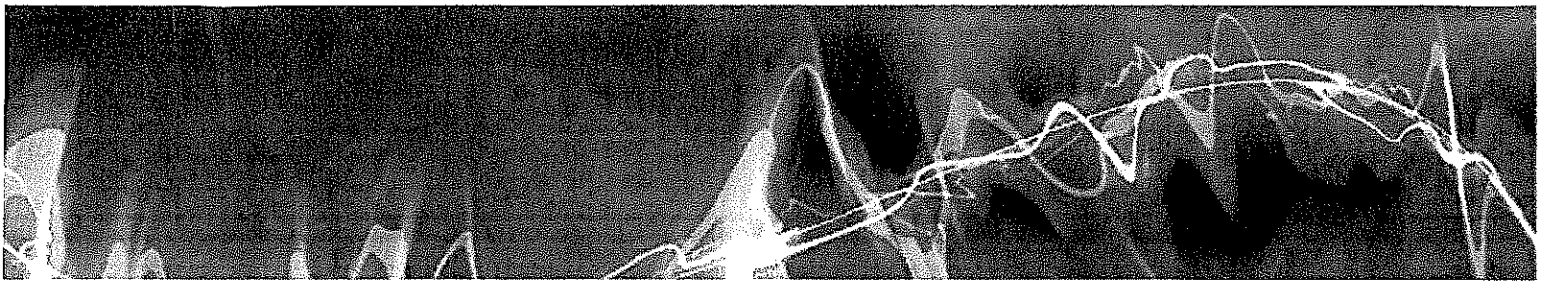
- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Includes fiber connections for up to 18 pairs of fiber.
- LED indicators on individual circuits provide visual indication of suppressor status.
- Form 'C' relays allow for remote monitoring of the suppressor status.
- Patented Strikesorb technology provides over 60 kA of surge current capacity per circuit.
- Strikesorb suppression modules are fully recognized to UL 1449-3rd Edition Safety Standard, meeting all intermediate and high current fault requirements to facilitate use in OEM applications.
- Raycap recommends that DC protection system be installed within 2 meters or 6 feet of the radio.
- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.





Raycap

Phone 208.777.1166 Toll Free 800.890.2569 Fax 208.777.4466 www.raycapsurgeprotection.com



DC6-48-60-18-8F

DC Power Surge Protection

Electrical Specifications	
Model Number	DC6-48-60-18-8F
Nominal Operating Voltage	48 VDC
Nominal Discharge Current (I_n)	20 kA 8/20 µs
Maximum Discharge Current (I_{max}) per NEMA LS-1	60 kA 8/20 µs
Maximum Continuous Operating Voltage (U_c)	75 VDC
Voltage Protection Rating	400 V

Mechanical Specifications	
Suppression Connection Method	Compression lug, #2-#14 AWG Copper, #2-#12 Aluminum
Fiber Connection Method	LC-LC Single mode duplex
Environmental Rating	IP 68, 7m 72hrs
Operating Temperature	-40° C to + 80° C
Storage Temperature	-70° C to + 80° C
Cold Temperature Cycling	IEC 61300-2-22e -30° C to + 60° C 200 hrs @ 5 psi
Resistance to Aggressive Materials	CEI IEC 61073-2 including acids and bases
UV Protection	ISO 4892-2 Method A Xenon-Arc 2160 hrs
Weight	20 lbs without Mounting Bracket

STANDARDS

Strikesorb modules are compliant to the following Surge Protection Device (SPD) Standards:

- ANSI/UL 1449 – 3rd Edition
- IEEE C62.41
- NEMA LS-1, IEC 61643-1:2005 2nd Edition:2005
- IEC 61643-12
- EN 61643-11:2002 (including A11:2007)

GS-07F-0435V

Certified to ISO 9001:2000

TÜV Rheinland of North America

Raycap

Raycap, Inc. 806 W. Clearwater Loop • Post Falls • Idaho • 83854 • USA
Phone 208.777.1166 • Toll Free 800.890.2569 • Fax 208.777.4466 • www.raycapsurgeprotection.com

GENERAC® | INDUSTRIAL POWER

SG080 80 kW

SG080

8.0L

Industrial Spark-Ignited Generator Set

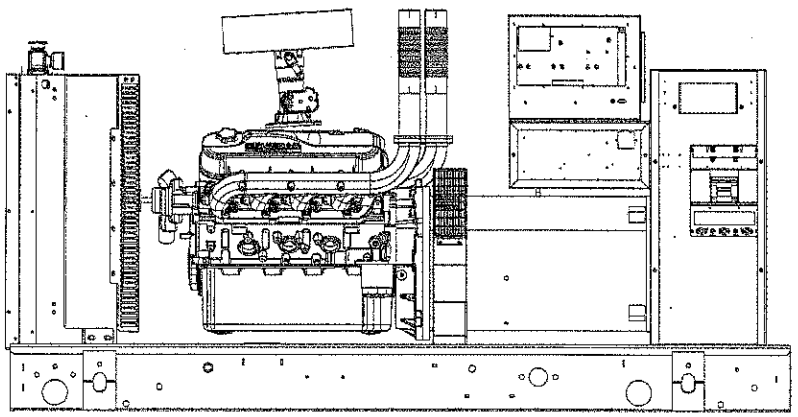
EPA Certified Stationary Emergency

Standby Power Rating
80 kW 100 kVA 60 Hz

Prime Power Rating*
72 kW 90 kVA 60 Hz

ISO 9001:2008

USA ENGINEERED & BUILT*
*Built in the USA using domestic and foreign parts



*EPA Certified Prime ratings are not available in the U.S. or its Territories

Image used for illustration purposes only

Codes and Standards

Generac products are designed to the following standards:

c UL us	UL2200, UL508, UL142, UL498
NFPA	NFPA70, 99, 110, 37
nec	NEC700, 701, 702, 708
ISO 9001:2008	ISO9001, 8528, 3046, 7637, Pluses #2b, 4
NEMA	NEMA ICS10, MG1, 250, ICS6, AB1
ANSI American National Standards Institute	ANSI C62.41
ICC oshpd	IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

GENERAC | INDUSTRIAL POWER

SG080

Standard Features

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Critical Exhaust Silencer
- Factory Filled Oil
- Radiator duct adapter (open set only)

Fuel System

- Primary and Secondary Fuel Shutoff
- Flexible Fuel Line - NPT Connection

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-installed Radiator
- 50/50 Ethylene glycol antifreeze

Engine Electrical System

- Battery charging alternator
- Battery Cables
- Battery Tray
- Solenoid activated starter motor
- Rubber-booted engine electrical connections

ALTERNATOR SYSTEM

- UL2200 GENprotect™
- Class H insulation material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearings
- Amortisseur winding
- Full load capacity alternator

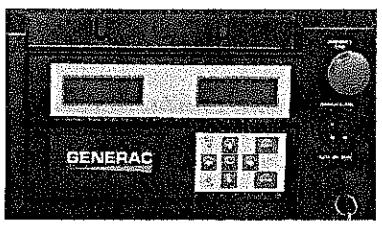
GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Wrapped Exhaust Piping (enclosed units only)
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (if selected)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

CONTROL SYSTEM



Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection
- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

SG080

Configurable Options

ENGINE SYSTEM

General

- ○ Engine Block Heater
- ○ Oil Heater
- ○ Air Filter Restriction Indicator
- ○ Stone Guard (Open Set Only)

Engine Electrical System

- ○ 10A UL battery charger
- ○ 2.5A UL battery charger
- ○ Battery Warmer

GENERATOR SET

- ○ Gen-Link Communications Software (English Only)
- ○ Extended Factory Testing (3 Phase Only)
- ○ IBC Seismic Certification
- ○ 8 Position Load Center
- ○ 2 Year Extended Warranty
- ○ 5 Year Warranty
- ○ 5 Year Extended Warranty

ENCLOSURE

- ○ Standard Enclosure
- ○ Level 1 Sound Attenuation
- ○ Level 2 Sound Attenuation
- ○ Steel Enclosure
- ○ Aluminum Enclosure
- ○ 12 VDC Enclosure Lighting Kit
- ○ 120 VAC Enclosure Lighting Kit
- ○ AC/DC Enclosure Lighting Kit
- ○ Door Alarm Switch

ALTERNATOR SYSTEM

- ○ Alternator Upsizing
- ○ Anti-Condensation Heater
- ○ Tropical coating
- ○ Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS

- ○ Main Line Circuit Breaker
- ○ 2nd Main Line Circuit Breaker
- ○ Shunt Trip and Auxiliary Contact
- ○ Electronic Trip Breakers

CONTROL SYSTEM

- ○ 21-Light Remote Annunciator
- ○ Remote Relay Panel (8 or 16)
- ○ Oil Temperature Sender with Indication Alarm
- ○ Remote E-Stop (Break Glass-Type, Surface Mount)
- ○ Remote E-Stop (Red Mushroom-Type, Surface Mount)
- ○ Remote E-Stop (Red Mushroom-Type, Flush Mount)
- ○ Remote Communication - Modem
- ○ Remote Communication - Ethernet
- ○ 10A Run Relay
- ○ Ground fault indication and protection functions

Engineered Options

ENGINE SYSTEM

- ○ Coolant heater ball valves
- ○ Fluid containment pans

GENERATOR SET

- ○ Special Testing
- ○ Battery Box

CONTROL SYSTEM

- ○ Spare inputs (x4) / outputs (x4) - H Panel Only
- ○ Battery Disconnect Switch

ALTERNATOR SYSTEM

- ○ 3rd Breaker Systems

ENCLOSURE

- ○ Motorized Dampers
- ○ Enclosure Ambient Heaters
- ○ 150 MPH Wind Kit

Rating Definitions

Standby – Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Power ratings in accordance with ISO 8528-1, Second Edition dated 2005-06-01, definitions for Prime Power (PRP) and Emergency Standby Power (ESP).

GENERAC | INDUSTRIAL POWER

SG080 application and engineering data

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	8
Type	V
Displacement - L (Cu in)	7.94L (489)
Bore - mm (in)	108.61 (4.28)
Stroke - mm (in)	107.15 (4.25)
Compression Ratio	9.5:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged
Cylinder Head	Cast Iron
Cylinder Liners	No
Ignition	High Energy
Pistons	Aluminum Alloy
Crankshaft	Forged Steel
Lifter Type	Hydraulic Roller
Intake Valve Material	Steel Alloy
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	Yes

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	+/- 0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-flow spin-on cartridge
Crankcase Capacity - L (qts)	8.5 (8.0)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Flow - gpm (lpm)	26 (98)
Fan Type	Pusher
Fan Speed (rpm)	2330
Fan Diameter mm (in)	558 (22)
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120 V

Fuel System

Fuel Type	Natural Gas, Propane
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure (Standard)	11" - 14" H_2O
Operating Fuel Pressure (Optional)	7" - 11" H_2O

Engine Electrical System

System Voltage	12 VDC
Battery Charging Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390 mm
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	Brushless
Bearings	Sealed Ball
Coupling	Direct Drive
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/- 0.25%

SG080 operating data

POWER RATINGS

	Natural Gas		Propane Vapor	
Single-Phase 120/240 VAC @1.0pf	80 kW	Amps: 333	80 kW	Amps: 333
Three-Phase 120/208 VAC @0.8pf	80 kW	Amps: 278	80 kW	Amps: 278
Three-Phase 120/240 VAC @0.8pf	80 kW	Amps: 241	80 kW	Amps: 241
Three-Phase 277/480 VAC @0.8pf	80 kW	Amps: 120	80 kW	Amps: 120
Three-Phase 346/600 VAC @0.8pf	80 kW	Amps: 96	80 kW	Amps: 96

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

		480 VAC						208/240 VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	80	59	88	117	147	176	205	44	66	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	89	118	148	177	206
Upsize 2	130	116	174	232	290	348	406	87	131	174	218	261	305

FUEL CONSUMPTION RATES*

Natural Gas – ft³/hr (m³/hr)	
Percent Load	Standby
25%	378 (10.7)
50%	570 (16.1)
75%	762 (21.6)
100%	954 (27.0)

Propane Vapor – ft³/hr (m³/hr)	
Percent Load	Standby
25%	148.0 (4.2)
50%	223 (6.5)
75%	305 (8.6)
100%	379 (10.7)

*Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (inlet air combustion and radiator)	ft³/min (m³/min)	5757 (163.0)
Coolant Flow per Minute	gpm (lpm)	26 (98)
Coolant System Capacity	gal (L)	6.0 (22.7)
Heat Rejection to Coolant	BTU/hr	302,400
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Radiator Backpressure	in H_2O	0.5

COMBUSTION AIR REQUIREMENTS

		Standby
Flow at Rated Power	cfm (m3/min)	220 (6.2)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	127
Piston Speed	ft/min (m/min)	1275 (389)
BMEP	psi	113

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

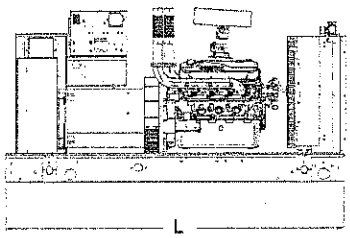
EXHAUST

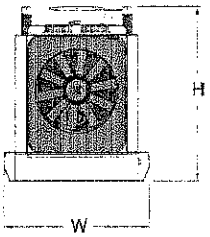
		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	636 (18.0)
Maximum Recommended Back Pressure	inHg	0.75
Exhaust Temp (Rated Output)	°F (°C)	1100 (593)
Exhaust Outlet Size (Open Set)	in	2.5" I.D Flex x 2 (No Muffler)

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

GENERAC | INDUSTRIAL POWER

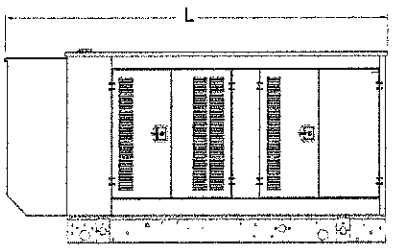
SG080 dimensions, weights, and sound levels

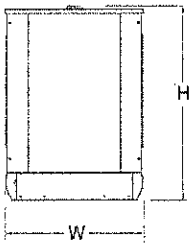




OPEN SET (Includes Exhaust Flex)

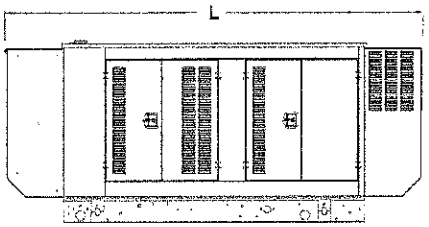
L x W x H in (mm)	94.2 (2394) x 40 (1016) x 47.5 (1206)
Weight lbs (kg)	2064 (936.2)
Sound Level (dBA*)	83.5

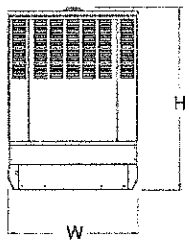




STANDARD ENCLOSURE

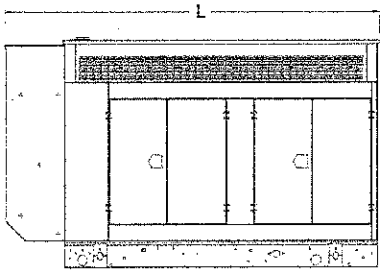
L x W x H in (mm)	111.79 (2839.5) x 40.46 (1027.8) x 56.18 (1427)
Weight lbs (kg)	Steel: 2708 (1228) Aluminum: 2413 (1094)
Sound Level (dBA*)	79.2

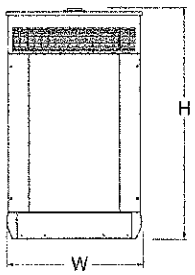




LEVEL 1 ACOUSTIC ENCLOSURE

L x W x H in (mm)	129.42 (3287.2) x 40.46 (1027.8) x 56.18 (1427)
Weight lbs (kg)	Steel: 2798 (1269.2) Aluminum: 2355 (1068)
Sound Level (dBA*)	74.8





LEVEL 2 ACOUSTIC ENCLOSURE

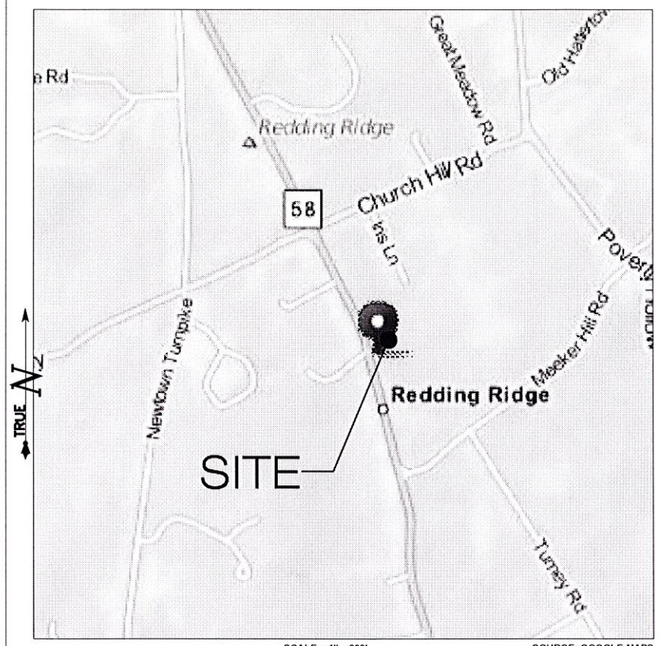
L x W x H in (mm)	111.81 (2840) x 40.46 (1027.8) x 68.61 (1742.8)
Weight lbs (kg)	Steel: 3022 (1370.8) Aluminum: 2431 (1103)
Sound Level (dBA*)	70.1

*All measurements are approximate and for estimation purposes only. Sound levels measured at 23 ft (7 m) and does not account for ambient site conditions.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

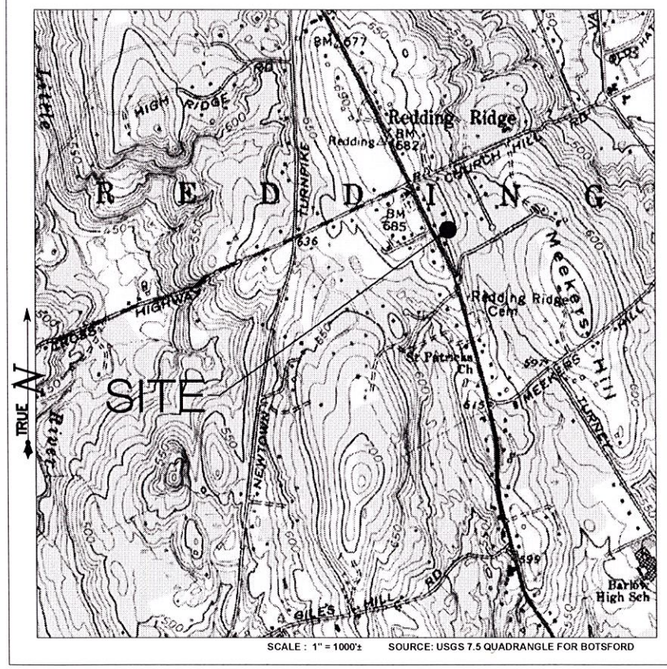
Specification characteristics may change without notice. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

LOCATION MAP



SCALE : 1" = 800' SOURCE: GOOGLE MAPS

USGS TOPOGRAPHIC MAP



SCALE : 1" = 1000'± SOURCE: USGS 7.5 QUADRANGLE FOR BOTSFORD

SPRINGWICH CELLULAR LIMITED PARTNERSHIP

d/b/a at&t MOBILITY

500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

MCM

MESSAGE CENTER MANAGEMENT

40 WOODLAND STREET
HARTFORD, CT 06105
OFFICE: (888) 973-7483

DEVELOPMENT & MANAGEMENT PLAN DRAWING INDEX

*SITE INFORMATION:

-SITE NAME:..... REDDING RIDGE
-SITE ID NUMBER:..... CT-505

-SITE ADDRESS:..... 186 BLACK ROCK TURNPIKE
REDDING, CT 06896

-MAP:..... 23
-LOT:..... 72

-ZONE:..... R-2
-LATITUDE - ..... 41° 18' 35.77" N
-LONGITUDE - ..... 73° 20' 51.35" W
-ELEVATION - ..... 636'± AMSL

-FEMA/FIRM DESIGNATION:..... PANEL #09001C0265F - ZONE 'X'
-ACREAGE:..... 0.624 Ac

ALL-POINTS TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

CONTACT PERSONNEL

APPLICANTS:
MESSAGE CENTER MANAGEMENT
40 WOODLAND STREET
HARTFORD, CT 06105

CO-APPLICANTS
AT&T MOBILITY
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

LANDLORD
REDDING FIRE DISTRICT 1
PO BOX 45
REDDING, CT 06875

MCM PROJECT MANAGER:

VIRGINIA KING (860) 727-5790

MCM PROJECT ATTORNEY:

CUDDY & FEDER, LLP
445 HAMILTON AVE., 14TH FLOOR
WHITE PLAINS, NY 10601
914-761-1300

POWER PROVIDER:

EVERSOURCE (203) 845-3487
RICHARD MATHIES - CASE #2299239

TELCO PROVIDER:
FRONTIER: (800) 921-8102

CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODES:
2009 CONNECTICUT BUILDING CODE (2003 IBC BASIS)
2011 NATIONAL ELECTRIC CODE
EIA/TIA 222F

SITE INFORMATION

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DEVELOPMENT & MANAGEMENT DOCUMENTS	TITLE SHEET & INDEX
REDDING RIDGE 186 BLACK ROCK TURNPIKE REDDING, CT 06896	
DESIGN TYPE: RAW LAND	APT FILING NUMBER: CT-242-310 APT DRAWING NUMBER: CT-505 T-1 DRAWN BY: RCB / SCALE: AS NOTED CHECKED BY: SMC / DATE: 08/03/15
REVISIONS: REV.0: 08/11/15: FOR REVIEW: SMC REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC REV.2: REV.3: REV.4: REV.5:	SHEET NUMBER: T-1

SURVEY NOTES

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES — "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996. IT IS A IMPROVEMENT LOCATION SURVEY AND IS BASED UPON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND A VERTICAL ACCURACY OF CLASS T-2 AND IS INTENDED TO BE USED FOR THE PURPOSE OF SHOWING EXISTING CONDITIONS AND PROPERTY LINE INFORMATION

MAP REFERENCES

1) MAP OF PROPERTY PREPARED FOR FIRE DISTRICT NO. 1, AT REDDING, CONN., SCALE 1"=30', DATED APRIL 29, 1955, JOHN M. FARNSWORTH.

2) PROPERTY DEPOSITION MAP, PREPARED FOR JENNINGS ESTATE, 194 BLACK ROCK TURNPIKE, REDDING, CONNECTICUT, SCALE 1"=100', DATED 8-21-2006, BY EDWARD SHELOMIS.

3) RIGHT OF WAY MAP, TOWN OF REDDING, BETHEL – BRIDGEPORT ROAD, FROM MEEKER HILL ROAD, NORTHERLY TO THE FIVE CORNERS, ROUTE NO. 58, SCALE 1"=40', DATED OCTOBER 29, 1937, BY CONNECTICUT STATE HIGHWAY DEPARTMENT.

NORTH ORIENTATION AND COORDINATES REFER TO CONNECTICUT GRID SYSTEM NAD 83.

ELEVATIONS BASED ON NAVD 1988 DATUM.

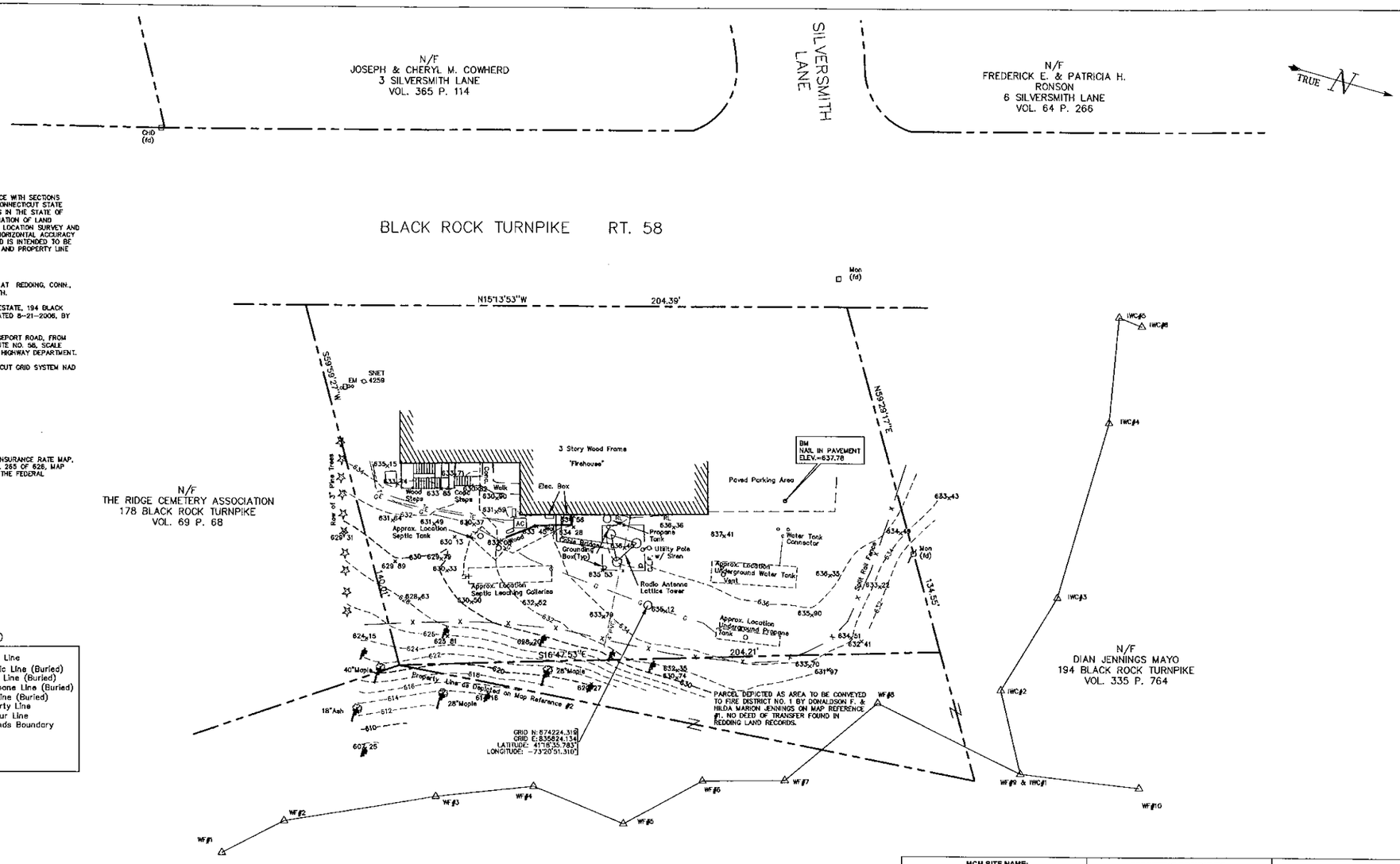
PARCEL ADDRESS: 186 BLACK ROCK TURNPIKE

PARCEL OWNER OF RECORD: REDDING FIRE DISTRICT NO. 1

MAP 23 LOT 72 REDDING ASSESSORS MAP.

PARCEL AREA = 0.624± ACRES.

PARCEL IS NOT IN A FLOOD HAZARD ZONE ON THE FLOOD INSURANCE RATE MAP, FAIRFIELD COUNTY, CONNECTICUT, ALL JURISDICTIONS, PANEL 265 OF 626, MAP NUMBER 09001C0265F, EFFECTIVE DATE JUNE 18, 2010, BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.



SYMBOLS LEGEND

Monument	Fence Line
Hydrant	Electric Line (Buried)
Post	Water Line (Buried)
Utility Post	Telephone Line (Buried)
Elec. Box	Gas Line (Buried)
Elec. Meter	Property Line
Evergreen Tree	Contour Line
Deciduous Tree	Wetlands Boundary
Air Conditioner	
Transformer	
Spot Grade	

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL

4/11/2014

A. RAFAEL MARTINEZ LLS #16833 DATE

STATE OF CONNECTICUT ANGEL R. MARTINEZ No. 16833 LICENSED LAND SURVEYOR

MCM SITE NAME: **REDDING RIDGE CT505**

APT FILING NUMBER: **CT-242-310**

PERMITTING DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

REV.0:
REV.1:
REV.2:
REV.3:
REV.4:
REV.5:

EXISTING CONDITIONS SURVEY

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505
DRAWN BY: JBR
SCALE: 1"=20'
CHECKED BY: ARM
DATE: 03/27/14

SHEET NUMBER:

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
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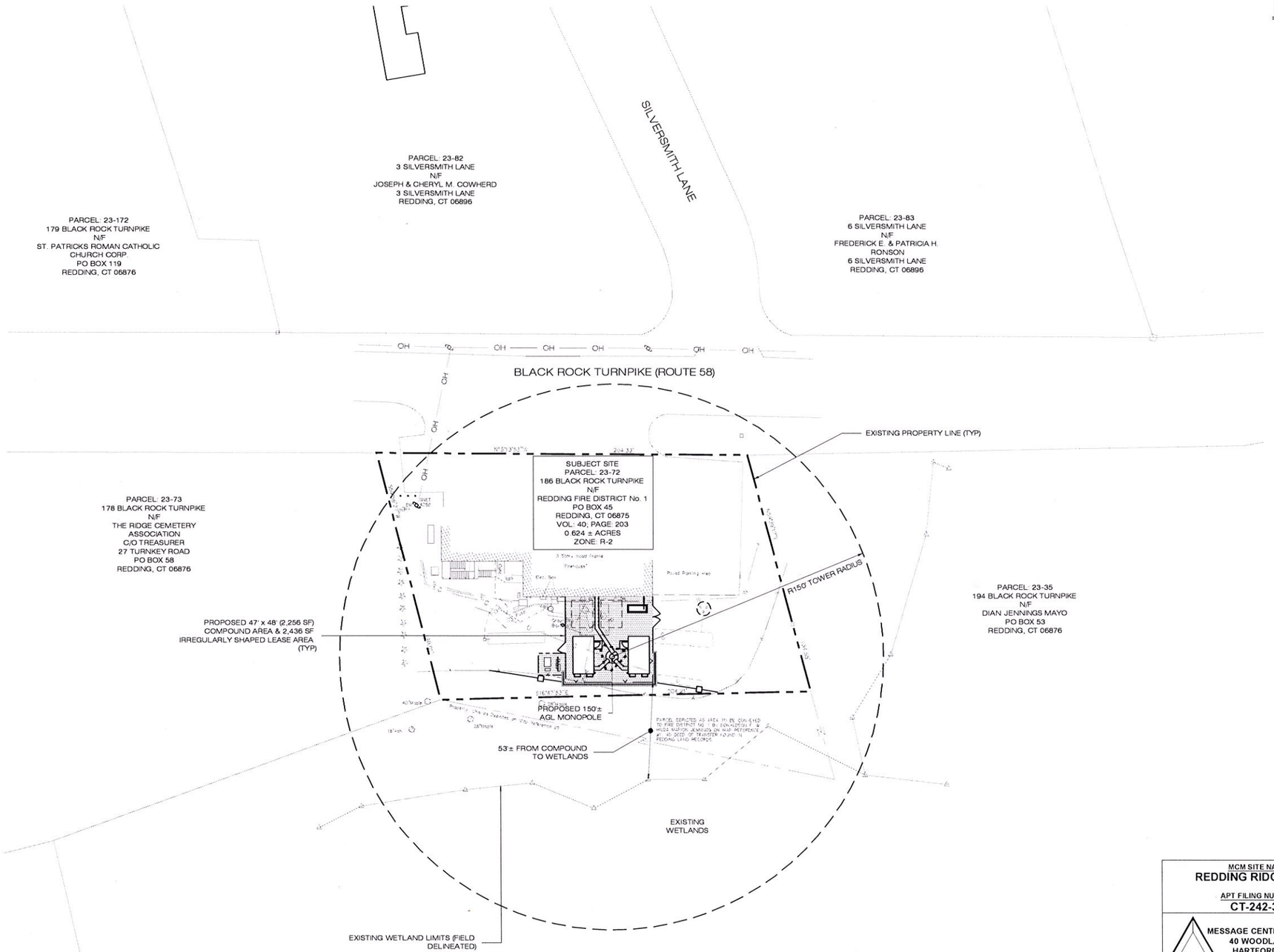

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

N

ABUTTERS MAP

SCALE : 1" = 30'-0"

BASE MAPPING FOR SHEETS A-1, SP-1, SP-2 AND SP-3 FROM:

1. PLAN ENTITLED "TOPOGRAPHIC SURVEY - 186 BLACK ROCK TURNPIKE REDDING, CONNECTICUT "PREPARED BY MARTINEZ COUCH & ASSOCIATES, LLC 1084 CROMWELL AVENUE ROCKY HILL, CT DATED MARCH 27, 2014.
2. TOWN OF REDDING ASSESSOR MAP 23.
3. TOWN OF REDDING "ZONING MAP"
4. DIGITAL GLOBAL 2012 DIGITAL ORTHOPHOGRAPHS.

CONSTRUCTION SEQUENCING

CONTRACTOR TO FOLLOW THE FOLLOWING CONSTRUCTION PHASING AS CLOSELY AS POSSIBLE:

1. CONTRACTOR TO HAVE A GPR SURVEY PERFORMED AND HAVE ALL UNDERGROUND UTILITIES & STRUCTURES MARKED OUT PRIOR TO CONSTRUCTION.
2. INSTALL TEMPORARY "NO PARKING, EMERGENCY VEHICLES ONLY" SIGNS ON OR NEAR FIRE DEPT. GARAGE BAY DOORS.
3. MOBILIZATION. BRING MATERIAL AND EQUIPMENT TO SITE. ALL CONSTRUCTION TRAFFIC AND ACTIVITIES MUST RESIDE INSIDE ACCESS PATH DELINEATED, WITHIN STAGING AND STOCKPILE AREA, OR WITHIN AREA WHERE PROPOSED WORK IS BEING COMPLETED. THE CONTRACTOR IS TO PROTECT WETLANDS FROM DISTURBANCE AT ALL TIMES AND NO CONSTRUCTION ACTIVITIES OR DUMPING SHALL OCCUR IN THE WETLANDS.
4. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROL BARRIERS.
5. INSTALL HIGH VIS. CONSTRUCTION FENCING ALONG EXISTING UNDERGROUND STRUCTURES. EXISTING WATER FILLING STATION MUST BE CLEARED AND ACCESSIBLE AT THE END OF EACH WORKING DAY.
6. INSTALL CONSTRUCTION ENTRANCE.
7. INSTALL NEW UNDERGROUND PROPANE GAS LINE FROM EXISTING UNDERGROUND PROPANE TANK TO EXISTING FIRE DEPARTMENT GENERATOR.
8. INSTALL NEW GAS SERVICE MANIFOLD AND CONNECT & ACTIVATE NEW UNDERGROUND PROPANE GAS LINE FROM EXISTING UNDERGROUND PROPANE TANK TO EXISTING FIRE DEPARTMENT GENERATOR.
9. DISCONNECT EXISTING UNDERGROUND PROPANE LINE AT BOTH ENDS THAT RUNS FROM EXISTING UNDERGROUND PROPANE TANK TO THE EXISTING FIRE DEPARTMENT GENERATOR AND REMOVE EXISTING PIPING WITHIN THE PROPOSED LIMITS OF CONSTRUCTION. EXISTING FIRE DEPT. GENERATOR SHALL NOT BE LEFT OUT OF SERVICE FOR MORE THAN 4 HOURS.
10. REMOVE EXISTING CHAIN LINK FENCE, FENCE POSTS & POST FOUNDATIONS.
11. REMOVE & RELOCATE EXISTING ABOVE GROUND PROPANE TANK & ASSOCIATED PIPING. INSTALL NEW ASSOCIATED PROPANE PIPING FROM NEW ABOVE GROUND TANK LOCATION TO EXISTING FIRE DEPARTMENT ENTRY PORT.
12. REMOVE & RELOCATE EXISTING UTILITY POLE, SIREN & ASSOCIATED ELECTRICAL SERVICE CONDUITS AND WIRING. INSTALL NEW ELECTRICAL SERVICE FROM NEW SIREN LOCATION TO NEW FIRE DEPARTMENT ENTRY PORT.
13. UTILITY COMPANY TO REMOVE EXISTING UTILITY POLE (SNET #4259) & INSTALL NEW REPLACEMENT UTILITY POLE, GUY WIRE & NEW OVERHEAD ELECTRIC AND TELCO SERVICE FROM EXISTING UTILITY POLE (SNET #1973) TO NEW REPLACEMENT POLE.
14. CONSTRUCT NEW ELECTRIC & TELCO UTILITY TRENCH & INSTALL CONDUITS TO NEW UTILITY AREA @ COMPOUND & BACKFILL.
15. ROUGH GRADE THE PORTION OF THE COMPOUND AREA IN THE AREA OF THE NEW TOWER AND SHELTERS (PROTECT, MAINTAIN & KEEP ACTIVE EXISTING LATTICE TOWER).
16. EXCAVATE FOR TOWER FOUNDATION AND EQUIPMENT SHELTER FOUNDATIONS.
17. CONSTRUCT NEW ROOF LEADER DRAINAGE PIPING & SPLASH PAD.
18. PREPARE SUBGRADE AND INSTALL FORMS, STEEL REINFORCING, AND CONCRETE FOR TOWER FOUNDATION & EQUIPMENT SHELTER FOUNDATIONS.
19. INSTALL BURIED GROUND RINGS, GROUND RODS, GROUND LEADS, UTILITY CONDUITS, AND UTILITY EQUIPMENT.
20. INSTALL NEW ELECTRICAL & TELCO CONDUITS FROM NEW UTILITY AREA TO NEW EQUIPMENT SHELTERS.
21. BACKFILL FOUNDATION & EQUIPMENT SHELTER FOUNDATION.
22. ERECT MONOPOLE.
23. INSTALL TELECOMMUNICATIONS EQUIPMENT ON TOWER AND IN COMPOUND.
24. REMOVE EXISTING LATTICE TOWER, ANTENNAS, CABLING, TOWER FOUNDATION & GROUNDING BOXES.
25. CONSTRUCT NEW RETAINING WALL.
26. CONSTRUCT NEW CONCRETE PAD FOR NEW SHARED GENERATOR.
27. INSTALL NEW UNDERGROUND PROPANE LINE FROM EXISTING UNDERGROUND PROPANE TANK TO NEW SHARED GENERATOR PAD.
28. INSTALL NEW GENERATOR & EXHAUST PIPING. CONNECT NEW PROPANE LINE.
29. INSTALL COMPOUND GRAVEL SURFACES.
30. INSTALL FENCING.
31. CONNECT GROUNDING LEADS AND LIGHTENING PROTECTION.
32. FINAL GRADE AROUND COMPOUND.
33. LOAM AND SEED DISTURBED AREAS OUTSIDE COMPOUND, AS REQUIRED.
34. REMOVE SILT FENCING AFTER SEEDED AREAS HAVE ESTABLISHED VEGETATION.
35. FINAL CLEANUP AND EQUIPMENT TESTING.

THE ESTIMATED TIME FOR COMPLETION OF THE WORK IS APPROXIMATELY EIGHT (8) WEEKS. THE EXACT PROCESS MAY VARY DEPENDING ON THE CONTRACTORS AND SUBCONTRACTORS AVAILABILITY TO COMPLETE WORK AND WEATHER DELAYS.

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
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HARTFORD, CT 06105
OFFICE: (888) 973-7483
MCM

ALL-POINTS TECHNOLOGY CORPORATION
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WWW.ALLPOINTSTECH.COM
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FAX: (860)-663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

- REV.0: 08/11/15: FOR REVIEW: SMC
- REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
- REV.2:
- REV.3:
- REV.4:
- REV.5:

ABUTTERS MAP

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 R-1
DRAWN BY: RCB
CHECKED BY: SMC
SCALE: AS NOTED
DATE: 08/03/15

SHEET NUMBER:
R-1

STATE OF CONNECTICUT — SCOTT M. CHOUINARD — 21726 — REGISTERED PROFESSIONAL ENGINEER

PARCEL: 23-82
3 SILVERSMITH LANE
N/F
JOSEPH & CHERYL M. COWHERD
3 SILVERSMITH LANE
REDDING, CT 06896

SILVERSMITH LANE

PARCEL: 23-83
6 SILVERSMITH LANE
N/F
FREDERICK E. & PATRICIA H. RONSON
6 SILVERSMITH LANE
REDDING, CT 06896

EXISTING SNET #1973

PROPOSED OVERHEAD ELECTRICAL & TELCO SERVICE FROM EXISTING DEMARC (EXISTING SNET POLE #1973) TO PROPOSED REPLACEMENT UTILITY POLE

BLACK ROCK TURNPIKE

EXISTING OVERHEAD ELECTRICAL & TELCO SERVICE TO FIRE DEPARTMENT

PROPOSED REPLACEMENT UTILITY POLE

N15°13'53"W 204.79'

PROPOSED BOLLARD (TYP 3PL) (4' O.C.) — 4/S-1

CONTRACTOR TO MANAGE EXCAVATED MATERIAL FOR UTILITY TRENCH WORK TO PREVENT SEDIMENT TRANSPORT. CONTRACTOR SHALL STOCKPILE EXCAVATED MATERIAL ON THE HIGH SIDE OF THE EXCAVATION AND BACKFILL AT THE CLOSE OF DAY. STABILIZE BACKFILLED TRENCHES DAILY WITH GRAVEL OR TOPSOIL AND SEED.

PROPOSED STEPDOWN TRANSFORMER

EXISTING FIRE DEPT. 75kw, 120/208V, 3Ø PROPANE FIRED GENERATOR

CONNECT TO EXISTING GENERATOR - COORDINATE OUTAGE & CONNECTION W/ FIRE DEPT. PERSONNEL

PROPOSED UNDERGROUND ELECTRICAL FROM PROPOSED STEPDOWN TRANSFORMER TO PROPOSED MULTIMETER CENTER (APPROX. 145'±) & TELCO SERVICE FROM EXISTING DEMARC (PROPOSED REPLACEMENT UTILITY POLE) TO PROPOSED CSC CABINET (APPROX. 145'±) @ COMPOUND AREA — 1/S-1

PROPOSED PROPANE GAS LINE FROM EXISTING PROPANE TANK TO EXISTING FIRE DEPT. GENERATOR — 1/M-1

EXISTING 80' LATTICE TOWER TO BE REMOVED

EXISTING SEPTIC TANK

EXTENT OF EXISTING LEACHING GALLERY

CONNECT TO EXISTING SPLIT RAIL FENCE

PARCEL: 23-73
178 BLACK ROCK TURNPIKE
N/F
THE RIDGE CEMETERY ASSOCIATION
C/O TREASURER
27 TURNKEY ROAD
PO BOX 58
REDDING, CT 06876

3 Story Wood Frame "Firehouse"

Paved Parking Area

111'± FROM TOWER

78'± FROM COMPOUND

PLAN — SP-2

5/8" NAIL IN PAVEMENT ELEV.=637.75

71'± FROM COMPOUND

101'± FROM TOWER

56'± FROM COMPOUND

97'± FROM TOWER

21'± FROM TOWER

7'± FROM COMPOUND

PROPOSED SPLIT RAIL FENCE (TYP) — 1.1/S-1

PROPOSED RIPRAP SPLASH PAD FOR RELOCATED ROOF LEADER DISCHARGE (TYP) — 2&3/S-2

PROPOSED SINGLE ROW OF 6" STRAW WATTLES & ROW OF SILT FENCE BACKING — 1&3/SP-2

EXISTING WETLAND LIMITS (FIELD DELINEATED)

PROPOSED 47' x 48' (2,256 SF) COMPOUND AREA & 2,436 SF IRREGULARLY SHAPED LEASE AREA (TYP)

47'± INSTALLATION OF E&S CONTROLS TO WETLANDS

EXISTING WETLANDS

EXISTING WETLANDS

EXISTING PROPERTY LINE (TYP)

PROPOSED 25' WIDE ACCESS EASEMENT (TYP)

PARCEL: 23-35
194 BLACK ROCK TURNPIKE
N/F
DIAN JENNINGS MAYO
PO BOX 53
REDDING, CT 06876

EXISTING WELL

2/SP-2 PROPOSED CONSTRUCTION ENTRANCE

RING EXISTING WATER FILLING STATION W/ HIGH VIS. CONSTRUCTION FENCING

EXISTING WATER FILLING STATION FOR FIRE DEPARTMENT - MUST BE CLEAR AT THE END OF EACH WORKING DAY

3/SP-2 TEMPORARY STOCKPILE AREA (2:1 SIDE SLOPES) - RING W/ SILT FENCE @ 5' OFFSET FROM TOE OF STOCKPILE

PROPOSED 150'± AGL MONOPOLE (PER TOWER DESIGN FROM "VALMONT STRUCTURES" ORDER #239975, SITE REDDING-BLACKROCK TOWER, CT, PREPARED FOR MESSAGE CENTER MANAGEMENT, DATED 07/15/15)

EXISTING UNDERGROUND WATER STORAGE TANK

1/M-1 PROPOSED U/G PROPANE GAS LINE FROM EXISTING PROPANE TANK TO PROPOSED SHARED GENERATOR

1/S-2 PROPOSED MODULAR BLOCK RETAINING WALL (TYP)

11/S-1 PROPOSED SPLIT RAIL FENCE (TYP)

CONNECT TO EXISTING SPLIT RAIL FENCE

EXISTING UNDERGROUND PROPANE TANK

GRAPHIC SCALE
15 0 7.5 15 30 60
(IN FEET)
1 inch = 15 ft.

SITE PLAN
SCALE : 1" = 15'-0"

SURVEY NOTES

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996. IT IS A IMPROVEMENT LOCATION SURVEY AND IS BASED UPON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND A VERTICAL ACCURACY OF CLASS T-2 AND IS INTENDED TO BE USED FOR THE PURPOSE OF SHOWING EXISTING CONDITIONS AND PROPERTY LINE INFORMATION.

MAP REFERENCES

1) MAP OF PROPERTY PREPARED FOR FIRE DISTRICT NO. 1, AT REDDING, CONN., SCALE 1"=30', DATED APRIL 29, 1965, JOHN M. FARNSWORTH.

2) PROPERTY DEPOSITION MAP, PREPARED FOR JENNINGS ESTATE, 194 BLACK ROCK TURNPIKE, REDDING, CONNECTICUT, SCALE 1"=100', DATED 8-21-2006, BY EDWARD SHELOMIS.

3) RIGHT OF WAY MAP, TOWN OF REDDING, BETHEL - BRIDGEPORT ROAD, FROM MEEKER HILL ROAD, NORTHERLY TO THE FIVE CORNERS, ROUTE NO. 58, SCALE 1"=40', DATED OCTOBER 29, 1937, BY CONNECTICUT STATE HIGHWAY DEPARTMENT.

NORTH ORIENTATION AND COORDINATES REFER TO CONNECTICUT GRID SYSTEM NAD 83.

ELEVATIONS BASED ON NAVD 1988 DATUM.

PARCEL ADDRESS: 186 BLACK ROCK TURNPIKE

PARCEL OWNER OF RECORD: REDDING FIRE DISTRICT NO. 1

MAP 23 LOT 72 REDDING ASSESSORS MAP.

PARCEL AREA = 624± ACRES.

PARCEL IS NOT IN A FLOOD HAZARD ZONE ON THE FLOOD INSURANCE RATE MAP, FAIRFIELD COUNTY, CONNECTICUT, ALL JURISDICTIONS, PANEL 265 OF 626, MAP NUMBER 09001C0265F, EFFECTIVE DATE JUNE 18, 2010, BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

SITE AREAS & VOLUMES OF EARTHWORK

SITEWORK SHALL ENTAIL APPROXIMATELY 20 CY OF FILL FOR THE COMPOUND AREA AND 55 CY OF TRENCH EXCAVATION. APPROXIMATELY 80 CUBIC YARDS OF CRUSHED STONE SHALL BE IMPORTED TO CONSTRUCT THE COMPOUND.

COMPOUND AREA SLOPES:
EXISTING - 9.0%
PROPOSED - 5.0%

TOTAL AREA OF DISTURBANCE = 4,150± SF

STORMWATER VELOCITY:
PRIOR TO GROUND COVER < 2 FT/SEC
FOLLOWING GROUND COVER < 2 FT/SEC

GROUND COVER TO BE ESTABLISHED AS FOLLOWS (U.O.N):
- WHITE CLOVER @ 0.20#/- SF
- TALL FESCUE @ 0.45#/- SF
- RYEGRASS @ 0.10#/- SF

NOTE: NO TREES WILL BE REMOVED IN CONSTRUCTING THE FACILITY

LEGEND

CURB	DRAINAGE INLET / STRUCTURE
DROP CURB	CATCH BASIN
WALL	SIGN
STONE WALL	LIGHT POLE
EDGE OF PAVEMENT	UTILITY POLE
OVERHEAD WIRES	STOCKADE FENCE
STRUCTURE - MANHOLE	CONTOURS
GAS VALVE	TOP/BOTTOM OF CURB
WATER VALVE	SPOT ELEVATION
HANDICAP PARKING	CONCRETE
PARKING STALL COUNT	GUY WIRE
UNDERGROUND ELECTRICAL AND TELCO UTILITIES	NEW FENCE

MCM SITE NAME:
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

SITE PLAN

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505_SP-1
DRAWN BY: RCB | SCALE: AS NOTED
CHECKED BY: SMC | DATE: 08/03/15

SHEET NUMBER:
SP-1

STATE OF CONNECTICUT — SCOTT M. CHOATE — 26 — LICENSED PROFESSIONAL ENGINEER

EXISTING ABOVE GROUND PROPANE TANK TO BE RELOCATED

APPROXIMATE LOCATION OF EXISTING SEPTIC TANK

RELOCATED ABOVE GROUND PROPANE TANK ON HOUSE KEEPING PAD

PROPOSED RELOCATED UTILITY POLE W/ SIREN

APPROXIMATE LOCATION OF EXISTING SEPTIC LEACHING GALLERY

PROPOSED UNDERGROUND ELECTRICAL FROM PROPOSED STEPDOWN TRANSFORMER TO PROPOSED MULTIMETER CENTER (APPROX. 145'±) & TELCO SERVICE FROM EXISTING DEMARC (PROPOSED REPLACEMENT UTILITY POLE) TO PROPOSED CSC CABINET (APPROX. 145'±) @ COMPOUND AREA (1 / S-1)

PROPOSED 6' WIDE CHAIN LINK GATE (12 / S-1)

PROPOSED MULTIMETER CENTER (2 / S-1)

PROPOSED CSC CABINET

PROPOSED PROPANE GAS LINE FROM EXISTING PROPANE TANK TO EXISTING FIRE DEPT. GENERATOR (1 / M-1)

EXISTING PROPERTY LINE (TYP)

PROPOSED RIPRAP SPLASH PAD FOR RELOCATED ROOF LEADER DISCHARGE (TYP) (2&3 / S-2)

FUTURE EQUIPMENT PAD (12' x 15')

FUTURE EQUIPMENT PAD (12' x 15')

EXISTING 80' LATTICE TOWER TO BE REMOVED

PROPOSED AT&T EQUIPMENT SHELTER (12' x 20')

PROPOSED VERIZON EQUIPMENT SHELTER (12' x 20')

EXISTING UNDERGROUND ROOF LEADER TO BE REMOVED

EXISTING UNDERGROUND PROPANE LINE TO BE REMOVED

EXISTING UTILITY POLE W/ SIREN TO BE RELOCATED (LOCATION TO BE COORDINATED W/ PROPERTY OWNER)

PROPOSED 12' WIDE CHAIN LINK GATE (6 / S-1)

PROPOSED 8' HIGH CHAIN LINK FENCE (W/ VINYL SLATS) (TYP) (5 / S-1)

PROPOSED 47' x 48' (2,256 SF) COMPOUND AREA & 2,436 SF IRREGULARLY SHAPED LEASE AREA (TYP)

APPROXIMATE LOCATION OF UNDERGROUND WATER STORAGE TANK

PROPOSED 150'± AGL MONOPOLE (PER TOWER DESIGN FROM "VALMONT STRUCTURES" ORDER #239975, SITE REDDING-BLACKROCK TOWER, CT, PREPARED FOR MESSAGE CENTER MANAGEMENT, DATED 07/15/15)

TW 635.9
BW 635.7

PROPOSED MODULAR BLOCK RETAINING WALL (TYP) (1 / S-2)

PROPOSED PROPANE GAS LINE FROM EXISTING PROPANE TANK TO PROPOSED SHARED GENERATOR (1 / M-1)

APPROXIMATE LOCATION OF UNDERGROUND PROPANE TANK

TW 635.6
BW 634.3

PROPOSED CONSTRUCTION ENTRANCE (2 / SP-2)

PROPOSED SINGLE ROW OF 6" STRAW WATTLES & ROW OF SILT FENCE BACKING (1&3 / SP-2)

TW 634.0
BW 633.5

TW 633.9
BW 630.3

5'-11"±

5'-9"±

5'

28" Maple

635.5

637.25

637.25

634

636

625

622

620

618

EROSION CONTROL PLAN

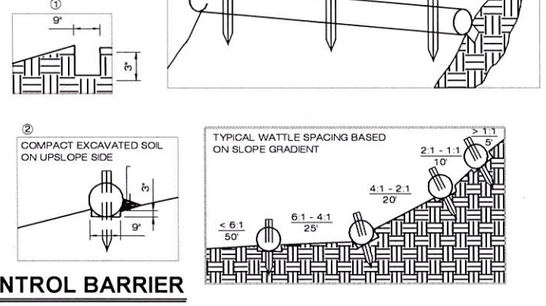
SCALE : 1" = 5'-0"

GRAPHIC SCALE

5 0 2.5 5 10 20

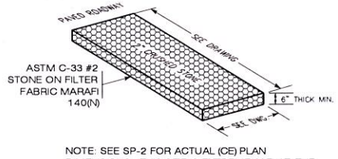
(IN FEET)
1 inch = 5 ft.

1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" (5-7.5 CM) DEEP X 9" (22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18-24" (45.7-61 CM) STAKES EVERY 3-4' (0.9 -1.2 M) AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2-3" (5-7.5 CM) OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.



STRAW WATTLE SEDIMENTATION CONTROL BARRIER

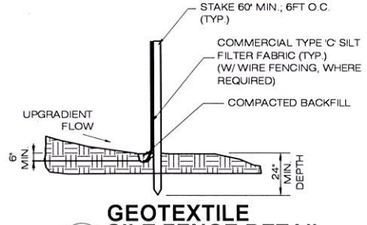
1 / SP-2 SCALE : NTS



NOTE: SEE SP-2 FOR ACTUAL (CE) PLAN DIMENSIONS. THIS SITE IS EXTREMELY FLAT; THE LIMIT OF DISTURBANCE AREA IS SMALL AND WILL CONSIST MAINLY OF EXCAVATIONS TO BE FILLED WITH GRAVEL. SEDIMENT TRANSPORT IS NOT LIKELY. THEREFORE IT IS AN ENGINEERING JUDGEMENT TO MODIFY THE (CE) PLAN SIZE AS SHOWN ON THIS SET IN LIEU OF THE STANDARD AS IT WILL PROVIDE SUFFICIENT PROTECTION AND MINIMIZE DISTURBANCE.

(CE) CONSTRUCTION ENTRANCE DETAIL

2 / SP-2 SCALE : NTS



GEOTEXTILE SILT FENCE DETAIL

3 / SP-2 SCALE : NTS

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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

SEDIMENTATION & EROSION CONTROL PLAN

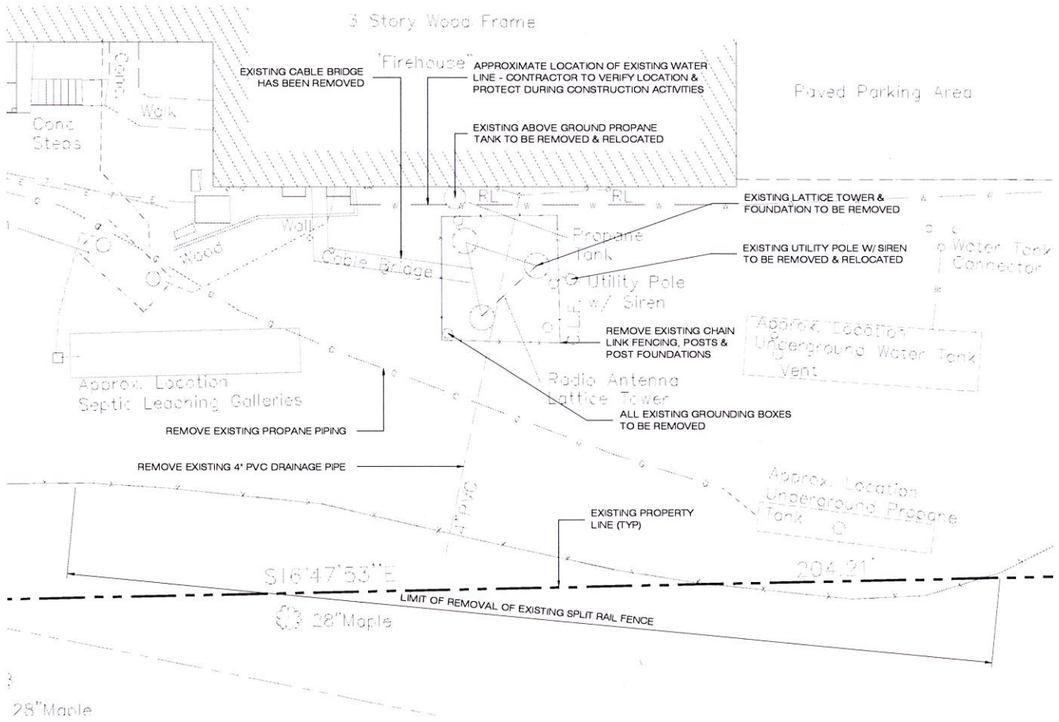
APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 SP-2
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:

SP-2

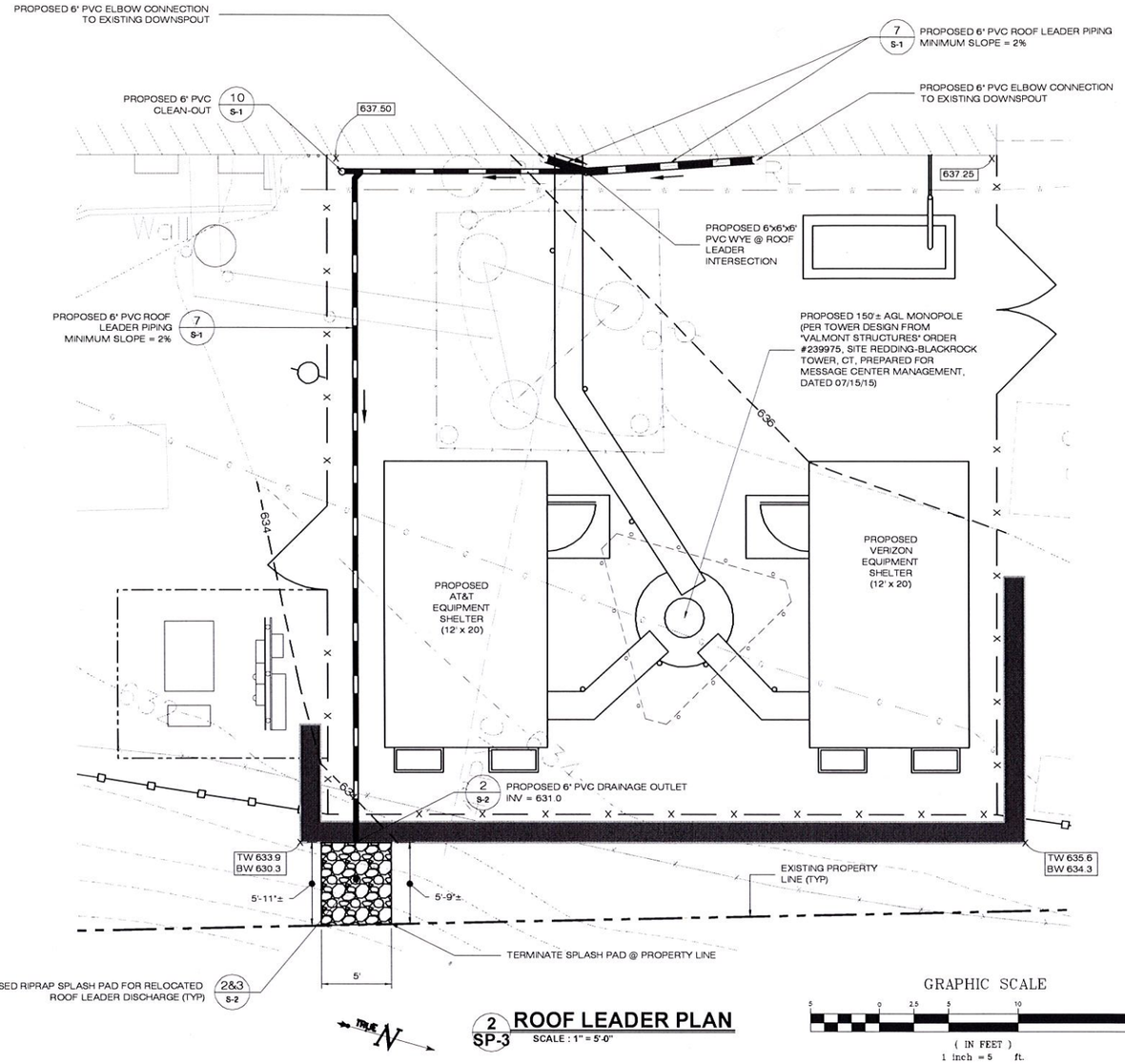
STATE OF CONNECTICUT
SCOTT M. CHASE
28
LICENSED
PROFESSIONAL ENGINEER

NOTE:
1. CONTRACTOR TO HAVE A GPR SURVEY PERFORMED AND HAVE ALL UNDERGROUND UTILITIES & STRUCTURES MARKED OUT PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO COORDINATE W/ THE PROPERTY OWNER AND LANDLORD FOR ALL REMOVAL AND RELOCATION ACTIVITIES.
3. CONTRACTOR TO INSTALL TEMPORARY "NO PARKING, EMERGENCY VEHICLES ONLY" SIGNS ON OR NEAR GARAGE BAY DOORS.
4. THE EXISTING WATER TANK CONNECTION AREA MUST BE ACCESSIBLE AND CLEARED AT THE END OF EACH WORKING DAY.
5. THE EXISTING FIRE DEPT. GENERATOR SHALL NOT BE LEFT OUT OF SERVICE FOR MORE THAN 4 HOURS.



GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

1 SP-3 DEMOLITION PLAN
SCALE : 1" = 10'-0"



GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.

2 SP-3 ROOF LEADER PLAN
SCALE : 1" = 5'-0"

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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:
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REV.2:
REV.3:
REV.4:
REV.5:

DEMOLITION & ROOF LEADER PLAN

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 SP-3
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:
SP-3

STATE OF CONNECTICUT · SCOTT M. CHASE · 21 · LICENSED PROFESSIONAL ENGINEER

EXISTING 2-STORY FIREHOUSE

EXISTING PROPANE TANK TO BE RELOCATED

PROPOSED GRAVEL SURFACE COMPOUND TREATMENT (TYP) 3 S-1

EXISTING FENCED AREA TO BE REMOVED (TYP)

EXISTING BITUMINOUS PARKING/DRIVEWAY AREA (TYP)

10' SPARK ZONE

APPROXIMATE LOCATION OF EXISTING WATER LINE - CONTRACTOR TO VERIFY LOCATION & PROTECT DURING CONSTRUCTION ACTIVITIES

8 S-1 PROPOSED 4'-6"x11'-0" CONCRETE PAD FOR SHARED PROPANE-FIRED GENERATOR

PROPOSED GENERATOR EXHAUST WITH RAIN CAPTO BE PIPED ABOVE THE EXIST ROOFLINE

EXISTING 80'± AGL LATTICE TOWER TO BE REMOVED

635.5

637.25

EXISTING A/C UNIT

5'

FUTURE EQUIPMENT PAD (12' x 15')

FUTURE EQUIPMENT PAD (12' x 15')

EXISTING UTILITY POLE W/ SIREN TO BE RELOCATED

PROPOSED RELOCATED ABOVE GROUND PROPANE TANK ON HOUSE KEEPING PAD

15' SEPTIC SETBACK

4 C-5 PROPOSED TOWN OF REDDING CABLE BRIDGE FROM EXISTINGFIRE STATION TO TOWER ENTRY PORT

6 S-1 PROPOSED 12' WIDE CHAIN LINK GATE

637.25

5' SEPTIC SETBACK

PROPOSED RELOCATED UTILITY POLE W/ SIREN (COORDINATE FINAL LOCATION W/ PROPERTY OWNER)

PROPOSED 150'± AGL MONOPOLE (PER TOWER DESIGN FROM "VALMONT STRUCTURES" ORDER #239975, SITE REDDING-BLACKROCK TOWER, CT, PREPARED FOR MESSAGE CENTER MANAGEMENT, DATED 07/15/15)

635

APPROXIMATE LOCATION OF UNDERGROUND WATER STORAGE TANK

APPROXIMATE LOCATION OF EXISTING SEPTIC SYSTEM

PROPOSED 6' WIDE CHAIN LINK GATE 12 S-1

PROPOSED MULTIMETER CENTER 2 S-1

634

PROPOSED AT&T EQUIPMENT SHELTER (12' x 20') (SEE 1&2/C-1)

PROPOSED VERIZON EQUIPMENT SHELTER (12' x 20') (SEE 1&2/C-3)

47'-0" COMPOUND & LEASE AREA

5 S-1 PROPOSED 8' HIGH CHAIN LINK FENCE (W/ VINYL SLATS ON EAST SIDE ONLY) (TYP)

22'-6"

TW 635.9 BW 635.7

1 S-2 PROPOSED RETAINING WALL (TYP)

12'-0" LEASE AREA

TERMINATE PROPOSED RELOCATED SPLIT RAIL FENCE AT COMPOUND FENCE CORNER (TYP) 11 S-1

TW 634.0 BW 633.5

14'-0"

PROPOSED AT&T GPS UNIT 7 C-2

5 C-4 PROPOSED VERIZON WIRELESS GPS UNIT

APPROX. LOCATION OF UNDERGROUND PROPANE TANK

634

PROPOSED GRAVEL SURFACE TREATMENT IN UTILITY AREA (SEE 3/S-1 SIMILAR)

TW 633.9 BW 630.3

PROPOSED AT&T CABLE BRIDGE FROM SHELTER TO TOWER ENTRY PORT 4 C-1

TW 635.6 BW 634.3

PROPOSED CSC CABINET

4 C-3 PROPOSED VERIZON WIRELESS CABLE BRIDGE FROM SHELTER TO TOWER ENTRY PORT

EXISTING PROPERTY LINE (TYP)

EXISTING SPLIT RAIL FENCE (TYP)

11 S-1 TERMINATE PROPOSED RELOCATED SPLIT RAIL FENCE AT COMPOUND FENCE CORNER (TYP)

PROPOSED 47' x 48' (2,256 SF) COMPOUND AREA & 2,436 SF IRREGULARLY SHAPED LEASE AREA (TYP)

48'-0" COMPOUND AREA

63'-0" LEASE AREA

28" Maple

GRAPHIC SCALE

5 0 2.5 5 10 20

(IN FEET)
1 inch = 5 ft.

COMPOUND PLAN

SCALE : 1" = 5'-0"

T/ STRUCTURE NOT TO EXCEED 154'-0"± AGL

PROPOSED TOWN OF REDDING 2Ø MICROWAVE DISHES ON STANDOFF 2 C-5

PROPOSED (12) AT&T PANEL ANTENNAS (90', 210', 330') W/ (21) RRHs, (6) A2 MODULES, (4) SQUID BOXES ON COMMSCOPE MTC3706 PLATFORM KIT & MTC3706R RRH RING MOUNT KIT 1 C-2

PROPOSED (12) VERIZON WIRELESS PANEL ANTENNAS (90', 190', 330') W/ (6) RRHs & (1) MDB ON COMMSCOPE MTC3706 PLATFORM KIT 1 C-4

FUTURE CARRIER ANTENNAS (TYP)

FUTURE CARRIER ANTENNAS (TYP)

PROPOSED 150'± AGL MONOPOLE (PER TOWER DESIGN FROM "VALMONT STRUCTURES" ORDER #239975, SITE REDDING-BLACKROCK TOWER, CT, PREPARED FOR MESSAGE CENTER MANAGEMENT, DATED 07/15/15)

PROPOSED VERIZON EQUIPMENT SHELTER (12' x 20') 1 C-3

RELOCATED TOWN ANTENNAS 1 C-5

EXISTING 80'± AGL LATTICE TOWER TO BE REMOVED

EXISTING YAGI ANTENNA TO BE REMOVED

EXISTING UTILITY POLE W/ SIREN TO BE RELOCATED (LOCATION TO BE COORDINATED W/ PROPERTY OWNER)

PROPOSED AT&T EQUIPMENT SHELTER (12' x 20') 1 C-1

PROPOSED 47' x 48' (2,256 SF) FENCED COMPOUND AREA & 2,436 SF IRREGULARLY SHAPED LEASE AREA

PROPOSED MULTIMETER CENTER 2 S-1

EXISTING 2-STORY FIREHOUSE (TYP)

T/ EX. LATTICE TOWER & RELOCATED TOWN ANTS @ 80'-0"± AGL

FUTURE ANTENNAS CENTERLINE @ 115'± AGL

FUTURE ANTENNAS CENTERLINE @ 125'± AGL

PROPOSED VERIZON ANTENNAS CENTERLINE @ 135'± AGL

PROPOSED AT&T ANTENNAS CENTERLINE @ 145'± AGL

T/ PROPOSED MONOPOLE @ 150'± AGL

PROPOSED MUNICIPAL MW DISH CENTERLINE @ 153'± AGL

5' 10' 10' 10'

UG UG UG UG

PROPOSED UNDERGROUND ELECTRICAL FROM PROPOSED STEPDOWN TRANSFORMER TO PROPOSED MULTIMETER CENTER (APPROX. 145'±) & TELCO SERVICE FROM EXISTING DEMARC (PROPOSED REPLACEMENT UTILITY POLE) TO PROPOSED CSC CABINET (APPROX. 145'±) @ COMPOUND AREA 1 S-1

PROPOSED RETAINING WALL 1 S-2

9 S-1 SECONDARY UNDERGROUND UTILITIES FROM DEMARCS TO CARRIER EQUIPMENT

PROPOSED CSC CABINET

PROPOSED TOWER FOUNDATION W/ 6' AGL REVEAL (8'-6Ø DRILLED PIER - PER DESIGN FROM "VALMONT MICROFLECT" DWG NO. B-137941, DATED 12/04/13, W/ LATEST REVION DATE 07/10/15)

38'-6"

8'-6Ø

EASTERN ELEVATION

SCALE : 1/16" = 1'-0"

GRAPHIC SCALE

16 0 8 16 32 64

(IN FEET)
1 inch = 16 ft.

ENGINEERING ANALYSIS AND CERTIFICATION

IN ACCORDANCE WITH THE 2009 CONNECTICUT STATE BUILDING CODE AND THE ELECTRONIC INDUSTRIES ASSOCIATION STANDARD EIA/TIA-222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORT STRUCTURES" FOR FAIRFIELD COUNTY, THE TOWER WOULD BE DESIGNED TO WITHSTAND PRESSURES EQUIVALENT TO A MAXIMUM 85 MPH FASTEST MILE WIND SPEED. THE FOUNDATION DESIGN WOULD BE BASED ON SOIL CONDITIONS AT THE SITE.

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
40 WOODLAND STREET
HARTFORD, CT 06105
OFFICE: (888) 973-7483

MCM

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
FAX: (860)-663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

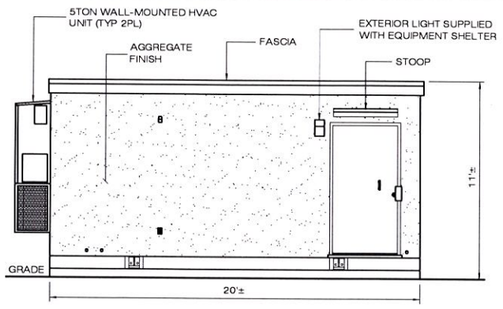
COMPOUND PLAN & TOWER ELEVATION

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 A-1
DRAWN BY: RCB
CHECKED BY: SMC
SCALE: AS NOTED
DATE: 08/03/15

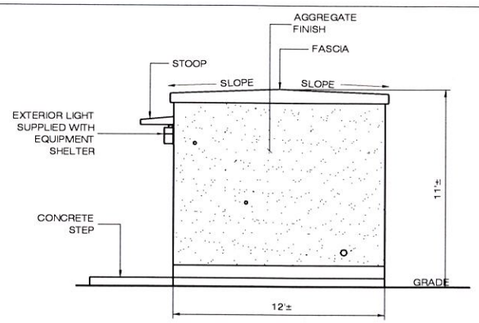
SHEET NUMBER:

A-1

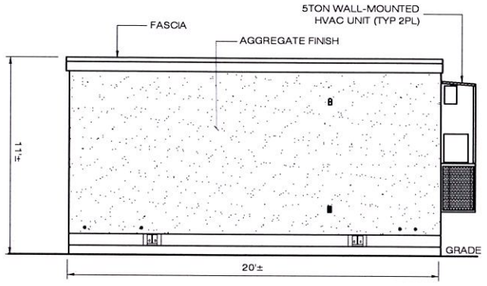
STATE OF CONNECTICUT
SCOTT M. CHASE
No. 28128
LICENSED PROFESSIONAL ENGINEER



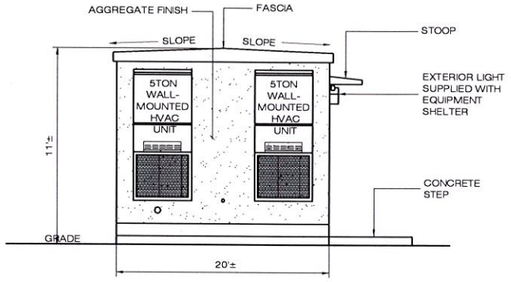
NORTHERN ELEVATION



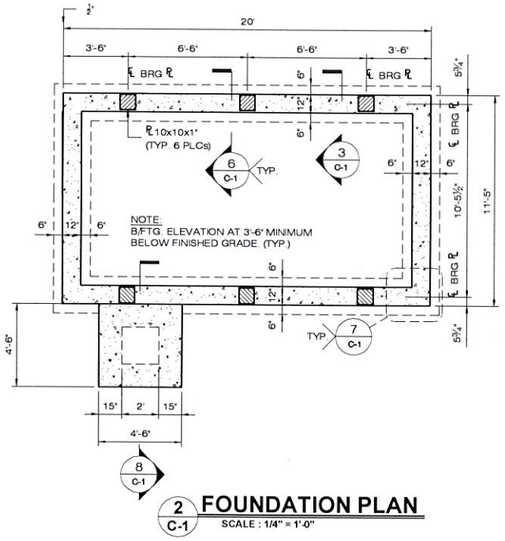
WESTERN ELEVATION



SOUTHERN ELEVATION

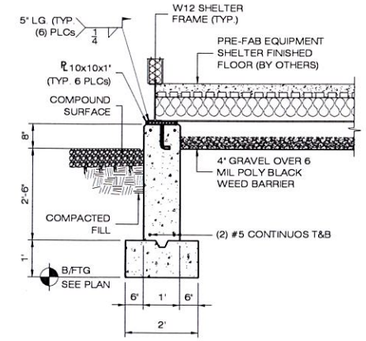


EASTERN ELEVATION



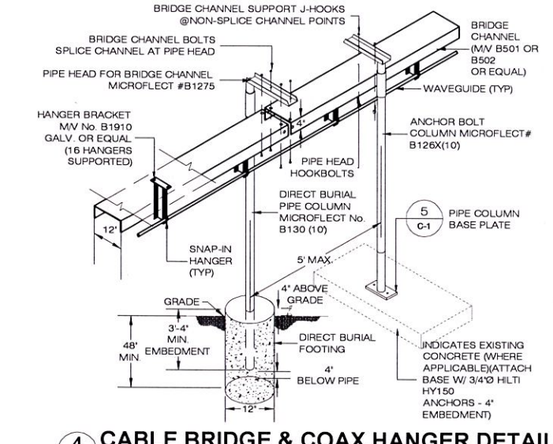
2 C-1 FOUNDATION PLAN

SCALE : 1/4" = 1'-0"



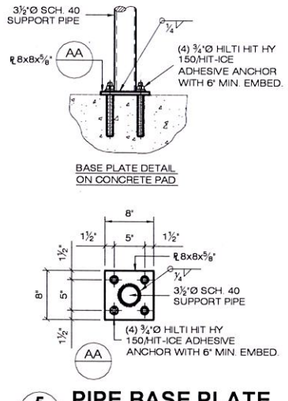
3 C-1 FOUNDATION SECTION

SCALE : 1/2" = 1'-0"



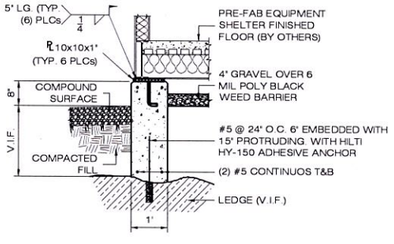
4 C-1 CABLE BRIDGE & COAX HANGER DETAIL

SCALE : NTS



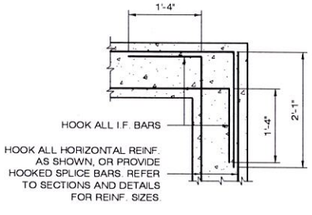
5 C-1 PIPE BASE PLATE

SCALE : N.T.S.



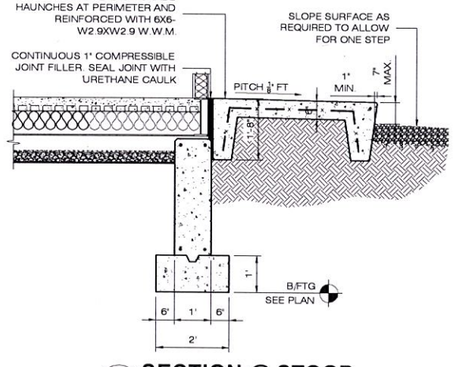
6 C-1 FOUNDATION OVER LEDGE OR TOWER FOUNDATION

SCALE : 1/2" = 1'-0"



7 C-1 DETAIL CORNER REINFORCEMENT

SCALE : 3/4" = 1'-0"



8 C-1 SECTION @ STOOP

SCALE : 1/2" = 1'-0"

DESIGN LOAD CRITERIA

EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS	CONNECTICUT STATE BUILDING CODE
GOVERNING CODE	
DESIGN LIVE LOADS	40 PSF (ASCE 7-02)
IMPORTANCE CATEGORY	II
SNOW LOAD:	
GROUND SNOW LOAD (Pg)	30 PSF
IMPORTANCE FACTOR	1.0
EXPOSURE FACTOR (Ce)	0.9
THERMAL FACTOR (Ct)	1.0
WIND LOAD:	
BASIC WIND LOAD	100 MPH (3 SEC. GUST)
EXPOSURE GROUP	C
IMPORTANCE FACTOR	1.0
SHELTER LOAD:	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	24,500 LBS
SEISMIC DESIGN PARAMETERS:	
SEISMIC USE GROUP	II
MCE SPECTRAL ACCELERATION SHORT (Sa)	0.288
MCE SPECTRAL ACCELERATION SHORT (S1)	0.066
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.0

MCM SITE NAME:
REDDING RIDGE CT505

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MCM

ALL-POINTS TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

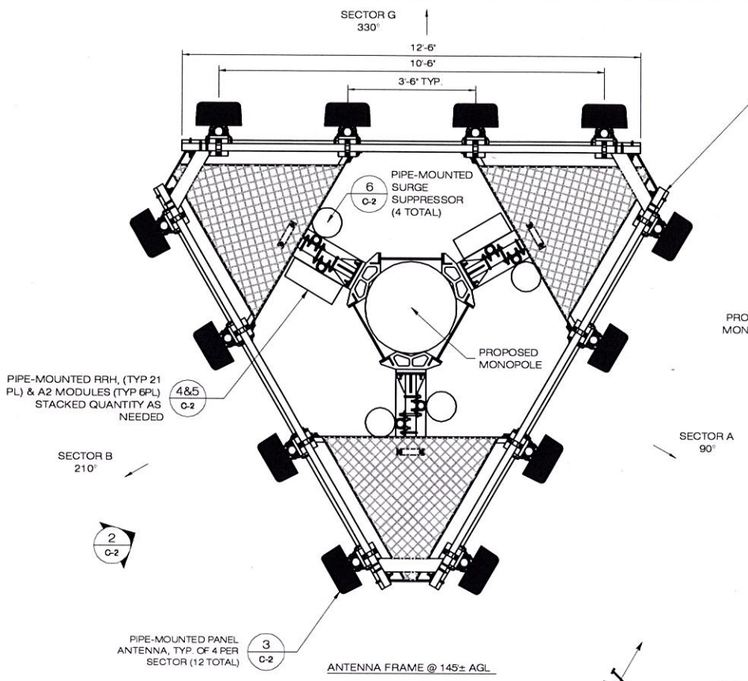
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

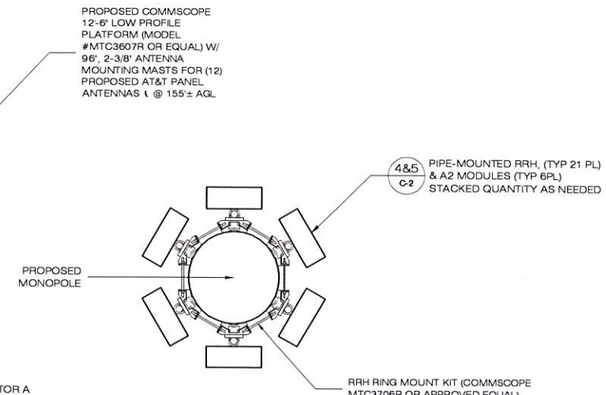
AT&T EQUIP. SHELTER PLAN & DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505_C-1
DRAWN BY: RCB
CHECKED BY: SMC
SCALE: AS NOTED
DATE: 08/03/15

SHEET NUMBER:
C-1

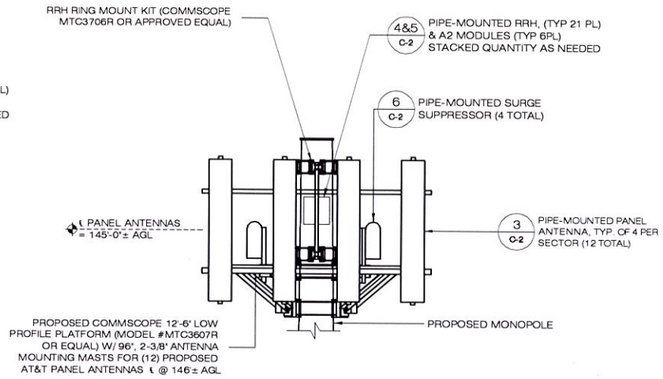
STATE OF CONNECTICUT
LICENSED PROFESSIONAL ENGINEER



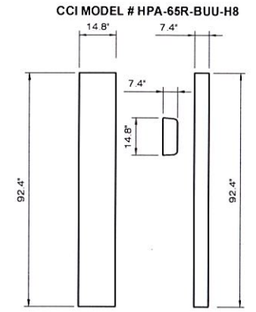


NOTES:
1. PAINT ALL COMPONENTS AND MOUNTS TO MATCH PROPOSED MONOPOLE
2. ROTATE ANTENNA FRAME, RRU FRAME, AND SURGE SUPPRESSORS TO MAINTAIN CLEAR CLIMBING PATH

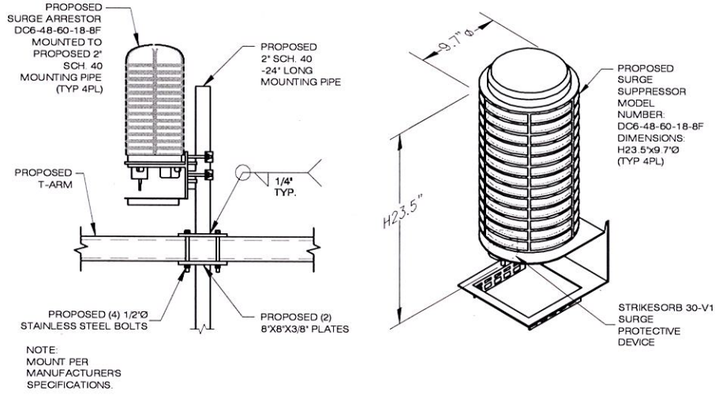
1 C-2 ANTENNA PLAN
SCALE : NTS



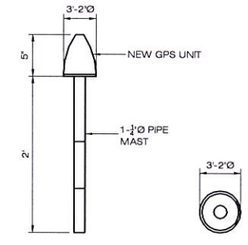
2 C-2 ANTENNA ELEVATION
SCALE : NTS



3 C-2 TYPICAL PANEL ANTENNA
SCALE : NTS

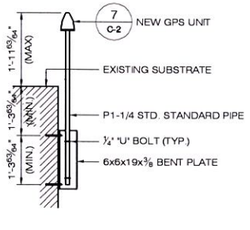


6 C-2 TYPICAL SURGE SUPPRESSOR
SCALE : NTS

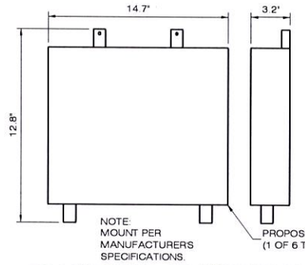


FOR MOUNT - SEE 8/C-2

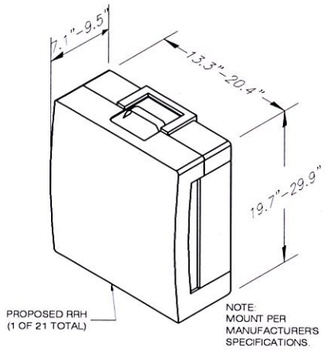
7 C-2 TYPICAL GPS DETAILS
SCALE : NTS



8 C-2 GPS UNIT MOUNT
SCALE : N.T.S.



4 C-2 TYPICAL A2 MODULE
SCALE : NTS



5 C-2 TYPICAL RRU
SCALE : NTS

MCM SITE NAME:
REDDING RIDGE CT505

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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

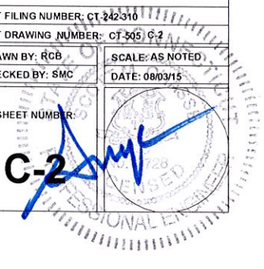
DESIGN TYPE:
RAW LAND

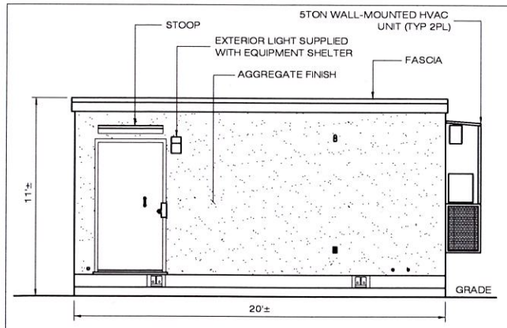
REVISIONS:
- REV.0: 08/11/15: FOR REVIEW: SMC
- REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
- REV.2:
- REV.3:
- REV.4:
- REV.5:

AT&T ANTENNA PLAN & DETAILS

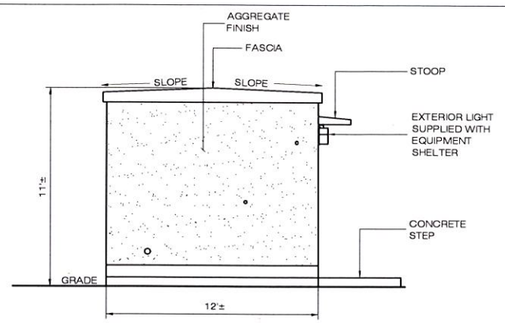
APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 C-2
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:
C-2

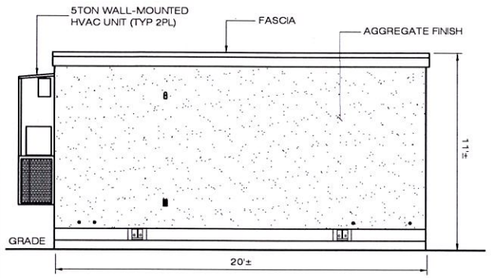




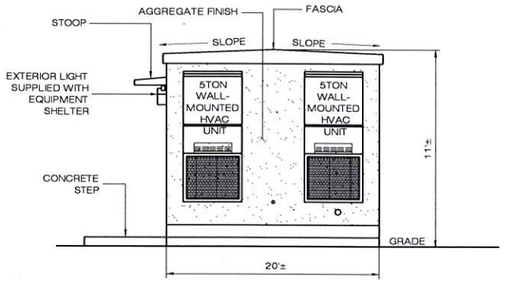
SOUTHERN ELEVATION



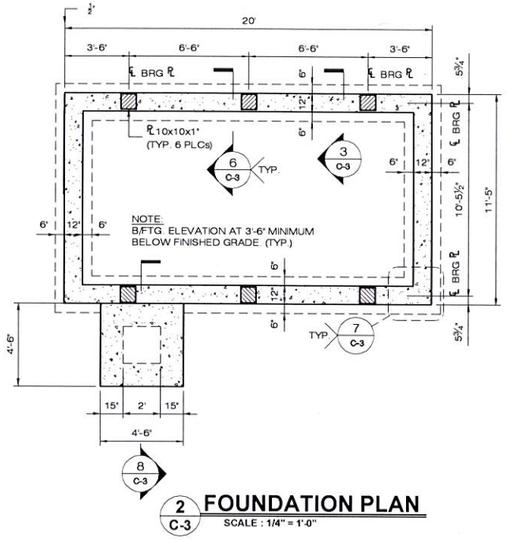
WESTERN ELEVATION



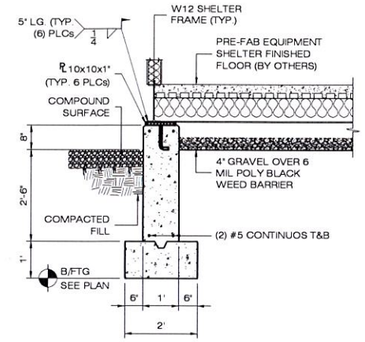
NORTHERN ELEVATION



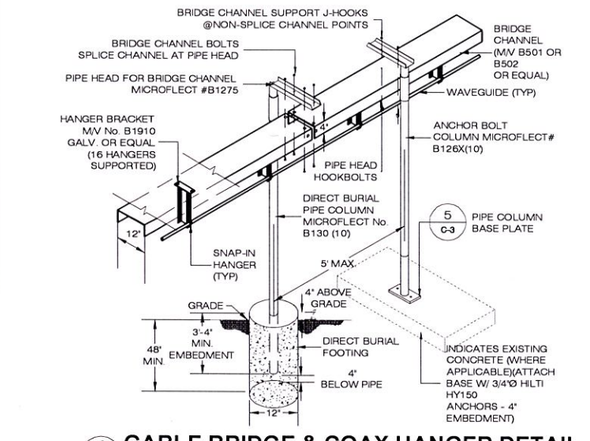
EASTERN ELEVATION



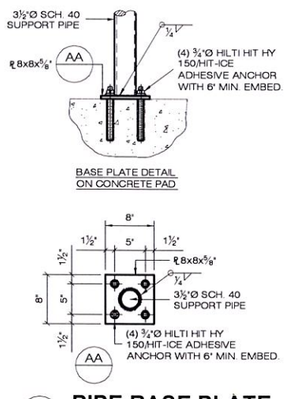
2 C-3 FOUNDATION PLAN
SCALE : 1/4" = 1'-0"



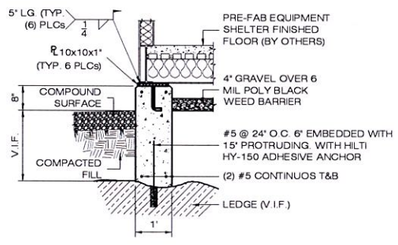
3 C-3 FOUNDATION SECTION
SCALE : 1/2" = 1'-0"



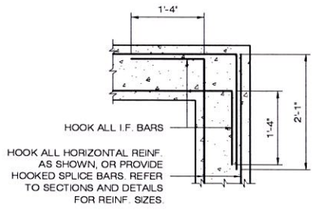
4 C-3 CABLE BRIDGE & COAX HANGER DETAIL
SCALE : NTS



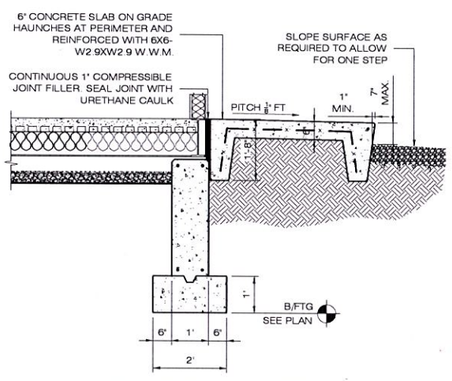
5 C-3 PIPE BASE PLATE
SCALE : N.T.S.



6 C-3 FOUNDATION OVER LEDGE OR TOWER FOUNDATION
SCALE : 1/2" = 1'-0"



7 C-3 DETAIL CORNER RIEFORCEMENT
SCALE : 3/4" = 1'-0"



8 C-3 SECTION @ STOOP
SCALE : 1/2" = 1'-0"

DESIGN LOAD CRITERIA

EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS	CONNECTICUT STATE
GOVERNING CODE	BUILDING CODE
DESIGN LIVE LOADS	40 PSF (ASCE 7-02)
IMPORTANCE CATEGORY	II
SNOW LOAD:	
GROUND SNOW LOAD (Pg)	30 PSF
IMPORTANCE FACTOR	1.0
EXPOSURE FACTOR (Ce)	0.9
THERMAL FACTOR (Ct)	1.0
WIND LOAD:	
BASIC WIND LOAD	100 MPH (3 SEC. GUST)
EXPOSURE GROUP	C
IMPORTANCE FACTOR	1.0
SHELTER LOAD:	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	24,500 LBS
SEISMIC DESIGN PARAMETERS:	
SEISMIC USE GROUP	II
MCE SPECTRAL ACCELERATION SHORT (Sa)	0.288
MCE SPECTRAL ACCELERATION SHORT (S1)	0.066
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.0

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
40 WOODLAND STREET
HARTFORD, CT 06105
OFFICE: (888) 973-7483
MCM

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
FAX: (860)-663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

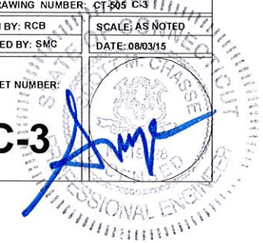
DESIGN TYPE:
RAW LAND

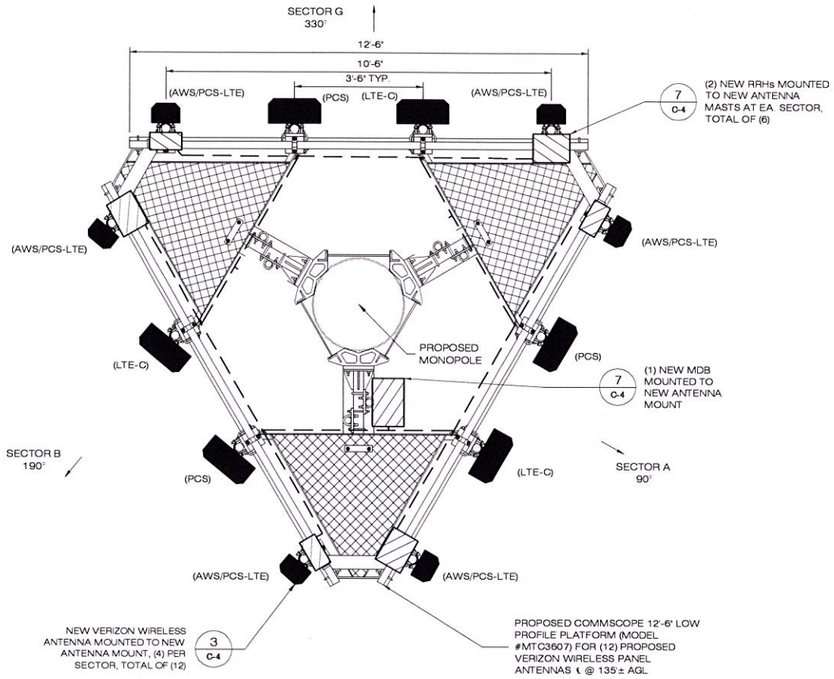
REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

VZW EQUIP. SHELTER PLAN & DETAILS

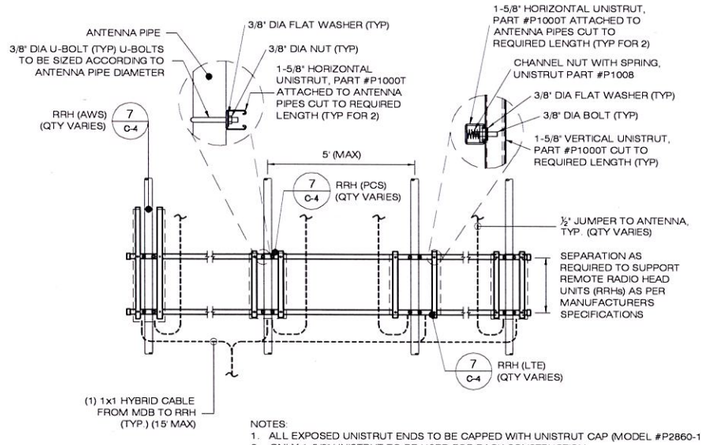
APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 C-3
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:
C-3



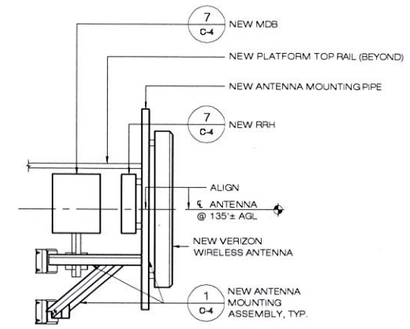


1 C-4 ANTENNA PLAN
SCALE : NTS

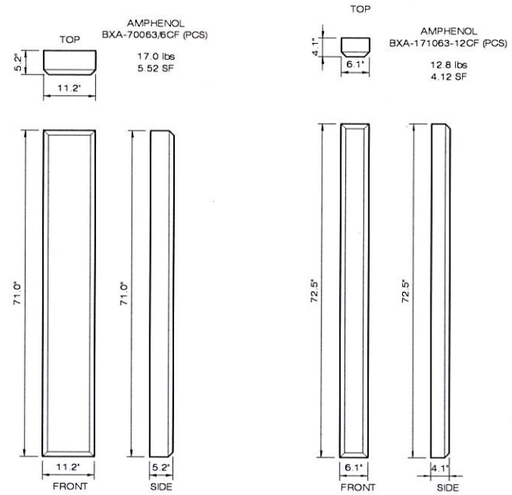


NOTES:
1. ALL EXPOSED UNISTRUT ENDS TO BE CAPPED WITH UNISTRUT CAP (MODEL #P2860-10)
2. ONLY 1-5/8" UNISTRUT TO BE USED FOR RACK CONSTRUCTION.
3. EXTEND UNISTRUT AS NEEDED BASED ON LENGTH OF ANTENNA SECTOR. DO NOT CANTILEVER UNISTRUT FOR MORE THAN 24" BEYOND ANTENNA MAST.
4. FOR SPANS GREATER THAN 5'-0" USE UNISTRUT PART #P1001

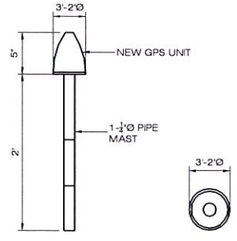
4 C-4 RRH EQUIPMENT ANTENNA MOUNT
SCALE : ½" = 1'-0"



2 C-4 ANTENNA MOUNTING DETAIL
SCALE : NTS

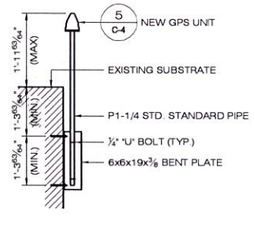


3 C-4 TYPICAL PANEL ANTENNA
SCALE : NTS

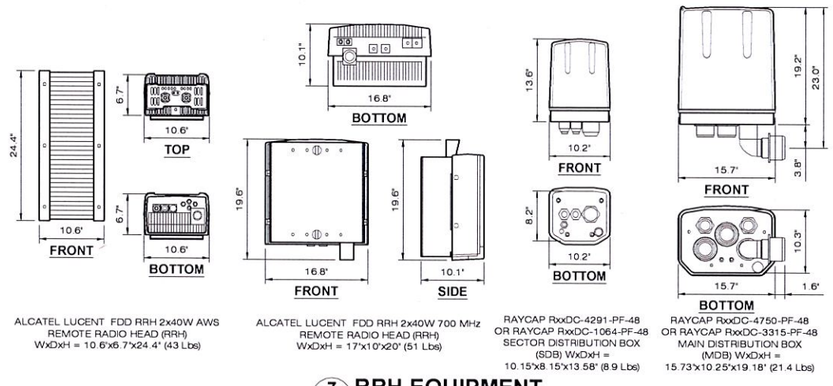


FOR MOUNT - SEE 6/C-4

5 C-4 TYPICAL GPS DETAILS
SCALE : NTS



6 C-4 GPS UNIT MOUNT
SCALE : N.T.S.



7 C-4 RRH EQUIPMENT
SCALE : 1" = 1'-0"

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

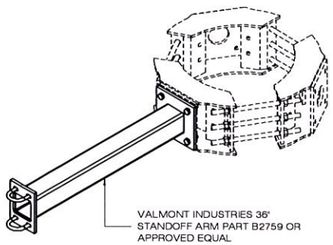
DESIGN TYPE:
RAW LAND

REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

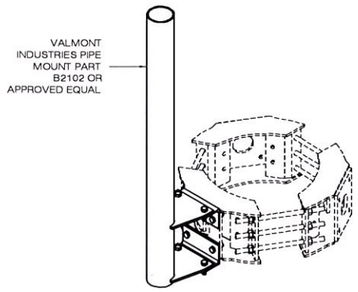
VZW ANTENNA PLAN & DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 C-4
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:
C-4



1 C-5 3' SIDEARM ANTENNA MOUNT
SCALE : NTS



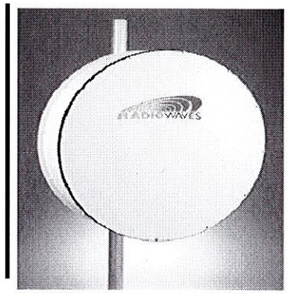
2 C-5 MICROWAVE DISH MOUNT
SCALE : NTS

RADIOWAVES
THE LEADER IN MICROWAVE ANTENNA INNOVATION

High Performance Series for 4.4-5.0 GHz Frequencies

Key Features

- High Performance antennas minimize interference as they have more stringent radiation side lobe and front-to-back suppression characteristic
- Lightweight and rugged design
- Easily installed with our superior mounting system included with the antenna
- RF connector: "N" female connector. Some models are available with 7/16 DIN Connector. Please call the factory for availability
- Our industry leading 5-year warranty
- Radome is included
- Single (HP) and Dual (HPD) polarization are available



Antenna Specifications, Electrical (typical)

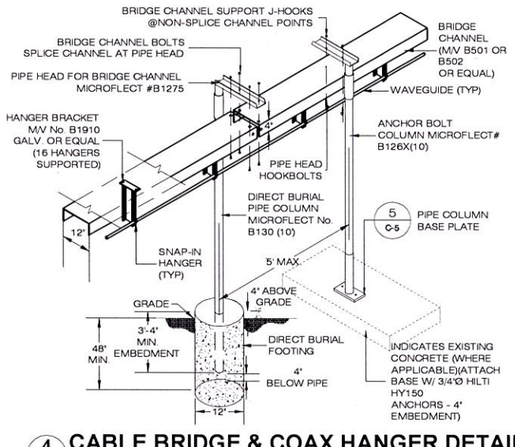
Model Number	Diameter ft. (m)	Frequency GHz	Gain (dBi) Low	Mid	High	3dB BW degs	X-Pol Rejection dB	F/B Ratio dB	VSWR, Max (R.L., dB)	Antenna Weight
HP2-4.7	2 (0.6)	4.4-5.0	25.8	26.4	26.6	7.1 deg	28 dB	48 dB	1.5:1 (14.0)	27 lbs (12.3 kg)
HP3-4.7	3 (0.9)	4.4-5.0	29.2	29.8	30.3	4.7 deg	30 dB	52 dB	1.5:1 (14.0)	50 lbs (22.7 kg)
HP4-4.7	4 (1.2)	4.4-5.0	31.8	32.4	32.9	3.6 deg	30 dB	54 dB	1.5:1 (14.0)	85 lbs (38.3 kg)
HP6-4.7	6 (1.8)	4.4-5.0	34.8	35.4	35.3	2.6 deg	30 dB	57 dB	1.5:1 (14.0)	251 lbs (113.0 kg)
HP8-4.7	8 (2.4)	4.4-5.0	49.2	38.8	39.3	1.8 deg	30 dB	61 dB	1.5:1 (14.0)	424 lbs (194.5 kg)
HPD2-4.7	2 (0.6)	4.4-5.0	25.8	26.4	26.8	7.1 deg	28 dB	48 dB	1.5:1 (14.0)	27 lbs (12.3 kg)
HPD3-4.7	3 (0.9)	4.4-5.0	29.2	29.8	30.3	4.7 deg	30 dB	52 dB	1.5:1 (14.0)	50 lbs (22.7 kg)
HPD4-4.7	4 (1.2)	4.4-5.0	31.8	32.4	32.9	3.6 deg	30 dB	54 dB	1.5:1 (14.0)	85 lbs (38.3 kg)
HPD6-4.7	6 (1.8)	4.4-5.0	34.8	35.4	35.9	2.6 deg	30 dB	57 dB	1.5:1 (14.0)	251 lbs (113.0 kg)
HPD8-4.7	8 (2.4)	4.4-5.0	38.2	38.8	39.3	1.8 deg	30 dB	61 dB	1.5:1 (14.0)	424 lbs (194.5 kg)

Note: LMR jumpers and Side Struts available from Radio Waves

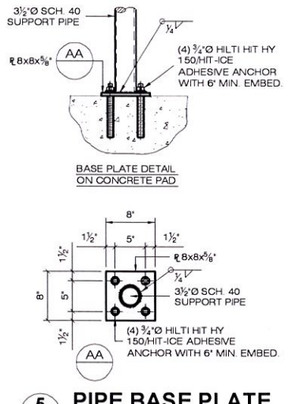
Radio Waves, Inc. • 495 R Billerica Avenue • N. Billerica, MA 01862 USA • Tel: (978) 459-8800 • Fax: (978) 459-3310 / 8810
www.radiowavesinc.com

HPx4.7 Rev A

3 C-5 RADIOWAVES HFD2-4.7 ANTENNA
SCALE : NTS



4 C-5 CABLE BRIDGE & COAX HANGER DETAIL
SCALE : NTS



5 C-5 PIPE BASE PLATE
SCALE : N.T.S.

DESIGN LOAD CRITERIA

EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS	CONNECTICUT STATE
GOVERNING CODE	BUILDING CODE
DESIGN LIVE LOADS	40 PSF (ASCE 7-02)
IMPORTANCE CATEGORY	II
SNOW LOAD:	
GROUND SNOW LOAD (Pg)	30 PSF
IMPORTANCE FACTOR	1.0
EXPOSURE FACTOR (Ce)	0.9
THERMAL FACTOR (Ct)	1.0
WIND LOAD:	
BASIC WIND LOAD	100 MPH (3 SEC. GUST)
EXPOSURE GROUP	C
IMPORTANCE FACTOR	1.0
SHELTER LOAD:	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	24,500 LBS
SEISMIC DESIGN PARAMETERS:	
SEISMIC USE GROUP	II
MCE SPECTRAL ACCELERATION SHORT (Sa)	0.288
MCE SPECTRAL ACCELERATION SHORT (Si)	0.066
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.0

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

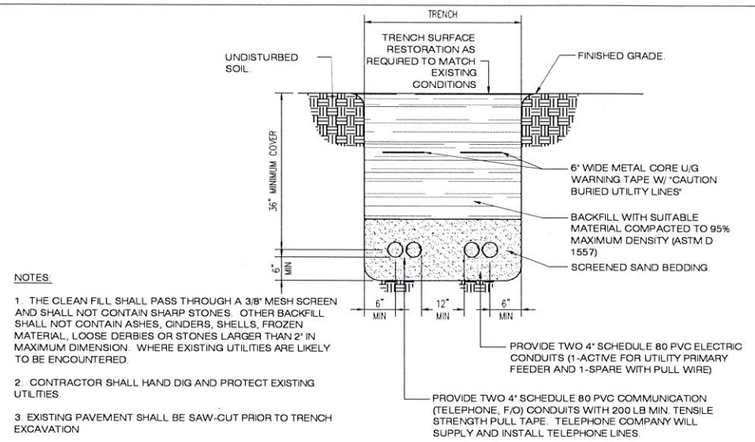
DESIGN TYPE:
RAW LAND

REVISIONS:
- REV.0: 08/11/15: FOR REVIEW: SMC
- REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
- REV.2:
- REV.3:
- REV.4:
- REV.5:

TOWN ANTENNA PLAN & DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 C-5
DRAWN BY: RCB | SCALE: AS NOTED
CHECKED BY: SMC | DATE: 08/03/15

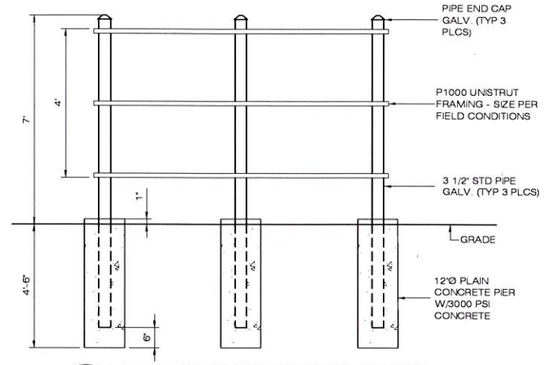
SHEET NUMBER:
C-5



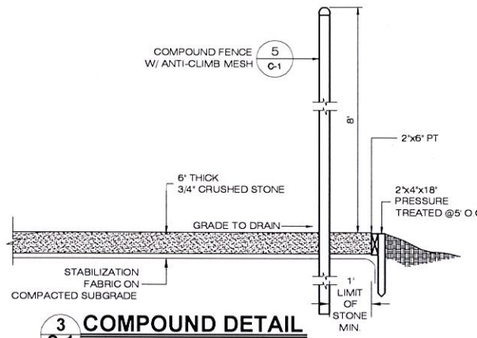
NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DERBIES OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED.
2. CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. EXISTING PAVEMENT SHALL BE SAW-CUT PRIOR TO TRENCH EXCAVATION

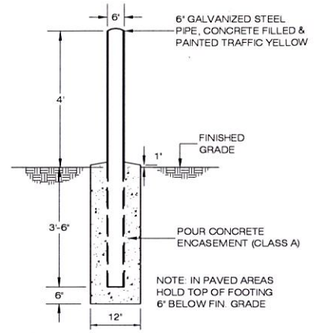
1 S-1 PRIMARY UTILITY TRENCH
SCALE : NTS



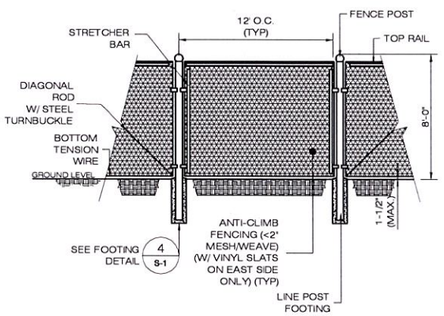
2 S-1 UTILITY BACKBOARD DETAIL
SCALE : NTS



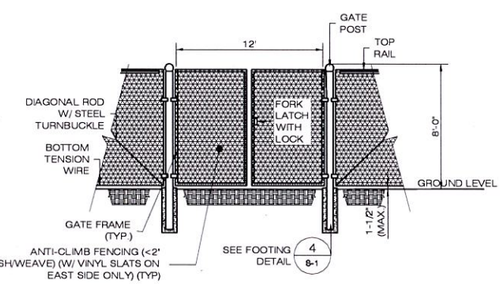
3 S-1 COMPOUND DETAIL
SCALE : NTS



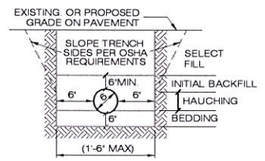
4 S-1 BOLLARD DETAIL
SCALE : NTS



5 S-1 CHAIN-LINK FENCING DETAIL
SCALE : NTS

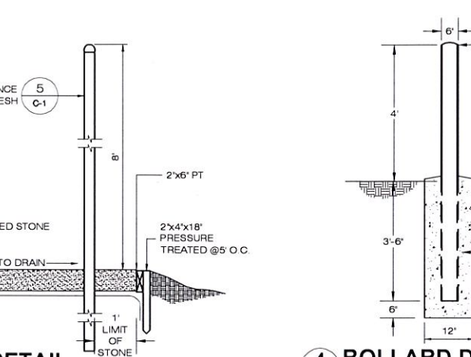


6 S-1 FENCE & GATE DETAIL
SCALE : N.T.S.

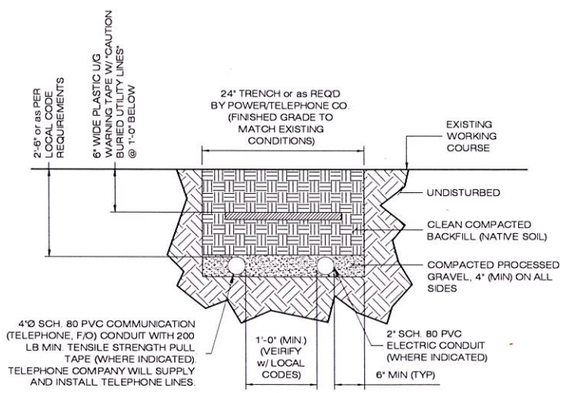


1. BEDDING SHALL BE COMPACTED CRUSHED STONE AND SHALL BE SHAPED TO THE BOTTOM OF THE PIPE.
2. HAUNCHING AND INITIAL BACKFILL MATERIAL AND SHALL BE COMPACTED. MATERIAL SHALL BE CLASS I OR II (REF ASTM D2321) GRANULAR TO 95% STANDARD PROCTOR.
3. SELECT FILL SHALL BE SELECT MATERIAL FREE OR LARGE ROCKS (3"+) AND SHALL BE PLACED IN 8" MAX. LOOSE LIFTS AND COMPACTED TO 95% STANDARD PROCTOR.

7 S-1 PVC TRENCH SECTION
SCALE : N.T.S.



8 S-1 GENERATOR PAD DETAIL
SCALE : NTS



9 S-1 SECONDARY TRENCH DETAIL
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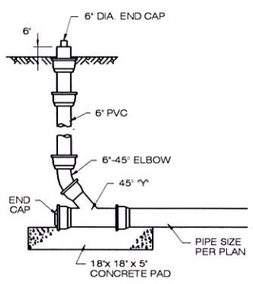
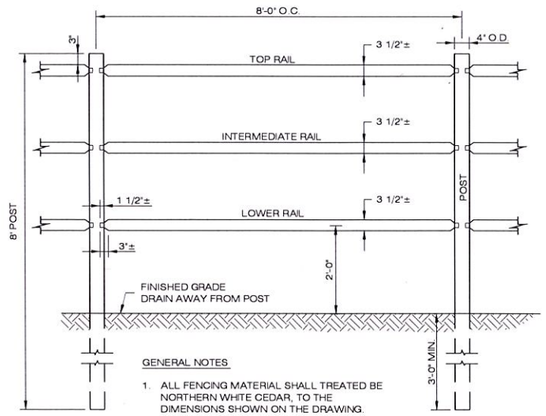


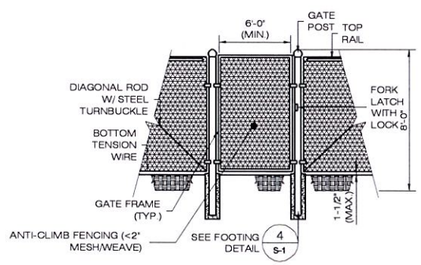
10 S-1 DRAINAGE CLEAN-OUT
SCALE : N.T.S.



GENERAL NOTES

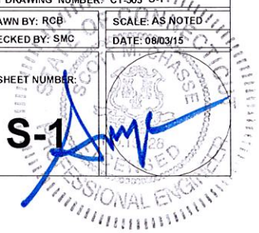
1. ALL FENCING MATERIAL SHALL TREATED BE NORTHERN WHITE CEDAR, TO THE DIMENSIONS SHOWN ON THE DRAWING.
2. ALL POSTS SHALL BE INSTALLED PARALLEL AND PLUMB. ALL RAILS SHALL BE INSTALLED PARALLEL AND TRUE.

11 S-1 SPLIT RAIL FENCE
SCALE : N.T.S.



12 S-1 MAN GATE DETAIL
SCALE : NTS

MCM SITE NAME: REDDING RIDGE CT505 APT FILING NUMBER: CT-242-310	DEVELOPMENT & MANAGEMENT DOCUMENTS REDDING RIDGE 186 BLACK ROCK TURNPIKE REDDING, CT 06896	COMPOUND DETAILS
MESSAGE CENTER MANAGEMENT 40 WOODLAND STREET HARTFORD, CT 06105 OFFICE: (888) 973-7483 MCM	DESIGN TYPE: RAW LAND	APT FILING NUMBER: CT-242-310 APT DRAWING NUMBER: CT-505 S-1 DRAWN BY: RCB / SCALE: AS NOTED CHECKED BY: SMC / DATE: 08/03/15
ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM PHONE: (860)-663-1697 FAX: (860)-663-0935	REVISIONS: REV.0: 08/11/15: FOR REVIEW: SMC REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC REV.2: REV.3: REV.4: REV.5:	SHEET NUMBER: S-1



ENVIRONMENTAL NOTES:

WETLAND AND PUBLIC WATER SUPPLY WATERSHED PROTECTION PROGRAM

Portions of the proposed MCM Redding Ridge Facility's compound are located in close proximity (±53 feet) to a wetland area. In addition, the MCM Redding Ridge Facility is located within the public water supply watershed of the Hemlock Reservoir and active source of public drinking water maintained by the Aquarion Water Company (PWSID #CT0150011). As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system or water quality that could affect this public water supply watershed. These protective measures satisfy recommendations from the Drinking Water Section ("DWS") of the Department of Public Health as specified in a June 27, 2014 letter and Condition No. 3 of the Connecticut Siting Council's Decision and Order (Docket No. 449) dated October 30, 2014.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT and Aquarion Water Company personnel, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland and public water supply watershed protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. Erosion and Sedimentation Controls
   a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the MCM project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
   b. Installation of erosion control measures (i.e., conventional silt fencing, straw bales, straw wattles, compost filter socks, etc.) shall be performed by the Contractor prior to any earthwork. APT will inspect the work zone following erosion control barrier installation to ensure erosion controls are properly installed prior to the start of earthwork.
   c. All erosion controls materials and installation/maintenance methods shall follow the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (DEP Bulletin 34), as amended. The Contractor is responsible for daily inspections of erosion control measures for tears or breeches in the fabric/material and accumulation levels of sediment, particularly following storm events of 0.10 inch or greater. APT will provide periodic inspections of the erosion control measures throughout the duration of construction activities, generally on a biweekly frequency or more frequently if site conditions warrant.
   d. The extent of the erosion control barriers will be as shown on the site plans. The Contractor shall have additional erosion control materials stockpiled on site should field conditions warrant extending/reinforcing erosion control barriers as directed by APT or other responsible agencies.
   e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

2. Contractor Education
   a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with APT. This orientation and educational session will consist of an introductory meeting with APT to understand the environmentally sensitive nature of the development site and the need to follow Protective Measures as described in Section 3 below.
   b. The Contractor will be provided with cell phone and email contacts for Aquarion Water Company personnel to immediately report any releases of sediment or fuel or hazardous material releases.

3. Petroleum Materials Storage and Spill Prevention
   a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the projects location in proximity to sensitive wetlands and within the Hemlock Reservoir public water supply watershed.
   b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
   c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

      i. Petroleum and Hazardous Materials Storage and Refueling
         1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
         2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

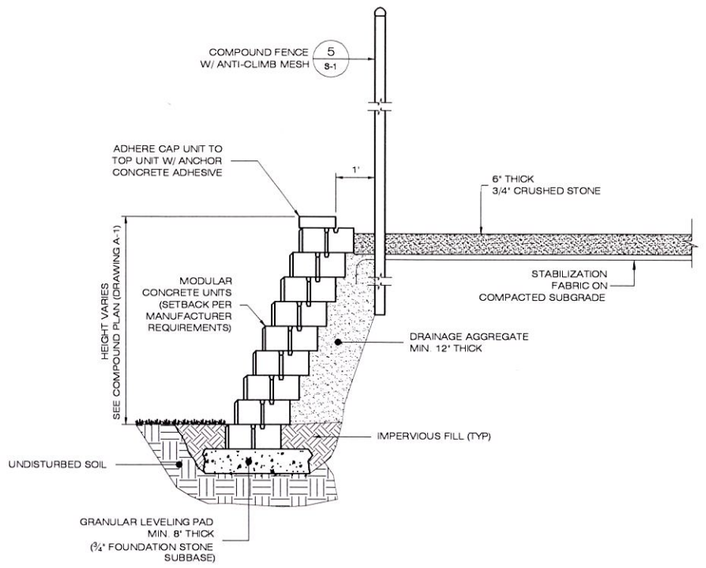
      ii. Initial Spill Response Procedures
         1. Stop operations and shut off equipment.
         2. Remove any sources of spark or flame.
         3. Contain the source of the spill.
         4. Determine the approximate volume of the spill.
         5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
         6. Ensure that fellow workers are notified of the spill.

      iii. Spill Clean Up & Containment
         1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
         2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
         3. Isolate and eliminate the spill source.
         4. Contact Aquarion Water Company personnel and Connecticut Siting Council along with other appropriate local, state and/or federal agencies, as necessary.
         5. Contact a disposal company to properly dispose of contaminated materials.

      iv. Reporting
         1. Complete an incident report.
         2. Submit a completed incident report to Aquarion Water Company and the Connecticut Siting Council.

4. Herbicide and Pesticide Restrictions
   a. The use of herbicides and pesticides at the proposed wireless telecommunications facility is strictly prohibited.

5. Reporting
   a. Monthly inspection reports (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council for compliance verification.
   b. Any significant releases of sediment (e.g., impacting the nearby wetlands) will be reported to the Connecticut Siting Council and Aquarion Water Company within 24 hours.



1 S-2 TYPICAL RETAINING WALL SECTION

SCALE : NTS

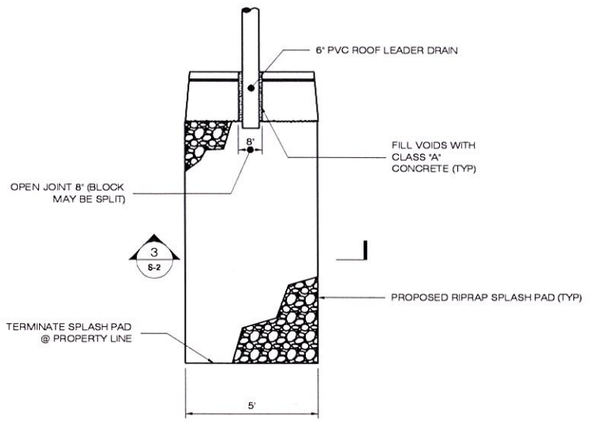
GENERAL NOTES:

1. STRIP ALL VEGETATION AND ORGANIC SOIL FROM THE WALL ALIGNMENT.
2. BENCH CUT ALL EXCAVATED SLOPES.
3. DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.
4. SITE SOIL ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
5. LEVELING PAD SHALL CONSIST OF 3/4" FOUNDATION STONE, MINIMUM 8" THICK, OR 3,000 PSI CONCRETE.
6. CONTRACTOR MAY OPT FOR A CONCRETE FOOTING. CONCRETE FOOTING SHALL BE UNREINFORCED, DEPTH OF CONCRETE TO BE A MINIMUM THICKNESS OF 6".
7. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE 16" FOR WALL HEIGHTS FROM 4' AND UP TO 10', 8" FOR HEIGHTS BELOW 4' UNLESS SHOWN DIFFERENTLY.
8. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURERS INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
9. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE SITE SOILS ENGINEER, OR AS INDICATED IN THE SPECIFICATION.
10. COMPACTION SHALL BE 95% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
11. ESTABLISH TURF AS SOON AS THE WALL IS COMPLETED.
12. FINAL WALL ALIGNMENT SHALL BE LOCATED IN THE FIELD.
13. REINFORCED BACK FILL REQUIREMENTS FOR THE SEGMENTAL CONCRETE RETAINING WALL SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

SIEVE SIZE	PERCENT PASSING REINFORCED BACK FILL
2 INCH	100
NO. 4	40-85
NO. 10	25-75
NO. 40	15-50
NO. 100	10-40
NO. 200	4-12

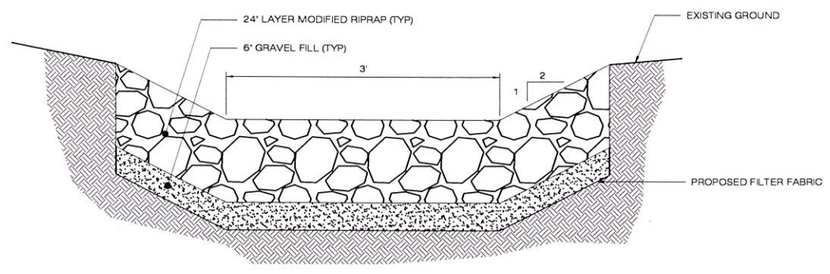
PLASTICITY INDEX (PI) LESS THAN OR EQUAL TO 10 AND A LIQUID LIMIT LESS THAN OR EQUAL TO 40. REINFORCED BACK FILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 10 INCHES. REINFORCED BACK FILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM-1557. THE MOISTURE CONTENT OF THE BACK FILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE WITHIN 2 PERCENTAGE POINTS OF DRY OPTIMUM.

IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.



2 S-2 DRAINAGE OUTLET DETAIL

SCALE : NTS



3 S-2 RIPRAP SPLASHPAD SECTION

SCALE : NTS

MCM SITE NAME: REDDING RIDGE CT505

APT FILING NUMBER: CT-242-310

MESSAGE CENTER MANAGEMENT
40 WOODLAND STREET
HARTFORD, CT 06105
OFFICE: (888) 973-7483

MCM

ALL-POINTS TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:

RAW LAND

REVISIONS:

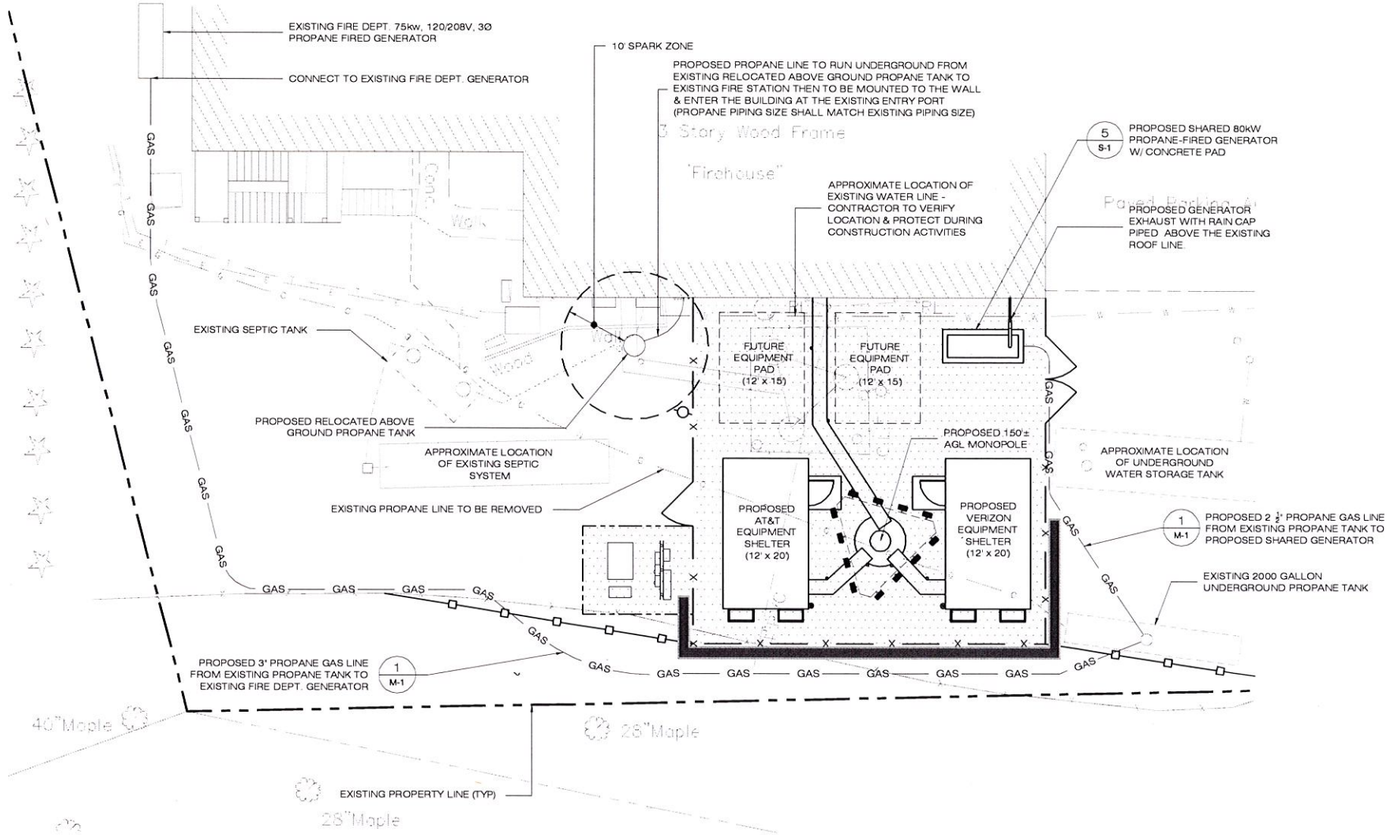
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

COMPOUND DETAILS & ENVIRONMENTAL NOTES

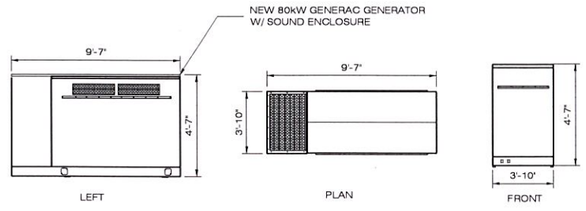
APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505_S-2
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:

S-2

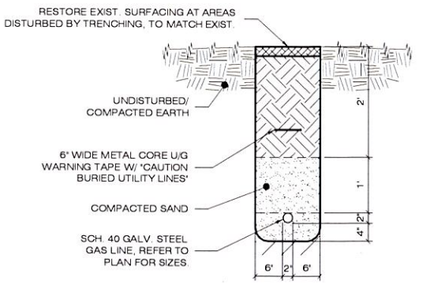


GAS ROUTING PLAN
SCALE : 1" = 10'-0"

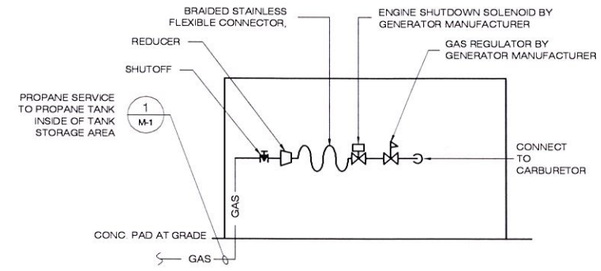


FOR GENERATOR PAD, SEE 8/S-1

5 M-1 80KW PROPANE GENERATOR
SCALE : NTS



1 M-1 PROPANE GAS TRENCH
SCALE : N.T.S.



2 M-1 GENERATOR CONNECTION DETAIL
SCALE : NTS

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
40 WOODLAND STREET
HARTFORD, CT 06105
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:
RAW LAND

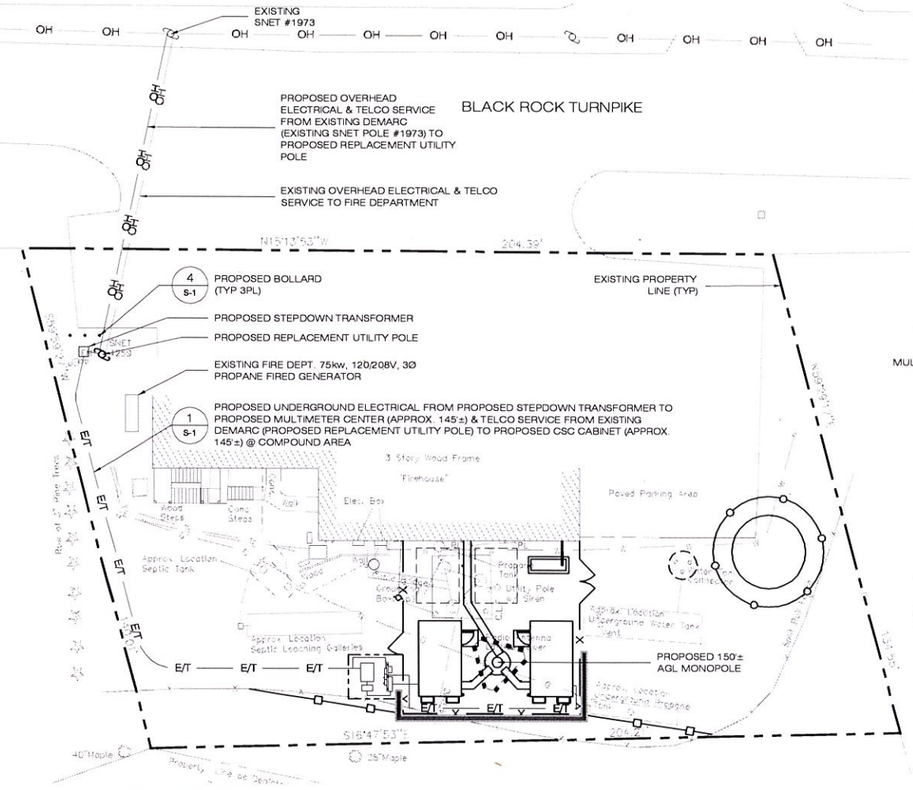
REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

MECHANICAL PLAN & DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 M-1
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER:
M-1

STATE OF CONNECTICUT — LICENSED PROFESSIONAL ENGINEER



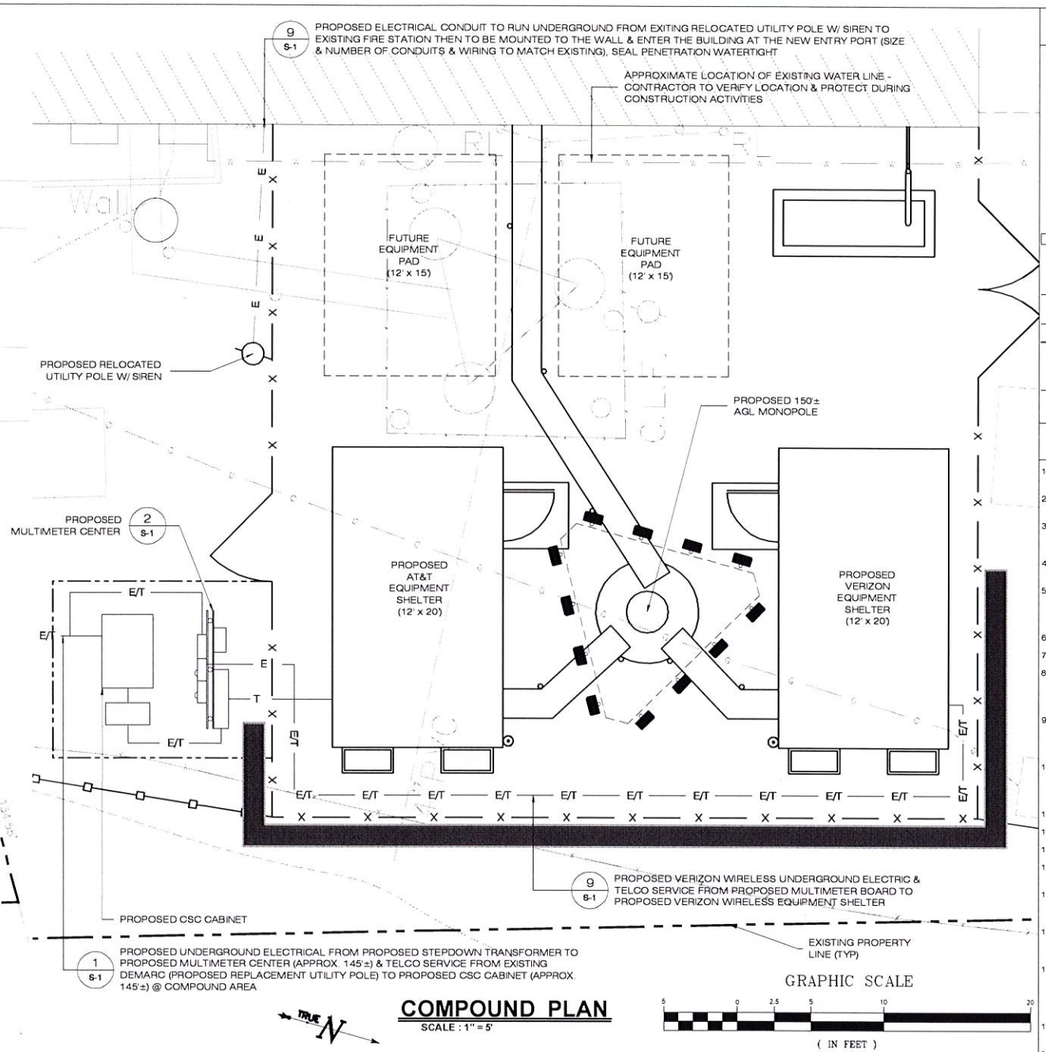
GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

SITE PLAN

SCALE : 1" = 20'



COMPOUND PLAN

SCALE : 1" = 5'

GRAPHIC SCALE

5 0 2.5 5 10 20

(IN FEET)
1 inch = 5 ft.

ELECTRICAL LEGEND

U.O.N.	UNLESS OTHERWISE NOTED		NEW PANEL BOARD, SURFACE MOUNTED
WP	WEATHERPROOF		EXISTING PANEL BOARD, SURFACE MOUNTED
GFI	GROUND FAULT INTERRUPTER	T	DRY TYPE TRANSFORMER
A	AMPERE	M	METER
V	VOLT		CIRCUIT BREAKER
KWH	KILOWATT - HOUR	N	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
C	CONDUIT	F	FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
G	GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER W/ BUILT-IN FUSES, SURFACE MOUNTED
	GROUND		DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
MGB	MASTER GROUND BAR	J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
	1/4"x8"x24" COPPER		EXPOSED WIRING
EGB	EQUIPMENT GROUND BAR		HOME RUNS, MINIMUM 2#10 + 1#10G IN 3/4" CONDUIT U.O.N.
	½"x4"x12" OR ¼"x4"x18" COPPER	A.F.F.	ABOVE FINISHED FLOOR
	GROUND COPPER WIRE, SIZE AS NOTED		
	EXPOSED WIRING		
	COAXIAL CABLE		
	5/8"x8' COPPER CLAD STEEL GROUND ROD		
	EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION		

ELECTRICAL AND GROUNDING NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS of THE NATIONAL ELECTRICAL CODE (NEC) as WELL as APPLICABLE STATE & LOCAL CODES
2) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED & PROCURED PER SPECIFICATION REQUIREMENTS.
3) THE ELECTRICAL WORK INCLUDES ALL LABOR & MATERIAL DESCRIBED BY DRAWINGS & SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING & APPROVED ELECTRICAL SYSTEM.
4) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, & IS RESPONSIBLE FOR OBTAINING SAID PERMITS & COORDINATION OF INSPECTIONS.
5) ELECTRICAL & TELCO WIRING OUTSIDE A BUILDING & EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS or SCHEDULE 80 PVC (as PERMITTED BY CODE) & WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL or NONMETALLIC CONDUITS.
6) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7) ELECTRICAL WIRING SHALL BE COPPER w/ TYPE XHHW, THWN, or THHN INSULATION.
8) RUN ELECTRICAL CONDUIT or CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE POWER PEDESTAL as INDICATED ON THS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION w/ UTILITY COMPANY.
9) RUN TELCO CONDUIT or CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE TELCO CABINET & BTS CABINET as INDICATED ON THS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE @ EACH END.
10) WHERE CONDUIT BETWEEN BTS & LESSEE/LICENSEE CELL SITE POWER PEDESTAL & BETWEEN BTS & LESSEE/LICENSEE CELL SITE TELCO SERVICE CABINET ARE U/G USE PVC, SCH.40 CONDUIT. ABOVE THE GROUND PORTION of THESE CONDUITS SHALL BE PVC CONDUIT.
11) ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12) POWER PEDESTAL SUPPLIED BY LESSEE/LICENSEE.
13) GROUNDING SHALL COMPLY w/ NEC ART. 250.
14) GROUND COAXIAL CABLE SHIELDS MINIMUM @ BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY LESSEE/LICENSEE.
15) USE #6 COPPER STRANDED WIRE w/ GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) & #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING as INDICATED ON THE DRAWING.
16) ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS or CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT w/ GALVANIZED STEEL.
17) ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST & STRAIGHTEST PATH POSSIBLE, EXCEPT as OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT @ RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT @ 8" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS w/IN 7 FEET of LESSEE/LICENSEE EQUIPMENT or CABINET TO MASTER GROUND BAR.
18) CONNECTIONS TO GROUND BARS SHALL BE MADE w/ TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19) APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20) BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, & ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21) BOND ANTENNA EGBS & MGB TO GROUND RING.
22) TEST COMPLETED GROUND SYSTEM & RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
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MCM

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3 SADDLEBROOK DRIVE
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:
RAW LAND

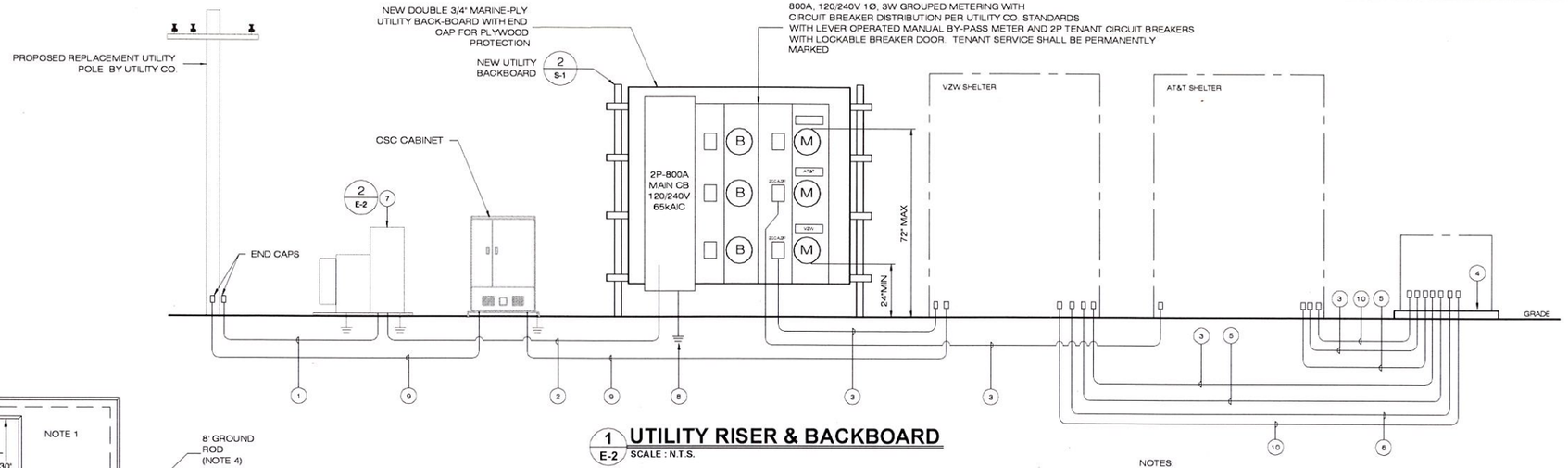
REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

ELECTRICAL PLAN & DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-205 E-1
DRAWN BY: RCB
CHECKED BY: SMC
SCALE: AS NOTED
DATE: 08/03/15

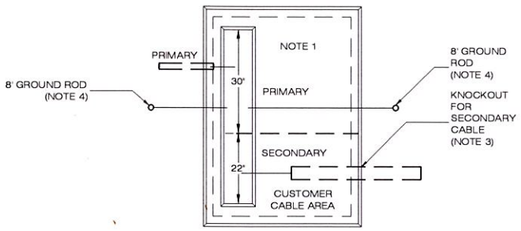
SHEET NUMBER:
E-1

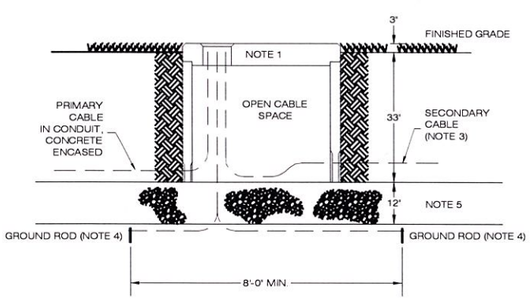
STATE OF CONNECTICUT
THOMAS J. CHASE
LICENSED PROFESSIONAL ENGINEER



1 E-2 UTILITY RISER & BACKBOARD

SCALE : N.T.S.





NOTES

1. 75 - 300KVA - INSTALL 76"x54"x36" PAD AS PER SPC P-013 AND P-014. 500-2500KVA - INSTALL 76"x70"x36" PAD AS PER SPC P-015 AND P-016. (COORDINATE REQUIRED PAD SIZE FOR PROJECT WITH UTILITY COMPANY)
2. PRIMARY CABLE: BY UTILITY COMPANY
3. SECONDARY CABLE: LEAVE SLACK FOR FUTURE RECONNECTING TO TRANSFORMERS WITH HIGHER SECONDARY TERMINALS. CUSTOMER CABLE(S) SHALL ENTER FROM THE REAR AND SHALL BE CONFINED TO THE AREA DEFINED AS THE 'CUSTOMER CABLE AREA'.
4. GALVANIZED GROUND RODS: INSTALL IN TRENCH AND CONNECT A #2 COPPER CONDUCTOR FROM ROD THROUGH PAD OPENING AND EXTENDING 5'-0" ABOVE PAD. GROUND RODS SHALL BE A MINIMUM OF 8' FROM EACH OTHER.
5. THE EXCAVATION FOR THE PAD SHALL BE CARRIED TO A DEPTH OF 12 INCHES BELOW THE BOTTOM OF THE PAD WALLS. THE BACKFILL UNDER THE PAD WALLS SHALL BE A CLEAN GRAVEL, FREE OF FOREIGN MATTER AND CONSTRUCTION DEBRIS, AND IN ACCORDANCE WITH CONNECTICUT DOT SPEC M.02.06 GRADING "A". BACKFILL SHALL BE PLACED IN 6 INCH LAYERS AND COMPACTED WITH MECHANICAL TAMPERS TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY STANDARD COMPACTION TESTS, AASHTO T180 OR ASTM D698.
6. ALL WORK SHALL CONFORM TO NORTHEAST UTILITIES TRANSFORMER PAD INSTALLATION REQUIREMENTS. REFER TO NORTHEAST UTILITIES CONSTRUCTION STANDARD DTR 58.301 FOR ADDITIONAL INFORMATION.

2 E-2 UTILITY PAD TRANSFORMER DETAIL

SCALE : N.T.S.

NOTES:

(1) NEW PRIMARY ELECTRIC SERVICE. CONTRACTOR SHALL PROVIDE CONDUIT, PRIMARY CABLE PROVIDED BY UTILITY CO. (2) 4" SCHED. 40 PVC. WITH DRAG LINES (1-ACTIVE, 1-SPARE)

(2) (2) 4" SCHED. 80 PVC, 4 #600KCMIL EACH.

(3) 2" SCHED. 80 PVC CONDUIT WITH DRAG LINE TO NEW EQUIP. SHELTER.

(4) CONCRETE PAD FOR NEW PROPOSED 80KW/100KVA 120/240-1Ø 60HZ STAND-BY GENERATOR.

(5) 1" SCHED. 80 PVC WITH DRAG LINE FOR GENERATOR CONTROL WIRING.

(6) 1" SCHED. 80 PVC WITH DRAG LINE FOR GENERATOR. GENERATOR CONVENIENCE RECEPTACLE, BLOCK HEATER AND CHARGER.

(7) NEW PAD-MOUNTED UTILITY TRANSFORMER PROVIDED BY UTILITY CO. PROVIDE NEW TRANSFORMER VAULT PER UTILITY COMPANY STANDARDS.

(8) #3/0 CU GND TO SHELTER GROUNDING ELECTRODE SYSTEM. GROUND AT SERVICE EQUIPMENT SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250. GROUNDING ELECTRODE CONDUCTOR CONNECTION SHALL BE MADE AT AN ACCESSIBLE LOCATION IN SERVICE QUIPMENT AND NOT IN METER SOCKET. GROUNDING ELECTRODE CONDUCTOR SHALL NOT BE RUN THROUGH METER SOCKET.

(9) (2) 4" SCHED 40. PVC WITH 3/8" NYLON PULL ROPE.

(10) 3/4" SCHED. 40 PVC WITH DRAG LINE FOR ALARMS

ELECTRICAL LEGEND

U.O.N.	UNLESS OTHERWISE NOTED		NEW PANEL BOARD, SURFACE MOUNTED
WP	WEATHERPROOF		EXISTING PANEL BOARD, SURFACE MOUNTED
GFI	GROUND FAULT INTERRUPTER		
A	AMPERE	T	DRY TYPE TRANSFORMER
V	VOLT	M	METER
KWH	KILOWATT - HOUR		CIRCUIT BREAKER
C	CONDUIT		NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
G	GROUND	F	FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
	GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER w/ BUILT-IN FUSES, SURFACE MOUNTED
MGB	MASTER GROUND BAR		DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
	1/4"x8"x24" COPPER	J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
EGB	EQUIPMENT GROUND BAR		EXPOSED WIRING
	¼"x4"x12" OR ¼"x4"x18" COPPER		HOME RUNS, MINIMUM 2#10 + 1#10G IN 3/4" CONDUIT U.O.N.
	GROUND COPPER WIRE, SIZE AS NOTED	A.F.F.	ABOVE FINISHED FLOOR
	EXPOSED WIRING		
	COAXIAL CABLE		
	5/8"x8' COPPER CLAD STEEL GROUND ROD		
	EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION		

ELECTRICAL AND GROUNDING NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS of THE NATIONAL ELECTRICAL CODE (NEC) as WELL as APPLICABLE STATE & LOCAL CODES.
2) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED & PROCURED PER SPECIFICATION REQUIREMENTS.
3) THE ELECTRICAL WORK INCLUDES ALL LABOR & MATERIAL DESCRIBED BY DRAWINGS & SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING & APPROVED ELECTRICAL SYSTEM.
4) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, & IS RESPONSIBLE FOR OBTAINING SAID PERMITS & COORDINATION OF INSPECTIONS.
5) ELECTRICAL & TELCO WIRING OUTSIDE A BUILDING & EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS or SCHEDULE 80 PVC (as PERMITTED BY CODE) & WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL or NONMETALLIC CONDUITS.
6) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7) ELECTRICAL WIRING SHALL BE COPPER w/ TYPE XHHW, THWN, or THHNINSULATION.
8) RUN ELECTRICAL CONDUIT or CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE POWER PEDESTAL as INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION w/ UTILITY COMPANY.
9) RUN TELCO CONDUIT or CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT & LESSEE/LICENSEE CELL SITE TELCO CABINET & BTS CABINET as INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE @ EACH END.
10) WHERE CONDUIT BETWEEN BTS & LESSEE/LICENSEE CELL SITE POWER PEDESTAL & BETWEEN BTS & LESSEE/LICENSEE CELL SITE TELCO SERVICE CABINET ARE UG USE PVC, SCH.40 CONDUIT. ABOVE THE GROUND PORTION of THESE CONDUITS SHALL BE PVC CONDUIT.
11) ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12) POWER PEDESTAL SUPPLIED BY LESSEE/LICENSEE.
13) GROUNDING SHALL COMPLY w/ NEC ART. 250.
14) GROUND COAXIAL CABLE SHIELDS MINIMUM @ BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY LESSEE/LICENSEE.
15) USE #6 COPPER STRANDED WIRE w/ GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) & #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING as INDICATED ON THE DRAWING.
16) ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS or CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT w/ GALVANIZED STEEL.
17) ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST & STRAIGHTEST PATH POSSIBLE, EXCEPT as OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT @ RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT @ 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS w/IN 7 FEET of LESSEE/LICENSEE EQUIPMENT or CABINET TO MASTER GROUND BAR.
18) CONNECTIONS TO GROUND BARS SHALL BE MADE w/ TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19) APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20) BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, & ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21) BOND ANTENNA EGBS & MGB TO GROUND RING.
22) TEST COMPLETED GROUND SYSTEM & RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:
RAW LAND

REVISIONS:
- REV.0: 08/11/15: FOR REVIEW: SMC
- REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
- REV.2:
- REV.3:
- REV.4:
- REV.5:

ELECTRICAL DETAILS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 E-2
DRAWN BY: RCB | SCALE: AS NOTED
CHECKED BY: SMC | DATE: 08/03/15

SHEET NUMBER:
E-2

GENERAL NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF REDDING, AND OTHER GOVERNMENTAL AGENCIES, AS APPLICABLE.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL FOLLOW CONDITIONS OF ALL APPLICABLE PERMITS AND WORK IN ACCORD WITH OSHA REGULATIONS.

3. UTILITY INFORMATION SHOWN ON THE PLAN IS BASED ON VISIBLE FIELD EVIDENCE AND AVAILABLE RECORDS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR IS ADVISED THAT THESE DRAWINGS MAY NOT ACCURATELY DEPICT AS-BUILT LOCATIONS AND OTHER UNKNOWN STRUCTURES. THE CONTRACTOR SHALL THEREFORE DETERMINE THE EXACT LOCATION OF EXISTING UNDERGROUND ELEMENTS AND EXCAVATE WITH CARE AFTER CALLING MARKOUT SERVICE AT 1-800-922-4455 (72) HOURS BEFORE DIGGING, DRILLING OR BLASTING. CARE SHALL BE TAKEN NOT TO DISTURB EXISTING UTILITIES AND SERVICE CONNECTIONS (OR PORTIONS THERE OF) TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING STRUCTURES OR UTILITIES DAMAGED BY HIS OPERATIONS.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF NEW SERVICE CONNECTIONS AND SHALL COORDINATE WORK WITH THE APPROPRIATE UTILITY COMPANY.

5. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER.

6. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE, BUT NOT BE LIMITED TO:
   A) FALL PROTECTION,
   B) CONFINED SPACE ENTRY,
   C) ELECTRICAL SAFETY, AND
   D) TRENCHING & EXCAVATION.

7. ELECTRIC SERVICE SHALL BE COORDINATED WITH EVERSOURCE.

8. ALL ELEVATIONS SHOWN ARE IN N.G.V. DATUM 1929.

9. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

10. CONTRACTOR SHALL PROTECT EXISTING PAVED AND GRAVEL SURFACES, CURBS, LANDSCAPE AND STRUCTURES AND RESTORE SITE TO PRECONSTRUCTION CONDITION WITH AS GOOD, OR BETTER, MATERIALS. NEW MATERIALS SHALL MATCH EXISTING THICKNESS AND TYPE.

11. THE CONTRACTOR SHALL SHORE ALL TRENCH EXCAVATION GREATER THAN 5 FEET IN DEPTH OR LESS WHERE SOIL CONDITIONS ARE DEEMED UNSTABLE. ALL SHEETING AND/OR SHORING METHODS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

12. THE CONTRACTOR IS RESPONSIBLE FOR MANAGING GROUNDWATER LEVELS IN THE VICINITY OF EXCAVATIONS TO PROTECT ADJACENT PROPERTIES AND NEW WORK. GROUNDWATER SHALL BE DRAINED IN ACCORDANCE WITH LOCAL SEDIMENTATION & EROSION CONTROL GUIDELINES.

13. THE CONTRACTOR IS REQUIRED TO REVIEW THE STATEMENT OF SPECIAL INSPECTION PRIOR TO THE START OF WORK. THE CONTRACTOR TO PROVIDE E-MAIL REQUEST TO THE PROJECT ENGINEER FOR INSPECTION 72 HOURS IN ADVANCE OF INSPECTION.

14. EXCAVATION
CONTRACTOR SHALL GRADE ONLY AREAS SHOWN TO BE MODIFIED HEREIN AND ONLY TO THE EXTENT REQUIRED TO SHED OVERLAND WATER FLOW AWAY FROM SITE. ALL SLOPES SHALL NOT BE STEEPER THAN 3:1 (HORIZ:VERT).

BEDROCK SUBGRADE SHOULD NOT BE STEEPER THAN 4H:1V. HIGH SPOTS IN BEDROCK SUBGRADES MAY NEED TO BE REMOVED AND LOW SPOTS MAY BE FILLED WITH LEAN CONCRETE OR MINUS ¾" CRUSHED STONE TO PROVIDE A LEVEL SURFACE. BEDROCK SUBGRADES DO NOT REQUIRE PROOFROLLING.

SEDIMENTATION AND EROSION CONTROLS SHOWN AND SPECIFIED SHALL BE ESTABLISHED BEFORE STRIPPING EXISTING VEGETATION.

ORGANIC MATERIAL AND DEBRIS SHALL BE STRIPPED AND STOCKPILED BEFORE ADDING FILL MATERIAL.

NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

ALL FILL SHALL BE PLACED IN EIGHT INCH LIFTS AND COMPACTED IN PLACE. STRUCTURAL FILL SHALL BE COMPACTED TO 95% MAXIMUM MODIFIED PROCTOR DRY DENSITY TESTED IN ACCORDANCE WITH ASTM D1557, METHOD C.

EXCAVATIONS FOR FOOTINGS SHALL BE CUT LEVEL TO THE REQUIRED DEPTH AND TO UNDISTURBED SOIL. REPORT UNSUITABLE SOIL CONDITIONS TO THE ENGINEER.

STRUCTURAL FILL SHALL BE TESTED FOR MOISTURE CONTENT AND COMPACTION DURING PLACEMENT. SHOULD THE RESULTS OF THE IN-PLACE DENSITY TESTS INDICATE THE SPECIFIED MOISTURE OR COMPACTION LIMITS HAVE NOT BEEN MET, THE AREA REPRESENTED BY THE TEST SHOULD BE REWORKED AND RETESTED, AS REQUIRED, UNTIL THE SPECIFIED MOISTURE AND COMPACTION REQUIREMENTS ARE ACHIEVED.

EQUIPMENT CABINETS MAY BE SUPPORTED ON SLABS-ON-GRADE UNDERLAIN BY AT LEAST A 12-INCH THICKNESS OF COMPACTED STRUCTURAL FILL OR MINUS ¾"-INCH CRUSHED STONE PLACED ON THE EXISTING FILL, THE SURFACE OF WHICH SHOULD BE THOROUGHLY COMPACTED AND CLEAR OF ORGANIC MATTER.

THE AREA UNDERLYING THE SLABS SHOULD BE ROUGH GRADED AND THEN THOROUGHLY PROOFROLLED WITH A VIBRATORY ROLLER OR HEAVY PLATE COMPACTOR PRIOR TO FINAL GRADING AND PLACEMENT OF STRUCTURAL FILL OR MINUS ¾"-INCH CRUSHED STONE.

A SOIL UNIT WEIGHT OF 100 LBS PER CUBIC FOOT (PCF) SHOULD BE USED FOR ENGINEERED FILL OVERLYING THE FOOTINGS.

TRENCH EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH DAY.

SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE.

TOWER FOUNDATION EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORD WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS.

CONTRACTOR TO VERIFY THAT FOOTING ELEVATIONS AND PIER ELEVATION PROVIDED HEREIN ARE CONSISTENT WITH THE TOWER DESIGN REQUIREMENTS.

14. MATERIALS
NATIVE GRAVEL MATERIAL MAY BE USED FOR TRENCH BACKFILL WHERE SELECT MATERIAL IS NOT SPECIFIED. GRAVEL MATERIAL FOR CONDUIT TRENCH BACKFILL SHALL NOT CONTAIN ROCK GREATER THAN 2 INCHES IN DIAMETER.

BANK OR CRUSHED GRAVEL SHALL CONSIST OF TOUGH, DURABLE PARTICLES OF CRUSHED OR UNCRUSHED GRAVEL FREE OF SOFT, THIN, ELONGATED OR LAMINATED PIECES AND MEET THE GRADATION.

FILL SHOULD MEET THE FOLLOWING MATERIAL PROPERTY REQUIREMENTS:

FILL TYPE (1)	USCS CLASSIFICATION	ACCEPTABLE LOCATION FOR PLACEMENT
STRUCTURAL FILL	GW (2)	ALL LOCATIONS AND ELEVATIONS. THE EXISTING FILL MAY BE SELECTIVELY RE-USED AS STRUCTURAL FILL PROVIDED IT IS FREE OF ORGANIC AND CLOSELY MEETS THE GRADATION REQUIREMENTS IN NOTE 2, BELOW.
COMMON FILL	VARIES (3)	COMMON FILL MAY BE USED FOR GENERAL SITE GRADING TO WITHIN 12 INCHES OF FINISHED GRADE. COMMON FILL SHOULD NOT BE USED UNDER SETTLEMENT SENSITIVE STRUCTURES. THE EXISTING FILL MAY BE RE-USED AS COMMON FILL, PROVIDED IT IS FREE OF ORGANICS AND CAN BE ADEQUATELY COMPACTED.

1. COMPACTED FILL SHOULD CONSIST OF APPROVED MATERIALS THAT ARE FREE OF ORGANIC MATTER AND DEBRIS. FROZEN MATERIAL SHOULD NOT BE USED. FILL SHOULD NOT BE PLACED ON A FROZEN SUBGRADE.

2. IMPORTED STRUCTURAL FILL SHOULD MEET THE FOLLOWING GRADATION:
PERCENT PASSING BY WEIGHT

SIEVE SIZE	STRUCTURAL FILL
6"	100
3"	70-100
2"	(100)*
¾"	45-95
NO. 4	30-90
NO. 10	25-80
NO. 40	10-50
NO. 200	0-12

* MAXIMUM 2-INCH PARTICLE SIZE WITHIN 12 INCHES OF THE UNDERSIDE OF CONCRETE ELEMENTS.

3. COMMON FILL SHOULD HAVE A MAXIMUM PARTICLE SIZE OF 6 INCHES AND NO MORE THAN 25 PERCENT BY WEIGHT PASSING THE US NO. 200 SIEVE.

SEDIMENTATION/EROSION

1. THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE 2002 CONNECTICUT GUIDLINES FOR SOIL EROSION AND SEDIMENT CONTROL.

2. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION. THE FOLLOWING GENERAL CONDITIONS SHALL BE OBSERVED:

   A. LIMITS OF CLEARING AND GRUBBING SHALL BE CLEARLY MARKED BEFORE COMMENCING WITH SUCH WORK.

   B. EXISTING VEGETATION TO REMAIN SHALL BE PROTECTED AND REMAIN UNDISTURBED.

   C. CLEARING AND GRADING SHALL BE SCHEDULED SO AS TO MINIMIZE THE SIZE OF EXPOSED AREAS AND THE LENGTH OF TIME THAT AREAS ARE EXPOSED.

   D. TOPSOIL SHALL BE SPREAD TO FINISH GRADES AND SEEDED AS SOON AS FINISHED GRADES ARE ESTABLISHED. STRAW MULCH, JUTE NETTING OR MATS SHALL BE USED WHERE THE NEW SEED IS PLACED.

   E. THE LENGTH AND STEEPNESS OF CLEARED SLOPES SHALL BE MINIMIZED TO REDUCE RUNOFF VELOCITIES.

   F. RUNOFF SHALL BE DIVERTED AWAY FROM CLEARED SLOPES.

   G. ALL SEDIMENT SHALL BE TRAPPED ON THE SITE.

3. SEDIMENTATION AND EROSION CONTROL (SEC) MEASURES SHOWN SHALL BE INSTALLED PRIOR TO LAND CLEARING, EXCAVATION OR GRADING OPERATIONS. REQUIREMENTS SPECIFIED SHALL BE MET PRIOR TO COMMENCING EARTHWORK OPERATIONS.

4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SEC MEASURES THROUGHOUT DURATION OF PROJECT UNTIL DISTURBED LAND IS THOROUGHLY VEGETATED.

5. FAILURE OF THE SEC SYSTEMS SHALL BE CORRECTED IMMEDIATELY AND SUPPLEMENTED WITH ADDITIONAL MEASURES AS NEEDED.

6. VEGETATIVE SEEDING: UON, AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF 3". TOPSOIL SHALL BE LOOSENED BY RAKING OR DISKING BEFORE SEEDING. APPLY 50 Lbs. OF DOLOMITIC LIMESTONE AND 25 Lbs. OF 10-10-10 FERTILIZER PER 1000 SF. HARROW LIME AND FERTILIZER INTO LOOSE SOIL. APPLY COMMON BERMUDA AND RYE GRASS AT 50 Lbs/ACRE. USE CYCLONE SEED DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SEED & FERTILIZER SLURRY) FOR STEEP SLOPES. IRRIGATE UNTIL VEGETATION IS COMPLETELY ESTABLISHED.

7. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.

8. INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.

9. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOS IT.

10. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE SYSTEMS LOCATED ON SITE.

11. APPROPRIATE MEANS SHALL BE USED TO CONTROL DUST DURING CONSTRUCTION.

12. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED TO PREVENT SOIL AND LOOSE DEBRIS FORM BEING TRACKED ONTO LOCAL ROADS. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED.

13. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMACE WITH THE STATE OF CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL , AS AMENDED.

14. TEMPORARY SILT FENCE EROSION CONTROL BARRIER SHALL BE MAINTAINED THROUGHOUT SITE CONSTRUCTION. STOCKPILE ON SITE 100 FT. OF SILT FENCE FOR EMERGENCY USE. TEMPORARY EROSION BARRIERS SHALL REMAIN IN PLACE UNTIL PERMANENT VEGETATIVE GROUND COVER IS ESTABLISHED.

15. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF THE EQUIPMENT LEASE AREA SHALL BE PERMANENTLY ESTABLISHED WITH A VEGETATIVE GROUND COVER.

16. STILLING BASIN SHALL BE UTILIZED FOR ANY DE-WATERING DISCHARGE WHICH MAY OCCUR DURING CONSTRUCTION OPERATIONS.

17. PROPOSED CONSTRUCTION IMPACTS AND PERMANENT IMPROVEMENTS SHALL NOT SIGNIFICANTLY IMPACT STORM WATER RUNOFF PATTERNS, VOLUME OR PEAK FLOW RATES. THE FLAT GRADE OF THE EQUIPMENT COMPOUND AND STONE SURFACE WILL PROMOTE STORM WATER INFILTRATION.

18. CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO ANY GRADING ACTIVITIES IN LOCATIONS SHOWN ON THESE DRAWINGS.

19. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.

20. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.

21. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

22. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATION.

23. NO GREATER THAN 80,000 SQUARE FEET OF LAND SHALL BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME AND SHALL NOT EXCEED 10 DAYS. LAND SHOULD NOT BE LEFT EXPOSED DURING THE WINTER MONTHS.

24. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION. HAY OR STRAW MULCH SHALL BE APPLIED TO ALL FRESHLY SEEDED AREAS AT A RATE OF 2 TONS PER ACRES. BALES SHALL BE UNSPOILED, AIR-DRIED, AND FREE FROM WEED, SEEDS, AND ANY COARSE MATERIAL.

STRUCTURAL NOTES & SPECS

STEEL

1. CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

2. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

3. STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A992 (FY-50 KSI), UNLESS OTHERWISE NOTED.

4. STEEL PIPE SHALL CONFORM TO ASTM A500, GRADE B, STEEL PIPE DIAMETERS NOTED ON THE DRAWINGS ARE NOMINAL.

5. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE MINIMUM OF TWO BOLTS, UNLESS NOTED OTHERWISE ON THE DRAWINGS. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.

6. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

7. ALL STEEL MATERIAL EXPOSED TO WEATHER SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS.

8. ALL BOLTS ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

9. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "DRY GALV", "ZINC IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES." ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE 9.

11. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

SITE NOTES

1. ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIAL ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

2. DAMAGE BY THE CONTRACTOR TO UTILITIES OR PROPERTY OF OTHERS, INCLUDING EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CLIENT. FOR GRASSED AREAS, SEED AND MULCH SHALL BE ACCEPTABLE.

3. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. IF THE MATERIAL, AFTER REWORKING, REMAINS UNSUITABLE THEN THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACED WITH APPROVED MATERIAL AT HIS EXPENSE. ALL SUBGRADES SHALL BE PROOF ROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED AND REPLACED.

4. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTABLE BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.

5. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

6. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES (NOT SUPPLIED BY OWNER).

7. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTORS RESPONSIBILTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS (NOT SUPPLIED BY OWNER).

8. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND THE LATEST APPLICABLE CODES AND STANDARDS.

9. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY, OR CITY) ENGINEER 24 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.

10. CONTRACTOR RESPONSIBLE FOR CLOSING AND FILING ALL PERMITS ASSOCIATED WITH THE SITE.

11. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.

12. ALL EXISTING AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO MATCH PRECONSTRUCTION CONDITIONS.

13. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES COMMENCING.

CONCRETE NOTES

1. ALL CONCRETE CONSTRUCTION SHALL BE DONE IN ACCORD WITH AMERICAN CONCRETE INSTITUTE (ACI) CODES 301 & 318, LATEST REVISION.

2. TOWER FOUNDATION WORK SHALL BE IN ACCORDANCE WITH TOWER MANUFACTURERS DESIGNS AND SPECIFICATIONS.

3. ALL CONCRETE USED SHALL BE 4000 PSI (28 DAY COMP STRENGTH). THE CONCRETE MIX SHALL BE BASED ON USING THE FOLLOWING MATERIALS AND PARAMETERS:

PORTLAND CEMENT:	ASTM C150, T1
AGGREGATE:	ASTM C33, 1 INCH MAX
WATER:	POTABLE
ADMIXTURE:	NON-CHLORIDE
AIR:	6%*
SLUMP:	4 INCH

UNLESS NOTED OTHERWISE
*ALL CONCRETE EXPOSED TO FREEZING WEATHER SHALL CONTAIN ENTRAINED AIR PER ACI 211 TABLE 4.2.1 OF ACI 318-95.

4. ALL REINFORCING STEEL SHALL BE ASTM A615, GR 60 (DEFORMED) UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS 'B' AND ALL HOOKS SHALL BE ACI STANDARD UNO. REINFORCING BARS SHALL BE COLD BENT WHERE REQUIRED AND TIED (NOT WELDED).

5. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH = 3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 AND LARGER = 2 IN.
      #5 AND SMALLER = 1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
      SLAB AND WALL = 3/4 IN.
      BEAMS AND COLUMNS = 1 1/2 IN.

6. A 3/4 IN. CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OR CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

7. CONCRETE SHALL BE PLACED IN A UNIFORM MANNER AND CONSOLIDATED IN PLACE.

8. CONCRETE FOOTINGS SHALL BE CAST AGAINST LEVEL, COMPACTED, NON-FROZEN BASE SOIL FREE OF STANDING WATER.

9. APPLY A QUALITY CONCRETE SEALER SUCH AS THEROSEAL TO EXPOSED CONCRETE IN ACCORDANCE WITH MANUFACTURERS APPLICATIONS DIRECTIONS.

MCM SITE NAME:
REDDING RIDGE CT505

APT FILING NUMBER:
CT-242-310

MESSAGE CENTER MANAGEMENT
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HARTFORD, CT 06105
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DEVELOPMENT & MANAGEMENT DOCUMENTS

REDDING RIDGE
186 BLACK ROCK TURNPIKE
REDDING, CT 06896

DESIGN TYPE:
RAW LAND

REVISIONS:
REV.0: 08/11/15: FOR REVIEW: SMC
REV.1: 08/12/15: FIRE DEPT. REVISIONS: SMC
REV.2:
REV.3:
REV.4:
REV.5:

NOTES & SPECIFICATIONS

APT FILING NUMBER: CT-242-310
APT DRAWING NUMBER: CT-505 N-1
DRAWN BY: RCB
SCALE: AS NOTED
CHECKED BY: SMC
DATE: 08/03/15

SHEET NUMBER
N-1

STATE OF CONNECTICUT — NOV 28 — LICENSED PROFESSIONAL ENGINEER