CENTEK engineering

Centered on Solutions℠

September 29, 2014

Mr. Thomas Hackett
Building Official
Town of New Milford
10 Main Street
New Milford, CT 06776

Re: Independent Structural Engineer's Review
AT&T – Site Ref: CT4067
Kent Road
New Milford, CT 06776

Centek Project No. 13072.000

Dear Mr. Hackett,

Centek Engineering, Inc., has been authorized by AT&T Mobility to perform an independent structural review and evaluation of the proposed 150-ft tall monopole tower and foundation, to be located at the above referenced wireless communications facility. Specifically, structural design calculations prepared by Sabre Tower and Poles; project no. 111274, dated 09/25/2014 signed and sealed by Robert E. Beacom, PE (CT PE License No. 28396) were reviewed for compliance with the requirements of the 2005 Connecticut State Building Code, as amended by the 2009 Connecticut State Supplement.

This review was conducted as stipulated in Section 106.1 of the 2005 Connecticut State Building Code and Section 29-276b of the Connecticut General Statue for independent structural analysis and evaluation.

APPROACH

The calculation and design documents referenced above were reviewed for compliance with Section 3108.0 of the International Building Code (IBC) and the 2005 Connecticut State Building Code as amended by the 2009 Connecticut State Supplement. The applicable design standard for loading and analysis of steel antenna towers is ANSI/TIA-222-G entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures". The tower structure was also reviewed for compliance with the requirements of the ANSI/TIA/EIA-222-F standard currently in effect within the State of Connecticut.

Specifically, the following key items were considered:

- Construction Materials
- Tower Loading
- Material Design Strength
- Foundation and Anchors

CONSTRUCTION MATERIALS

IBC 2003/2005 CSBC Section 3108.3 is satisfied - the steel used is of corrosion resistant construction *[Bolts galvanized per ASTM A153 (hot dipped) or ASTM 695 (mechanical); all other structural materials hot dipped galvanized per ASTM A123]*.

Table 5-1 of the TIA-222-G standard is satisfied - *steel grades are as follows: pole shaft steel - ASTM A572-65; base plate - A572-50, misc plates - ASTM A36, connection bolts ASTM A325 and anchor bolts ASTM A615-75.*

TOWER LOADING

Tower loading is determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G, gravity loads of the tower structure and its components, and the application of 1.00" radial ice. The analysis prepared by Sabre was conducted utilizing the requirements of the ANSI/TIA-222-G standard. The tower structure was also reviewed for compliance with the requirements of the ANSI/TIA/EIA-222-F standard currently in effect within the State of Connecticut. The wind speed requirements for the TIA/EIA-222-F and TIA-222-G standards are provided below for comparison.

Basic Wind Speed:	Litchfield County; v = 80 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-1996]*
	New Haven County; v = 90 -100 mph (3 second gust), a v = 95 mph was utilized in the design - equivalent to v = 77.5 mph (fastest mile)	*[Annex B of TIA-222-G]*
	New Milford; v = 95 mph (fastest mile) equivalent to v = 77.5 mph (3 second gust)	*[Appendix K of the 2005 CT Building Code Supplement]*
Load Cases Used:	Load Case 1; 95 mph wind speed w/ no ice plus gravity load (Class II Structure Type, Exposure Category C) – used in calculation of tower stresses and rotation.	*[Annex B of TIA-222-G-2005]*
	Load Case 2; 40 mph wind speed w/ 1.00" radial ice plus gravity load (Class II Structure Type, Exposure Category C) – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*
	Load Case 3; Seismic – not checked	*[Section 1614.5 of 2005 CT State Bldg. Code] does not control in the design of this structure type*

MATERIAL DESIGN STRENGTH

The maximum tower steel usage was calculated as **0.998** (**99.8%**) utilizing the ANSI TIA-222-G design standard which is less than the maximum ratio of 1.00, as required by Section 9.4 of the ANSI/TIA-222-G standard.

FOUNDATION AND ANCHORS

The proposed foundation consists of a 7.0-ft dia x 4.5-ft. long reinforced concrete pier on a 25.5-ft square x 2.00-ft thick reinforced concrete pad. The sub-grade conditions used in the design of the foundation were obtained from the geotechnical soils report prepared by Design Earth Technology project no. 2014.09; dated 8/4/2014. The tower is connected to the foundation by means of twenty (20) 2.25" dia. ASTM A615-75 anchor bolts embedded approximately 6.00-ft. into the concrete foundation structure.

Review of the foundation and anchor bolt design consisted of verification of the applied loads obtained from the tower design calculations and code checks of the available strength:

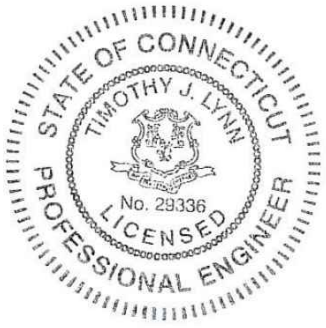
- The tower anchor bolts were found to be within allowable limits.
- The foundation was found to be within allowable limits.

CONCLUSION

Based on our review of structural analysis provided, it is our opinion that the proposed installation was engineered in conformance with the applicable structural requirements of the 2003 International Building Code (IBC); 2005 Connecticut State Building Code with 2009 Supplement, ANSI TIA/EIA 222-F and ANSI TIA-222-G. It is noted that our review does not constitute a design, nor is it all-inclusive; the responsibility for the structural design remains with the Structural Engineer of Record.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer



Cc: Alex Murshteyn – Centerline (via email)

WIRELESS COMMUNICATIONS FACILITY

DEVELOPMENT AND MANAGEMENT PLAN

CT4067

NEW MILFORD

KENT ROAD (MAP 83, LOT 4)

NEW MILFORD, CT 06776

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT

TO: KENT ROAD (MAP 83, LOT 4)
NEW MILFORD, CONNECTICUT

1.	Head Northeast on ENTERPRISE DR toward CAPITAL BLVD	0.3 mi.
2.	Turn LEFT onto CAPITAL BLVD	0.3 mi.
3.	Turn LEFT on WEST ST	0.3 mi.
4.	Turn LEFT to merge onto I-91 S toward New Haven	9.1 mi.
5.	Take exit 18 to merge onto I-691 W toward Meriden/Waterbury	7.9 mi.
6.	Take exit 1 on the left for I-84 W toward Waterbury/Danbury	1.0 mi.
7.	Merge onto I-84	17.8 mi.
8.	Take exit 15 for US-6 E/ CT-67 N	0.2 mi.
9.	Turn RIGHT onto CT-67 N/ US-6 E/ MAIN STREET N	1.4 mi.
10.	Turn LEFT onto CT-67 W/ ROXBURY RD	6.7 mi.
11.	Turn LEFT onto CT-67 W/ CHURCH ST	0.2 mi.
12.	Continue onto WELLERS BRIDGE RD	1.3 mi.
13.	Turn LEFT onto CT-67 W/ BAKER RD	5.3 mi.
14.	Slight LEFT onto US-202 W/ BRIDGE ST	0.5 mi.
15.	Turn RIGHT onto US-7 N/ KENT RD and the destination will be on the right	8.1 mi.

GENERAL NOTES

1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY AT&T.

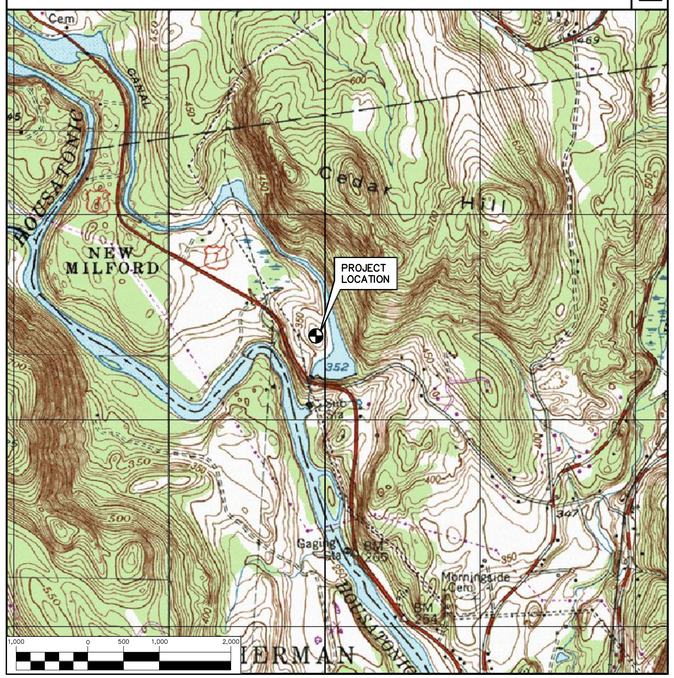
SITE INFORMATION

THE SCOPE OF WORK SHALL INCLUDE:

1. THE CONSTRUCTION OF A 75'x75' FENCED WIRELESS COMMUNICATIONS COMPOUND WITHIN A 100'X100' LEASE AREA.
2. A TOTAL OF UP TO TWELVE (12) DIRECTIONAL PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED AT A CENTERLINE ELEVATION OF 146'-0"± AGL ON A 150'-0"± PROPOSED STEEL MONOPOLE TOWER.
3. TOTAL ACCESS DRIVE LENGTH IS 500'± OFF OF KENT ROAD.
4. POWER AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND FROM EXISTING RESPECTIVE DEMARCS TO THE PROPOSED UTILITY BACKBOARD LOCATED ADJACENT TO THE PROPOSED FENCED COMPOUND. FINAL DEMARC LOCATION AND UTILITY ROUTING TO PROPOSED BACKBOARD WILL BE VERIFIED/DETERMINED BY LOCAL UTILITY COMPANIES. UTILITIES WILL BE ROUTED UNDERGROUND FROM UTILITY BACKBOARD TO THE PROPOSED NOMINAL 11'-5"x16'-0" WIRELESS EQUIPMENT SHELTER LOCATED WITHIN FENCED COMPOUND AREA.
5. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.
6. THERE WILL NOT BE ANY LIGHTING UNLESS REQUIRED BY THE FCC OR THE FAA.
7. THERE WILL NOT BE ANY SIGNS OR ADVERTISING ON THE ANTENNAS OR EQUIPMENT.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	NEW MILFORD
SITE ADDRESS:	KENT ROAD (MAP 83, LOT 4 PER NEW MILFORD ASSESSOR'S OFFICE) NEW MILFORD, CONNECTICUT 06776
PROPERTY OWNER:	FIRSTLIGHT HYDRO GENERATING COMPANY 250 GLASTONBURY BLVD., SUITE 303 GLASTONBURY CONNECTICUT 06033
LESSEE/TENANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	ALEX MURSHTEYN CENTERLINE COMMUNICATIONS AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT
TOWER COORDINATES:	LATITUDE 41°-39'-42.025" LONGITUDE 73°-29'-29.170" GROUND ELEVATION: 370.1'± A.M.S.L. (COORDINATES AND GROUND ELEVATION BASED ON FAA 1-A SURVEY CERTIFICATION AS PREPARED BY MARTINEZ COUCH AND ASSOCIATES L.L.C., DATED JUNE 11, 2013, REVISED JUNE 30, 2014.)

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
4	11/24/14	HMR	DMD	REVISED D&M PLANS
3	10/30/14	HMR	DMD	REVISED D&M PLANS
2	10/24/14	HMR	DMD	REVISED D&M PLANS
1	10/07/14	HMR	DMD	D&M PLANS
0	09/29/14	HMR	DMD	D&M PLANS - ISSUED FOR CLIENT REVIEW

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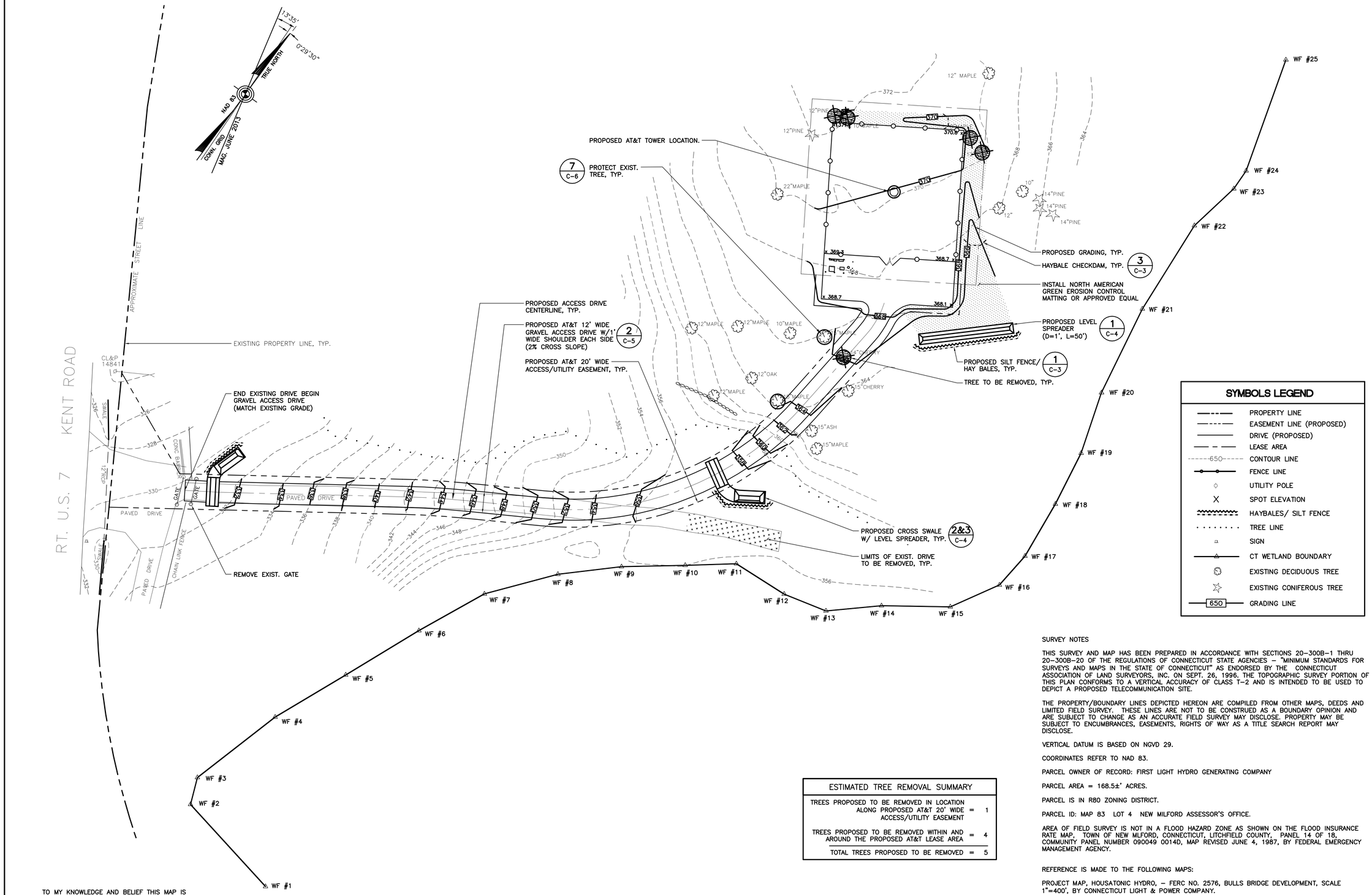
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
NEW MILFORD
SITE NUMBER: CT4067
KENT ROAD (MAP 83, LOT 4)
NEW MILFORD, CT 06776

DATE:	06/30/14
SCALE:	AS NOTED
JOB NO.	13072.000

TITLE SHEET

T-1

Sheet No. 1 of 9



SYMBOLS LEGEND

- PROPERTY LINE
- EASEMENT LINE (PROPOSED)
- DRIVE (PROPOSED)
- LEASE AREA
- 650 CONTOUR LINE
- FENCE LINE
- UTILITY POLE
- SPOT ELEVATION
- HAYBALES/ SILT FENCE
- TREE LINE
- SIGN
- CT WETLAND BOUNDARY
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- 650 GRADING LINE

ESTIMATED TREE REMOVAL SUMMARY		
TREES PROPOSED TO BE REMOVED IN LOCATION ALONG PROPOSED AT&T 20' WIDE ACCESS/UTILITY EASEMENT	=	1
TREES PROPOSED TO BE REMOVED WITHIN AND AROUND THE PROPOSED AT&T LEASE AREA	=	4
TOTAL TREES PROPOSED TO BE REMOVED	=	5

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. THE TOPOGRAPHIC SURVEY PORTION OF THIS PLAN CONFORMS TO A VERTICAL ACCURACY OF CLASS T-2 AND IS INTENDED TO BE USED TO DEPICT A PROPOSED TELECOMMUNICATION SITE.

THE PROPERTY/BOUNDARY LINES DEPICTED HEREON ARE COMPILED FROM OTHER MAPS, DEEDS AND LIMITED FIELD SURVEY. THESE LINES ARE NOT TO BE CONSTRUED AS A BOUNDARY OPINION AND ARE SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. PROPERTY MAY BE SUBJECT TO ENCUMBRANCES, EASEMENTS, RIGHTS OF WAY AS A TITLE SEARCH REPORT MAY DISCLOSE.

VERTICAL DATUM IS BASED ON NGVD 29.

COORDINATES REFER TO NAD 83.

PARCEL OWNER OF RECORD: FIRST LIGHT HYDRO GENERATING COMPANY

PARCEL AREA = 168.5±' ACRES.

PARCEL IS IN R80 ZONING DISTRICT.

PARCEL ID: MAP 83 LOT 4 NEW MILFORD ASSESSOR'S OFFICE.

AREA OF FIELD SURVEY IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, TOWN OF NEW MLFORD, CONNECTICUT, LITCHFIELD COUNTY, PANEL 14 OF 18, COMMUNITY PANEL NUMBER 090049 0014D, MAP REVISED JUNE 4, 1987, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

REFERENCE IS MADE TO THE FOLLOWING MAPS:

PROJECT MAP, HOUSATONIC HYDRO, – FERC NO. 2576, BULLS BRIDGE DEVELOPMENT, SCALE 1"=400', BY CONNECTICUT LIGHT & POWER COMPANY.

RIGHT OF WAY MAP, TOWN OF NEW MILFORD, KENT – NEW MILFORD ROAD, FROM KENT TOWL LINE SOUTHERLY ABOUT 5,200 FEET, ROUTE U.S. 7, SCALE 1"=40', DATED MARCH 20, 1952, BY CONNECTICUT STATE HIGHWAY DEPARTMENT.

RIGHT OF WAY SURVEY, TOWN OF NEW MILFORD, MAP SHOWING LAND ACQUIRRED FROM NORTHEAST GENERATION COMPANY BY STATE OF CONNECTICUT, DEPARTMENT OF TRANSPORTATION, BRIDGE NO. 00557 U.S. ROUTE 7 AT CL&P PENSTOCKS, SCALE IN METERS 1:500. DATED 1-14-03.

NOT ALL IMPROVEMENTS SHOWN.

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

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL

A. RAFAEL MARTINEZ LLS #18833 DATE

1 C-1.0 **SITE PLAN - PROPOSED**
SCALE: 1"=25'

GRAPHIC SCALE
25 0 12.5 25 50 100
(IN FEET)
1 inch = 25 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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SCALE: AS NOTED
JOB NO. 13072.000

SITE PLAN

C-1.0

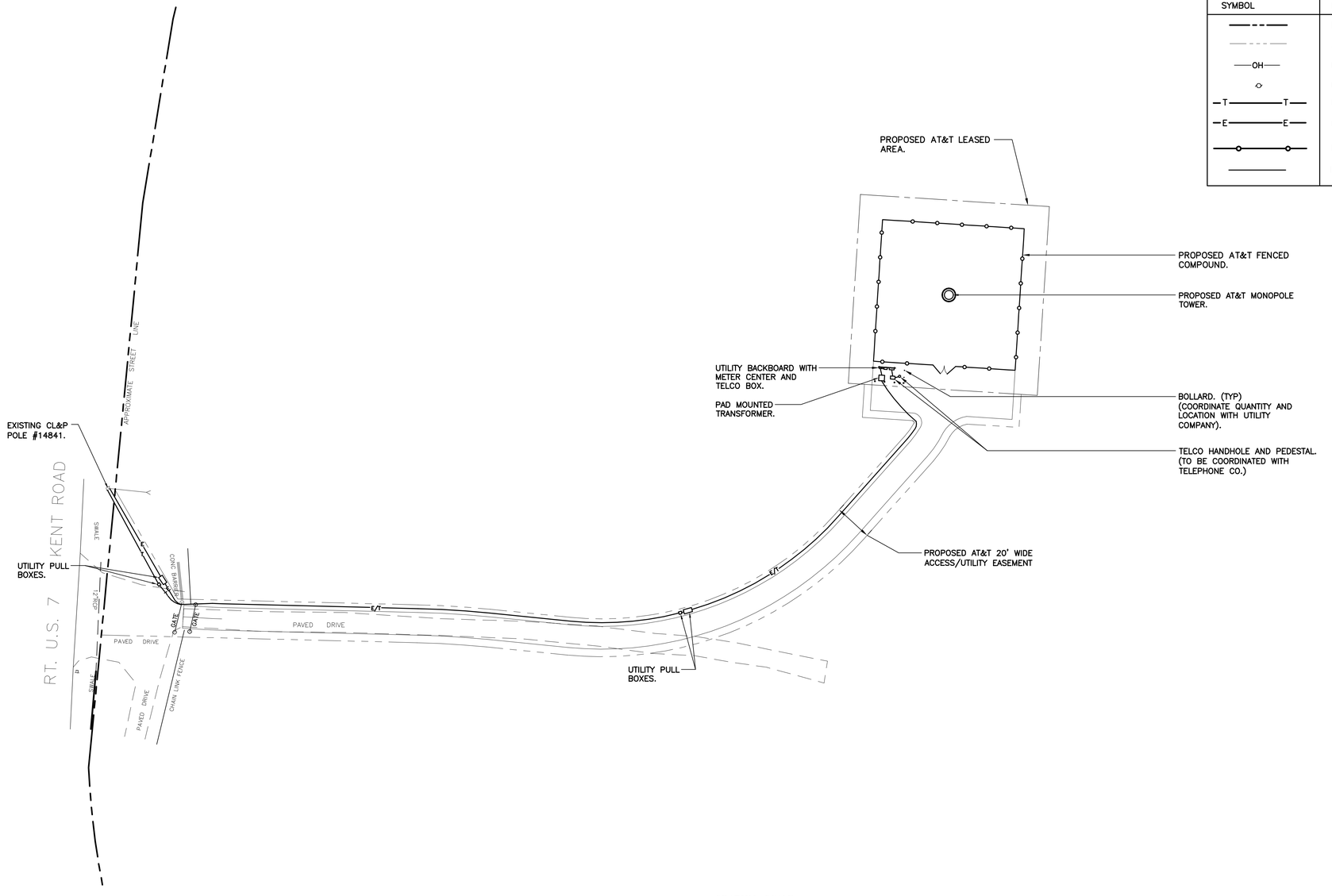
Sheet No. 2 of 9

UTILITY NOTES

1. COORDINATE WITH OWNER FOR ALL EASEMENT DOCUMENTS.
2. UTILITY ROUTING SHOWN ON THIS PLAN IS SCHEMATIC. CONTRACTOR SHALL COORDINATE FINAL ROUTING WITH RESPECTIVE UTILITY COMPANIES PRIOR TO PERFORMING ANY UTILITY TRENCH WORK. ALL UTILITY CONDUITS AND PULL BOXES SHALL BE LOCATED WITHIN THE PROPOSED ACCESS/UTILITY EASEMENT.
3. UTILITY PULL BOXES/SILOS TO BE TRAFFIC RATED AND INSTALLED IN APPROXIMATE LOCATIONS SHOWN ON THIS PLAN, BUT NOT TO EXCEED 450' INTERVALS. CONTRACTOR TO COORDINATE FINAL PULL BOX LOCATIONS WITH RESPECTIVE LOCAL UTILITY COMPANIES.
4. CONTRACTOR SHALL COORDINATE ALL PERMITS AND PROCEDURES FOR CONDUIT INSTALLATION ALONG STREET.
5. PLAN IS FOR UTILITY ROUTING INFORMATION ONLY. SOME OTHER ELEMENTS NOT SHOWN FOR CLARITY. REFER TO CIVIL DRAWINGS FOR ALL OTHER EXISTING AND PROPOSED SITE INFORMATION.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
——— - - ———	PROPERTY LINE
——— - - ———	ACCESS/ UTILITY EASEMENT LINE (PROPOSED)
——OH——	UTILITY LINES (OVERHEAD BY UTILITY CO.)
○	UTILITY POLE
—T———T—	UNDERGROUND COMMUNICATION CONDUIT
—E———E—	UNDERGROUND ELECTRICAL CONDUIT AS INDICATED
———o———o———	PERIMETER CHAIN LINK FENCE
———	ROAD



1 / C-1.1 **SITE UTILITY PLAN**
SCALE: 1" = 30'

APPROXIMATE NORTH

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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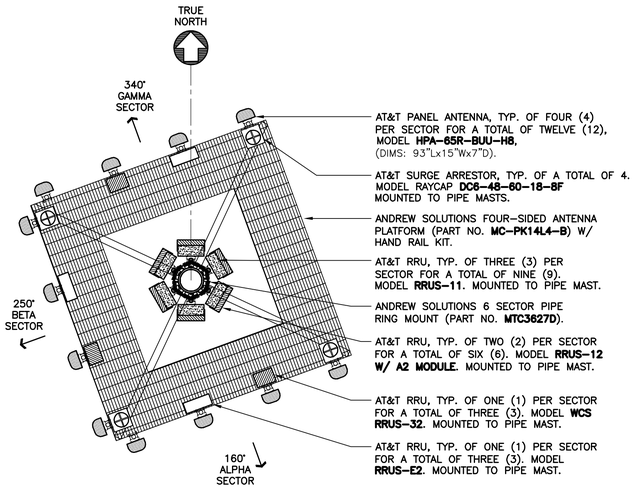
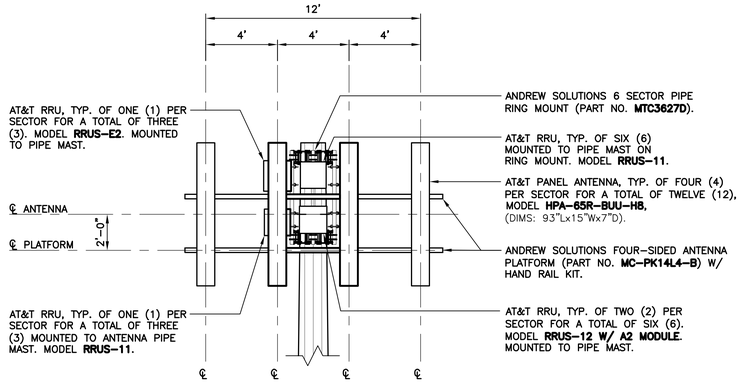
SITE UTILITY PLAN

C-1.1

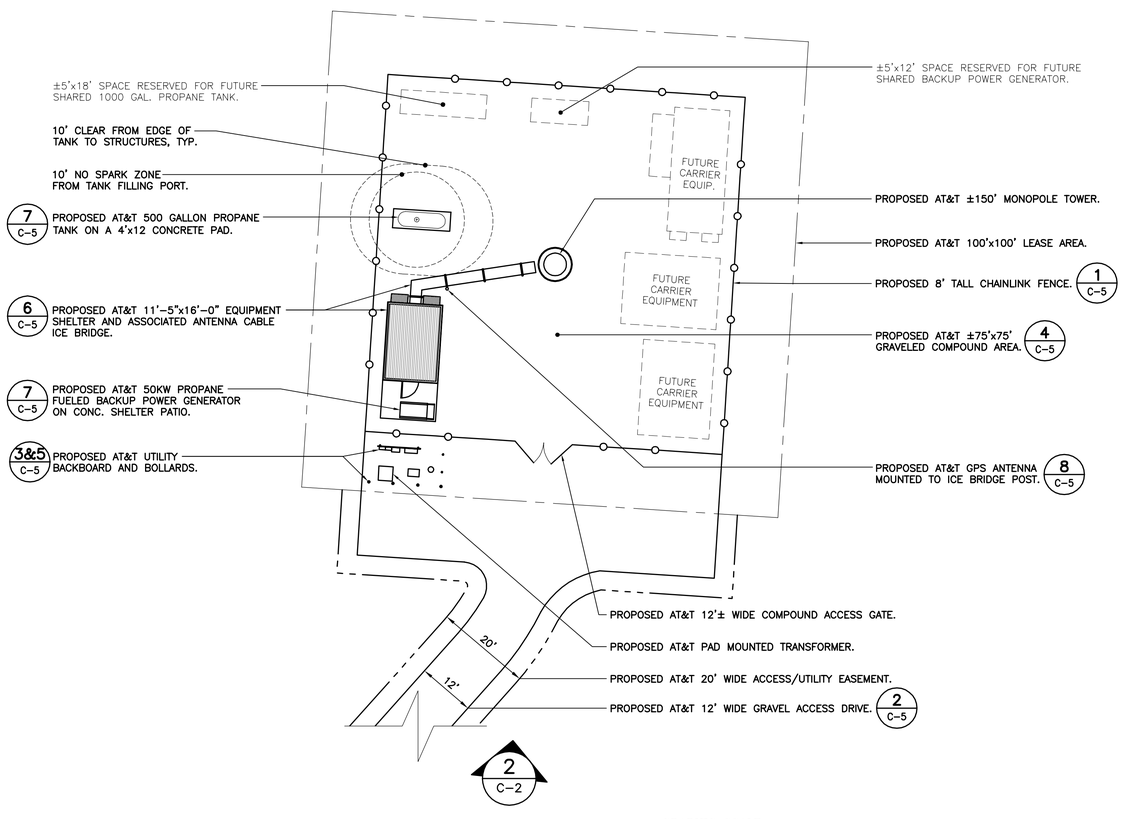


PLAN



ELEVATION

3 / C-2 **ANTENNA MOUNTING CONFIGURATION**
NOT TO SCALE



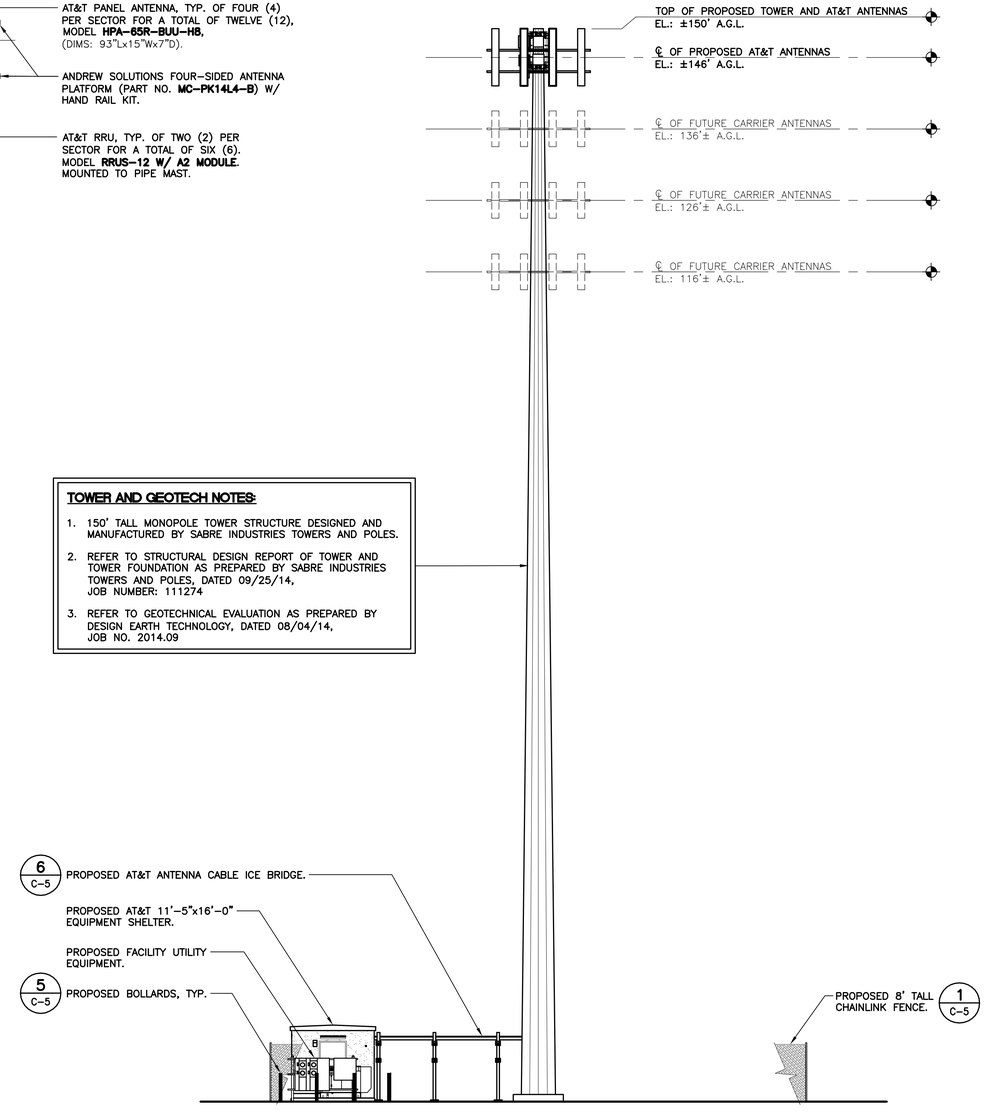
1 / C-2 **COMPOUND PLAN**
SCALE: 1" = 15'

APPROXIMATE NORTH

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

TOWER AND GEOTECH NOTES:

1. 150' TALL MONOPOLE TOWER STRUCTURE DESIGNED AND MANUFACTURED BY SABRE INDUSTRIES TOWERS AND POLES.
2. REFER TO STRUCTURAL DESIGN REPORT OF TOWER AND TOWER FOUNDATION AS PREPARED BY SABRE INDUSTRIES TOWERS AND POLES, DATED 09/25/14, JOB NUMBER: 111274
3. REFER TO GEOTECHNICAL EVALUATION AS PREPARED BY DESIGN EARTH TECHNOLOGY, DATED 08/04/14, JOB NO. 2014.09



2 / C-2 **SOUTHEAST ELEVATION**
SCALE: 1" = 10'

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

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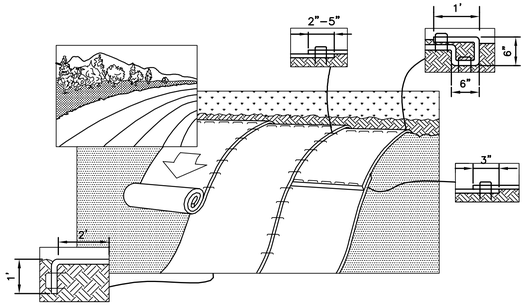
COMPOUND PLAN AND ELEVATION

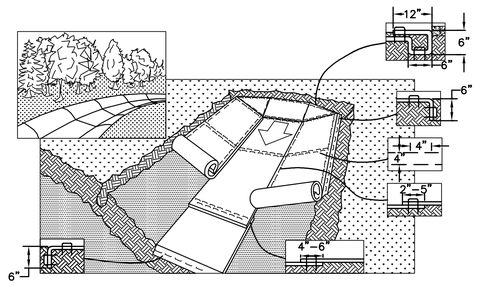
C-2

Sheet No. 4 of 9

EROSION CONTROL BLANKET STABILIZATION



4 C–3 **TYPICAL EROSION MAT INSTALLATION ON SLOPE**
NOT TO SCALE



5 C–3 **TYPICAL EROSION MAT INSTALLATION IN CHANNEL**
NOT TO SCALE

STABILIZATION CRITERIA

1. CONTRACTOR SHALL IMPLEMENT EROSION CONTROL BLANKET SLOPE STABILIZATION & SWALE CONSTRUCTION WHEN STABLE EARTH CUTS ARE PREVALENT (IN LOCATIONS WITHOUT LEDGE OR LARGE AMOUNTS OF SUBGRADE ROCK)

STABILIZATION PRODUCT SPECIFICATION

NORTH AMERICAN GREEN, PRODUCT NUMBER S150BN, 12 MONTH BIODEGARDABLE.

EROSION MAT ON SLOPES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

   NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA. CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLE/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKET DOWN OR HORIZONTALLY ACROSS THE SLOPE. BLANKET WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ROLLED EROSION CONTROL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM[TM], STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY A 2"–5" OVERLAP DEPENDING ON BLANKET TYPE.

5. CONSECUTIVE ROLLED EROSION CONTROL BLANKET SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

   * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKET.

6. THE EDGE OF THE BLANKET IS TO EXTEND A MINIMUM 24 INCHES BEYOND THE TOE OF THE SLOPE AND ANCHORED BY PLACING THE STAPLES/STAKES IN A 12 INCH DEEP x 6 INCH WIDE ANCHOR TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12 INCH APART IN THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING (STONE OR SOIL MAY BE USED AS BACKFILL).

7. REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN. MINIMUM 4 SPIKES PER ONE SQ. FT.

EROSION MAT IN CHANNEL

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLE/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM[TM], STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"–6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.

5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

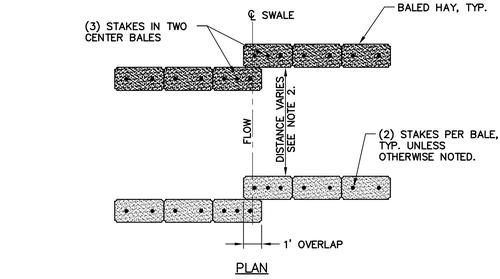
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"– 5" AND STAPLED TO ENSURE PROPER SEAM ALIGNMENT. PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH[TM] ON THE BLANKET BEING OVERLAPPED.

7. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

8. REFER TO MANUFACTURERS STAPLE GUIDE FOR CORRECT STAPLE PATTERN. MINIMUM 4 SPIKES PER ONE SQ. FT. THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO REESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEEDED, AND REMULCHED AS DIRECTED.

MAINTENANCE

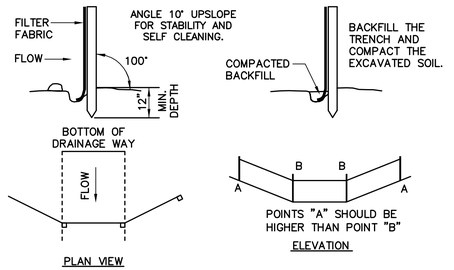
THE CONTRACTOR SHALL MAINTAIN THE BLANKET UNTIL ALL WORK ON THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MAINTENANCE SHALL CONSIST OF THE REPAIR OF AREAS WHERE DAMAGED BY ANY CAUSE. ALL DAMAGED AREAS SHALL BE REPAIRED TO RE–ESTABLISH THE CONDITIONS AND GRADE OF THE SOIL PRIOR TO APPLICATION OF THE COVERING AND SHALL BE REFERTILIZED, RESEEDED, AND REMULCHED AS DIRECTED.



NOTES:

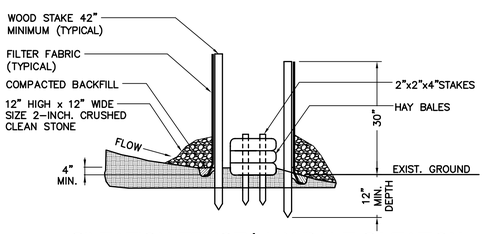
1. CHECKDAM SHALL BE INSTALLED IN LOCATIONS INDICATED ON SITE PLAN (SHEET C–1.1) IN DRAINAGE SWALE WITH BED WIDTHS OF 2 FEET OR LESS.
2. THE DISTANCE BETWEEN HAYBALE CHECKDAMS SHALL BE DETERMINED BY THE SLOPE OF THE SWALE. CHECKDAMS SHALL BE SET AT EVERY 2 FEET DROP IN SWALE ELEVATION.
3. BALES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND REPAIR OR REPLACEMENT SHALL BE PERFRMED PROMPTLY AS NEEDED.
4. INTALL 3 STAKES PER BALE WITHIN SWALE BED AREAS.
5. HAYBALES CAN BE SUBSTITUTED WITH EITHER STRAW WATTLE OR COMPOST SOCK/FILTER (E.G., SILTSOXX™ OR APPROVED EQUIVALENT.

3 C–3 **TYP. HAYBALE CHECKDAM (NARROW SWALE)**
NOT TO SCALE



SOURCE: U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, STORRS, CONNECTICUT

2 C–3 **PLACEMENT AND CONSTRUCTION OF SILTATION FENCE**
NOT TO SCALE



1 C–3 **SILTATION FENCE/HAY BALE SILTATION FENCE "SANDWICH" EROSION CONTROL**
NOT TO SCALE

GENERAL CONSTRUCTION / PRE–CONSTRUCTION NOTES

1. PRIOR TO COMMENCEMNENT OF ANY CONSTRUCTION ACTIVITIES, A MANDITORY ON–SITE PRE–CONSTRUCTION MEETING SHALL BE CONDUCTED WITH THE PROPOSED AT&T CONSTRUCTION MANAGER, CONTRACTOR'S CONSTRUCTION MANAGER, THE PROJECT EROSION AND SEDIMENTATION CONTROL/ENVIRONMENTAL MONITOR AND THE ENGINEER OF RECORD.
2. THE SOUTHERN PROPERTY LINE ADJACENT TO THE PROPOSED ACCESS DRIVE IS STAKED IN FIELD. THE CONTRACTOR SHALL MAINTAIN THE PROPERTY LINE STAKE LOCATIONS DURING THE ENTIRE PERIOD OF CONSTRUCTION. ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED ON THE SUBJECT PROPERTY.

GENERAL CONSTRUCTION SEQUENCE

THIS IS A GENERAL CONSTRUCTION SEQUENCE OUTLINE SOME ITEMS OF WHICH MAY NOT APPLY TO PARTICULAR SITES.

1. CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
2. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
3. REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEEDED TO PREVENT EROSION.
4. CONSTRUCT CLOSED DRAINAGE SYSTEM. PRECEPT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
5. CONSTRUCT ROADWAYS AND PERFORM SITE GRADING, PLACING HAY BALES AND SILITATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
6. INSTALL UNDERGROUND UTILITIES.
7. BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION. NO AREA SHALL BE LEFT UNSTABILIZED FOR A TIME PERIOD OF MORE THAN 30 DAYS.
8. DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
9. BEGIN EXCAVATION FOR AND CONSTRUCTION OF TOWERS AND PLATFORMS.
10. FINISH PAVING ALL ROADWAYS, DRIVES, AND PARKING AREAS.
11. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
12. NO FLOW SHALL BE DIVERTED TO ANY WETLANDS UNTIL A HEALTHY STAND OF GRASS HAS BEEN ESTABLISHED IN REGARDED AREAS.
13. AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

SOIL EROSION AND SEDIMENT CONTROL SEQUENCE

1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS CONSTRUCTION ENTRANCE / ANTI TRACKING PAD, SILTATION FENCE, AND SILTATION FENCE / HAY BALE SHALL BE IN PLACE PRIOR TO ANY GRADING ACTIVITY, INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. MEASURES SHALL BE LEFT IN PLACE AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND/OR AREA IS STABILIZED.
2. THE ENTRANCE TO THE PROJECT SITE IS TO BE PROTECTED BY STONE ANTI TRACKING PAD OF ASTM C–33, SIZE NO. 2 OR 3, OR D.O.T. 2" CRUSHED GRAVEL. THE STONE ANTI TRACKING PAD IS TO BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
3. THE ENTRANCE TO THE PROJECT SITE IS TO BE PROTECTED BY STONE ANTI TRACKING PAD OF ASTM C–33, SIZE NO. 2 OR 3, OR D.O.T. 2" CRUSHED GRAVEL. THE STONE ANTI TRACKING PAD IS TO BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
4. LAND DISTURBANCE WILL BE KEPT TO A MINIMUM AND RESTABILIZATIONS WILL BE SCHEDULED AS SOON AS PRACTICAL.
5. ALL SOIL EROSION AND SEDIMENT CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL INCLUDING THE LATEST DATE FROM THE COUNCIL ON SOIL AND WATER CONSERVATION.
6. ANY ADDITIONAL EROSION/SEDIMENTATION CONTROL DEEMED NECESSARY BY TOWN STAFF DURING CONSTRUCTION, SHALL BE INSTALLED BY THE DEVELOPER. IN ADDITION, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT/MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE TOWN STAFF.
7. IN ALL AREAS, REMOVAL OF TREES, BUSHES AND OTHER VEGETATION AS WELL AS DISTURBANCE OF THE SOIL IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE. DURING CONSTRUCTION, EXPOSE AS SMALL AN AREA OF SOIL AS POSSIBLE FOR AS SHORT A TIME AS POSSIBLE.
8. SILTATION FENCE SHALL BE PLACED AS INDICATED BEFORE A CUT SLOPE HAS BEEN CREATED. SEDIMENT DEPOSITS SHOULD BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDES OF SILTATION FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR TO BE USED IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. SILTATION FENCE IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE FENCE IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.
9. SWALE DISCHARGE AREA WILL BE PROTECTED WITH RIP RAP SPLASH PAD/ ENERGY DISSIPATER.
10. ALL FILL AREAS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SLIPPING, EROSION OR EXCESS SATURATION.
11. THE SOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING.
12. AFTER CONSTRUCTION IS COMPLETE AND GROUND IS STABLE, REMOVE SILTS IN THE RIP RAP ENERGY DISSIPATERS. REMOVE OTHER EROSION AND SEDIMENT DEVICES.

CONSTRUCTION SPECIFICATIONS – SILT FENCE

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID–SECTION AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED.
6. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 16 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED TO PREVENT BUILD UP IN THE SILT FENCE DUE TO DEPOSITION OF SEDIMENT.

MAINTENANCE – SILT FENCE

1. 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.
2. 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.
3. SEDIMENT SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACHED APPROXIMATELY ONE–HALF THE HEIGHT OF THE BARRIER.
4. 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 VEGETATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	10/30/14	HMR	DMD	REVISED D&M PLANS
2	10/24/14	HMR	DMD	REVISED D&M PLANS
1	10/07/14	HMR	DMD	D&M PLANS
0	09/29/14	HMR	DMD	D&M PLANS – ISSUED FOR CLIENT REVIEW

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DATE: 06/30/14
SCALE: AS NOTED
JOB NO. 13072.000

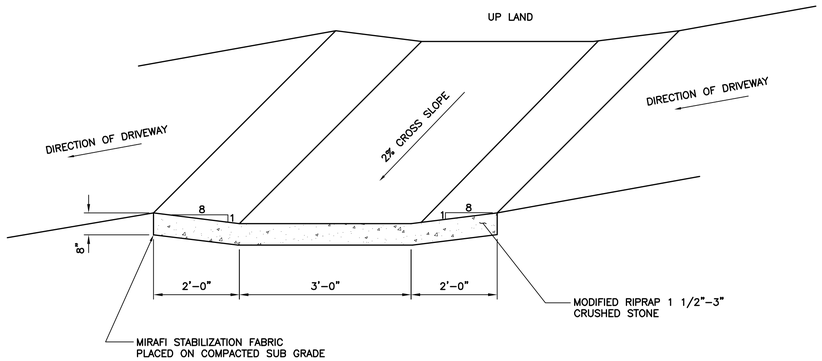
SITE CONSTRUCTION S&E CONTROL NOTES & DETAILS

C-3

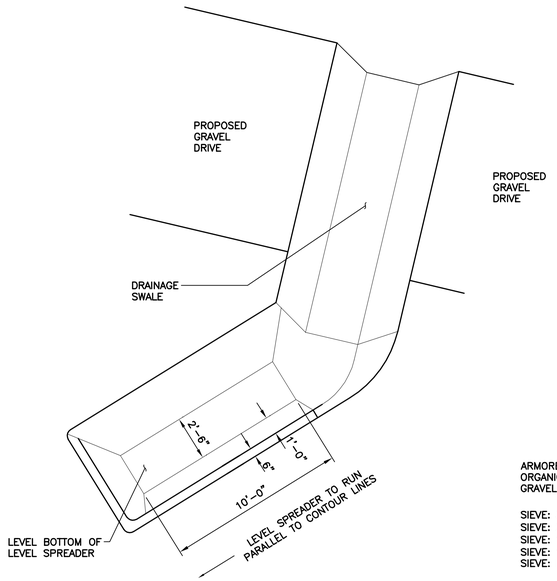
Sheet No. 5 of 9

RF EQUIPMENT TABLE

SECTOR	PANEL ANTENNAS					FILTER	FROM REMOTE RADIO UNIT				REMOTE RADIO UNIT		FROM SURGE SUPPRESSOR				SURGE SUPPRESSOR	FROM SHELTER		
	AZIMUTH	QTY.	MAKE & MODEL	RAD CENTER (AGL)	DOWNTILT	QTY.	COAX QTY.	COAX SIZE	COAX LENGTH	RET QTY.	QTY.	MAKE & MODEL	DC QTY.	DC SIZE	FIBER QTY.	DC & FIBER LENGTH	QUANTITY	DC BUNDLE QTY.	FIBER TRUNK QTY.	FIBER & DC LENGTH
ALPHA	160°	4	CCI HPA-65R-BUU-H8	146.0'	0°M 0°/0°E	0	20	1/2" Ø	15' ±	1	3 2 2 1 1	ERICSSON RRUS-11 ERICSSON RRUS-12 ERICSSON RRUS-A2 ERICSSON RRUS-E2 ERICSSON RRUS-32	7	6MM² PAIR	7	15' ±	4	8	2	170'±
BETA	250°	4	CCI HPA-65R-BUU-H8	146.0'	0°M 0°/0°E	0	20	1/2" Ø	15' ±	1	3 2 2 1 1	ERICSSON RRUS-11 ERICSSON RRUS-12 ERICSSON RRUS-A2 ERICSSON RRUS-E2 ERICSSON RRUS-32	7	6MM² PAIR	7	15' ±				170'±
GAMMA	340°	4	CCI HPA-65R-BUU-H8	146.0'	0°M 0°/0°E	0	20	1/2" Ø	15' ±	1	3 2 2 1 1	ERICSSON RRUS-11 ERICSSON RRUS-12 ERICSSON RRUS-A2 ERICSSON RRUS-E2 ERICSSON RRUS-32	7	6MM² PAIR	7	15' ±				170'±



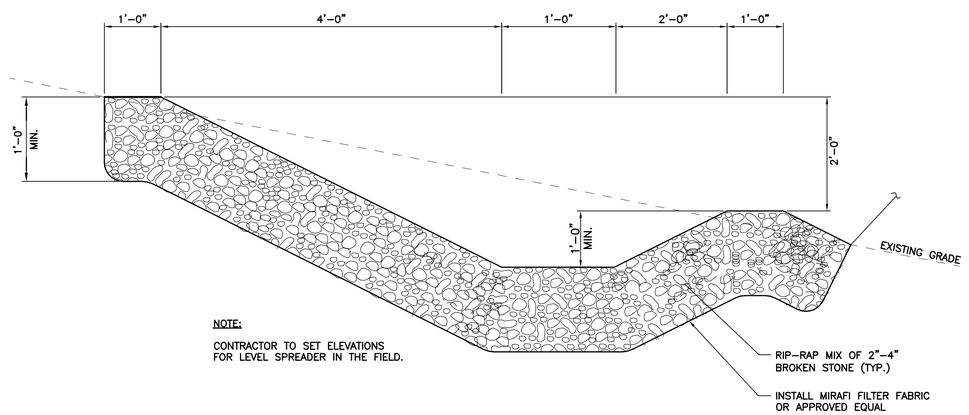
2 C-4 **CROSS DRAINAGE SWALE**
NOT TO SCALE



ARMORED STONE SURFACE SHALL BE FREE OF ORGANICS AND CONSIST SOLELY OF CRUSHED GRAVEL WITH THE FOLLOWING GRADATION:

SIEVE: 3 1/2"	% PASSING: 100
SIEVE: 2"	% PASSING: 35-70
SIEVE: 1 1/2"	% PASSING: 0-15
SIEVE: 1/2"	% PASSING: 0-5
SIEVE: NO. 4	% PASSING: 0

3 C-4 **LEVEL SPREADER W/ CROSS DRAINAGE SWALE**
NOT TO SCALE



1 C-4 **LEVEL SPREADER #1 TYPICAL ELEVATION**
NOT TO SCALE

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3	10/30/14	HMR	DMD	REVISED D&M PLANS
2	10/24/14	HMR	DMD	REVISED D&M PLANS
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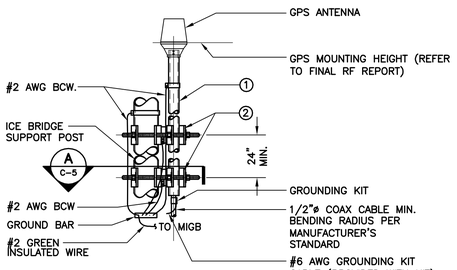
DATE:	06/30/14
SCALE:	AS NOTED
JOB NO.	13072.000

DRAINAGE CONTROL DETAILS & RF EQUIP. TABLE

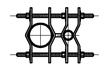
C-4

Sheet No. 6 of 9



GPS ANTENNA MOUNTING BRACKET

BILL OF MATERIALS		
ITEM	DESCRIPTION	QUANTITY
①	2–1/2"ø SCH. 40 x 8'–0" LG. MAX SS OR GALV. PIPE	1
②	UNIVERSAL CLAMP SET.	2

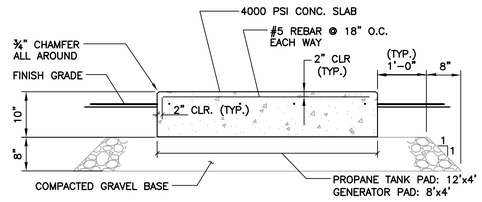


A C-5 SECTION
NOT TO SCALE

NOTES:

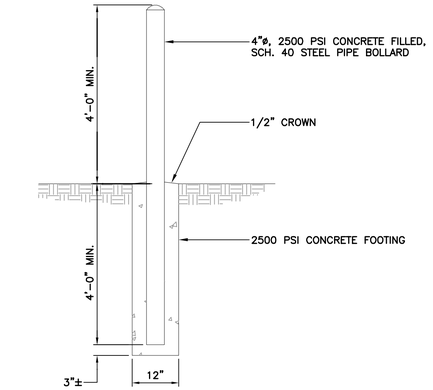
1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2–1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. ATTACH TO ICE BRIDGE POST NEAREDST ANTENNA CABLE PORT AT EQUIPMENT.
4. PRIOR TO INSTALLATION CONTRACTOR SHALL TEST GPS LOCATION WITH HAND HELD AND MOVE GPS ANTENNA TO OTHER ICE BRIDGE POSTS AS REQUIRED TO ACHIEVE ADEQUATE SIGNAL. FAILURE TO ACHIEVE ADEQUATE SIGNAL WITH A HAND HELD GPS SHALL BE REPORTED TO CONSTRUCTION MANAGER AND ENGINEER TO DETERMINE ALTERNATE INSTALLATION LOCATION FOR GPS ANTENNA.

8 C-5 GPS GROUNDING/MOUNTING BRACKET DETAIL
NOT TO SCALE

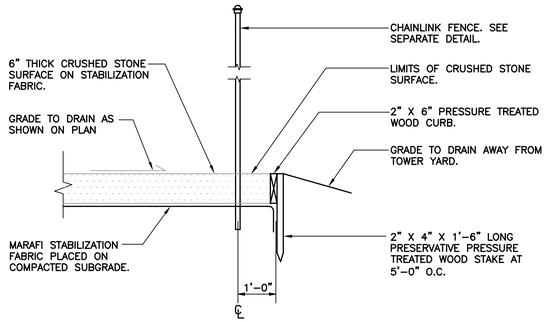


NOTE:
REFER TO GENERATOR AND PROPANE TANK MANUFACTURER FOR RECOMMENDED HOLD–DOWN HARDWARE.

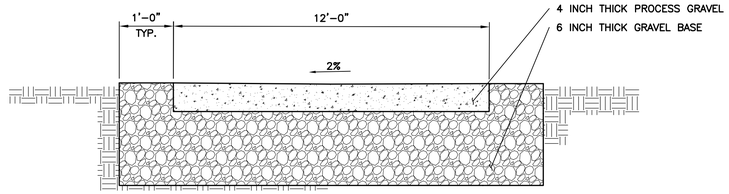
7 C-5 GENERATOR/PROPANE TANK PAD DETAIL
NOT TO SCALE



5 C-5 BOLLARD DETAIL
NOT TO SCALE



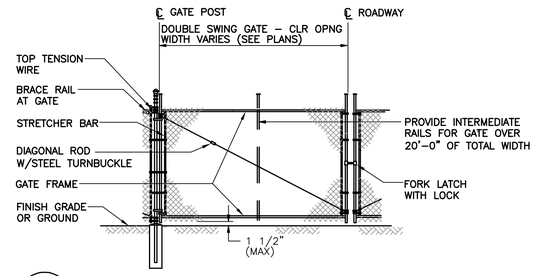
4 C-5 COMPOUND SURFACING DETAIL
NOT TO SCALE



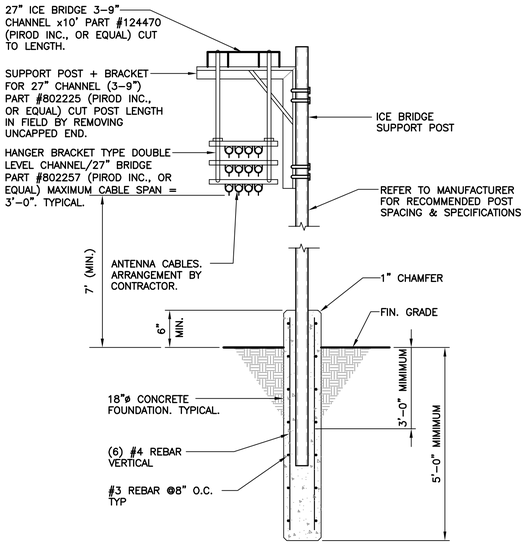
2 C-5 GRAVEL SURFACE PARKING AREA AND ACCESS DRIVE
NOT TO SCALE

WOVEN WIRE FENCE NOTES

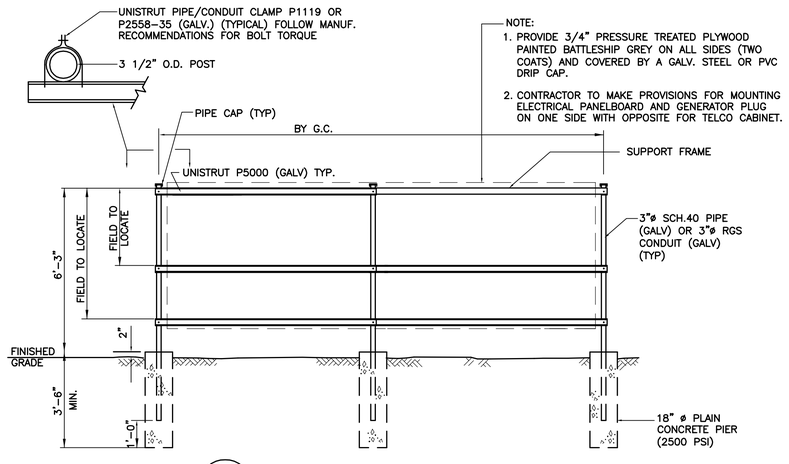
1. GATE POST, CORNER, TERMINAL OR PULL POST 2 1/2" ø SCHEDULE 40 FOR GATE WIDTHS UP THRU 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM–F1083.
2. LINE POST: 2" ø SCHEDULE 40 PIPE PER ASTM–F1083.
3. GATE FRAME: 1 1/2" ø SCHEDULE 40 PIPE PER ASTM–F1083.
4. TOP RAIL & BRACE RAIL: 1 1/2" ø SCHEDULE 40 PIPE PER ASTM–F1083.
5. FABRIC: 12 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM–A392.
6. TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX 24" INTERVALS.
7. TENSION WIRE: 7 GA. GALVANIZED STEEL.
8. GATE LATCH: DROP DOWN LOCKABLE FORK LATCH AND LOCK, KEYED ALIKE FOR ALL SITES IN A GIVEN MTA.
9. COMPOUND FENCE HEIGHT = 8' VERTICAL.
10. VINYL PRIVACY SLATS TO BE INSTALLED ON ALL FENCE AND GATE SECTIONS. COLOR: GREEN



1A C-5 WOVEN WIRE SWING GATE–DOUBLE
NOT TO SCALE

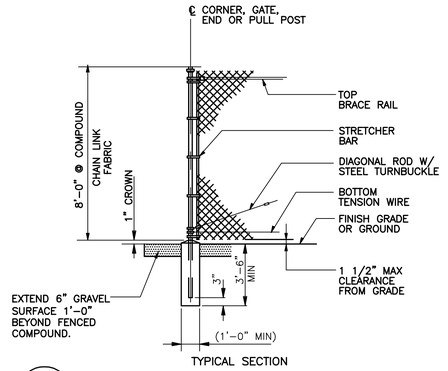


6 C-5 ICE BRIDGE DETAIL
NOT TO SCALE



NOTE:
1. PROVIDE 3/4" PRESSURE TREATED PLYWOOD PAINTED BATTLESHIP GREY ON ALL SIDES (TWO COATS) AND COVERED BY A GALV. STEEL OR PVC DRIP CAP.
2. CONTRACTOR TO MAKE PROVISIONS FOR MOUNTING ELECTRICAL PANELBOARD AND GENERATOR PLUG ON ONE SIDE WITH OPPOSITE FOR TELCO CABINET.

3 C-5 UTILITY SUPPORT FRAME (TYP)
NOT TO SCALE



TYPICAL SECTION

1 C-5 WOVEN WIRE FENCE DETAIL
NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
3	10/30/14	HMR	DMD	REVISED D&M PLANS
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SCALE: AS NOTED
JOB NO. 13072.000

SITE DETAILS AND NOTES

C-5

Sheet No. 7 of 9

TREE PROTECTION NOTES

1. ALL TREES SHOWN TO BE RETAINED WITHIN THE LIMITS OF CONSTRUCTION ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING.

2. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

3. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE) OR CRITICAL ROOT ZONE, WHICHEVER IS GREATER; AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   3A. SOIL COMPACTION IN CRITICAL ROOT ZONE AREA RESULTING FROM STORAGE OF EQUIPMENT OR MATERIAL.
   3B. CRITICAL ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES OR TRENCHING.
   3C. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT
   3D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CONCRETE TRUCK CLEANING, AND FIRES.

4. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.

5. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIPLINE OR CRITICAL ROOT ZONE WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.

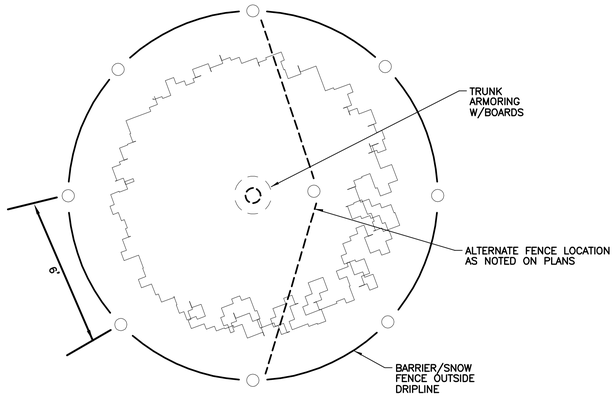
6. ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.

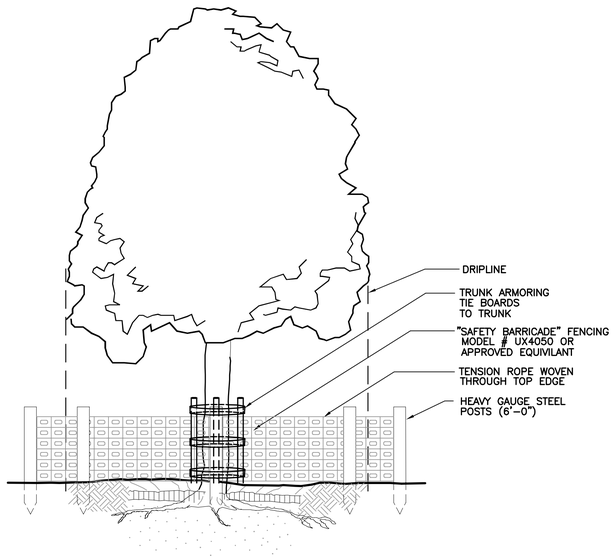
7. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.

8. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.

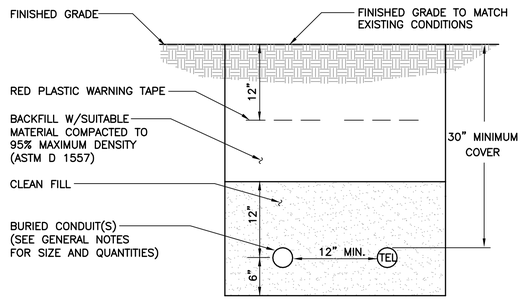
9. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.

10. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OR CRITICAL ROOT ZONE OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.



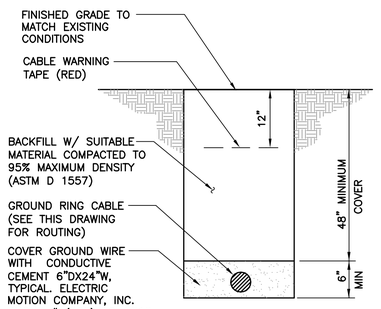


7 C-6 **TREE PROTECTION DETAIL**
NOT TO SCALE



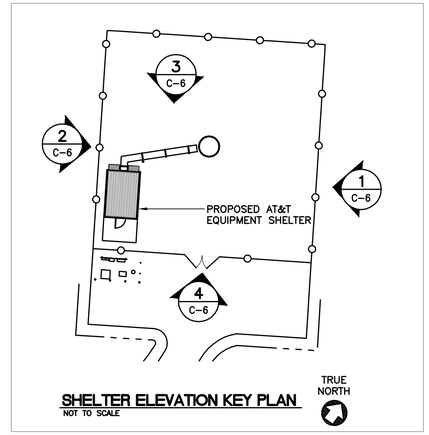
NOTES:
1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR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

6 C-6 **TYPICAL ELECTRICAL/TEL TRENCH DETAIL**
NOT TO SCALE

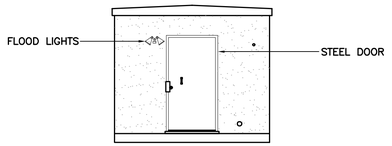


NOTES:
1. BACK FILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

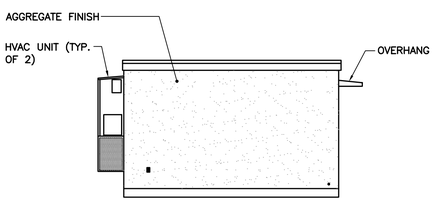
5 C-6 **TYPICAL BURIAL GROUND CABLE DETAIL**
NOT TO SCALE



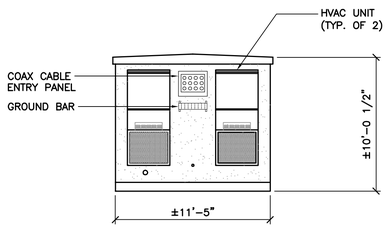
SHELTER ELEVATION KEY PLAN
NOT TO SCALE



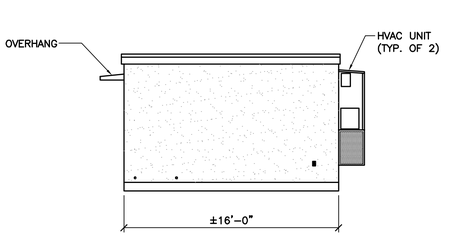
4 C-6 **SOUTHEASTERN SHELTER ELEVATION**
SCALE: 3/16" = 1'-0"



2 C-6 **SOUTHWESTERN SHELTER ELEVATION**
SCALE: 3/16" = 1'-0"



3 C-6 **NORTHWESTERN SHELTER ELEVATION**
SCALE: 3/16" = 1'-0"



1 C-6 **NORTHEASTERN SHELTER ELEVATION**
SCALE: 3/16" = 1'-0"

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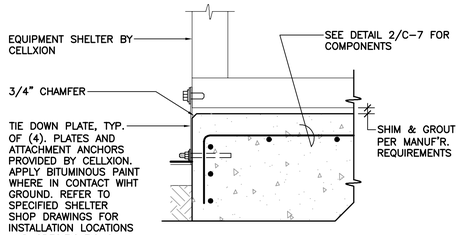
SITE DETAILS AND SHELTER ELEVATIONS

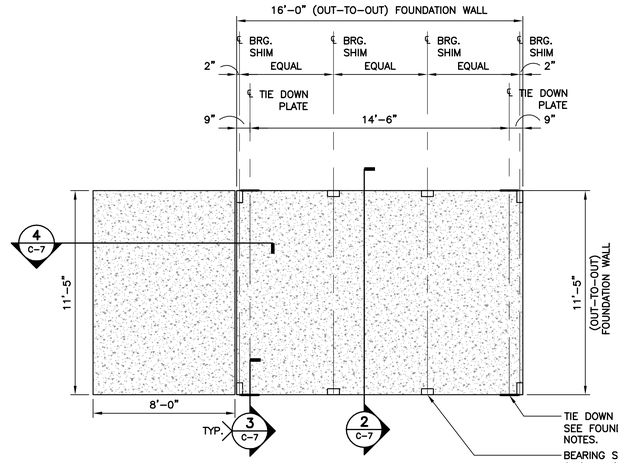
C-6

Sheet No. 8 of 9



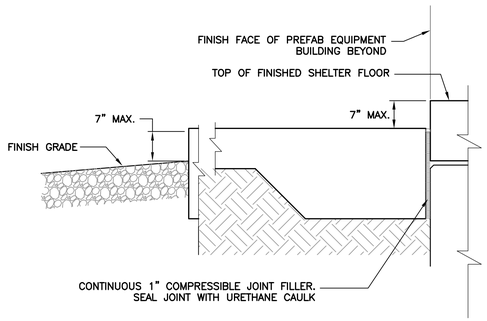
3 / C-7 BUILDING TIE DOWN

SCALE: 1"=1'-0"



1 / C-7 FOUNDATION PLAN

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



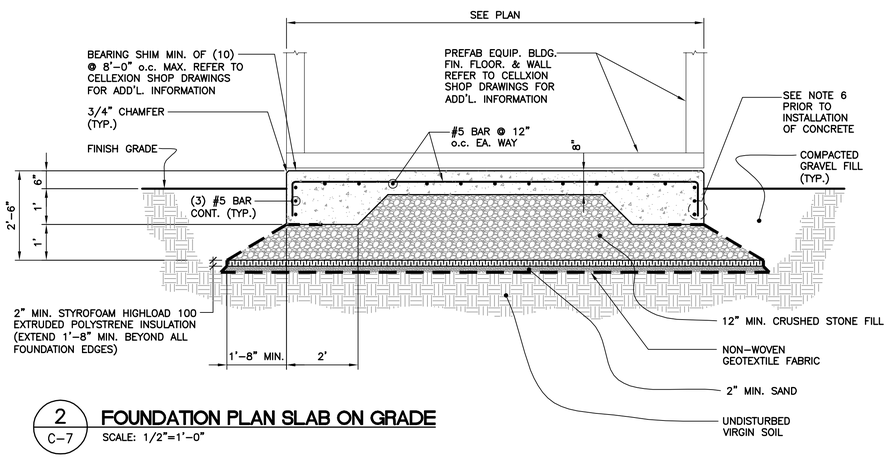
NOTE:

REFER TO DETAIL 2A/C-7 FOR ADDITIONAL REQUIREMENTS AND INFORMATION.

4 / C-7 GENERATOR PAD PATIO DETAIL - SECTION

SCALE: 3/16"=1'-0"

EQUIPMENT SHELTER BY CELLXION. VERIFY ALL SHELTER DIMENSIONS, EQUIPMENT DIMENSIONS, EQUIPMENT LOCATIONS AND UTILITY OPENINGS WITH BUILDING SHOP DRAWINGS PRIOR TO COMMENCEMENT OF WORK.



2 / C-7 FOUNDATION PLAN SLAB ON GRADE

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

FOUNDATION NOTES:

1. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
2. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
4. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

SITE NOTES:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. 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.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
9. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
10. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
11. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.

COMPACTED GRAVEL FILL:

1. COMPACTED GRAVEL FILL SHALL BE FURNISHED AND PLACED AS A FOUNDATION FOR STRUCTURES, WHERE SHOWN ON THE CONTRACT DRAWINGS OR DIRECTED BY THE ENGINEER.
2. GRAVEL SHALL CONFORM TO THE REQUIREMENTS OF ARTICLE M.02.02 OF THE CONNECTICUT D.O.T. STANDARD SPECIFICATIONS. ADMIXTURES AND SURFACE PROTECTIVE MATERIALS USED TO PREVENT THE GRAVEL FROM FREEZING MUST MEET THE APPROVAL OF THE ENGINEER. THE LARGEST STONE SIZE SHALL BE 3-1/2 INCHES.
3. SAMPLES OF THE MATERIAL TO BE USED SHALL BE DELIVERED TO THE JOB SITE 5 DAYS PRIOR TO ITS INTENDED USE SO IT MAY BE TESTED FOR APPROVAL.
4. AFTER ALL EXCAVATION HAS BEEN COMPLETED, GRAVEL SHALL BE DEPOSITED IN LAYERS NOT EXCEEDING EIGHT (8) INCHES IN DEPTH OVER THE AREAS. IN EXCEPTIONAL CASES, THE ENGINEER MAY PERMIT THE FIRST LAYER TO BE THICKER THAN EIGHT (8) INCHES. EACH LAYER SHALL BE LEVELED OFF BY SUITABLE EQUIPMENT. THE ENTIRE AREA OF EACH LAYER SHALL BE COMPACTED BY USE OF APPROVED VIBRATORY, PNEUMATIC-TIRED OR TREAD-TYPE COMPACTION EQUIPMENT. COMPACTION SHALL BE CONTINUED UNTIL THE DRY DENSITY OVER THE ENTIRE AREA OF EACH LAYER IS NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY ACHIEVED BY AASHTO T-99 METHOD C. THE MOISTURE CONTENT OF THE GRAVEL SHALL NOT VARY BY MORE THAN 3 %+ FROM ITS OPTIMUM MOISTURE CONTENT. NO SUBSEQUENT LAYER SHALL BE DEPOSITED UNTIL THE SPECIFIED COMPACTION IS ACHIEVED FOR THE PREVIOUS LAYER. IF NECESSARY TO OBTAIN THE REQUIRED COMPACTION, WATER SHALL BE ADDED AND GENTLE PUDDLING PERFORMED IF AUTHORIZED. COMPACTED GRAVEL FILL SHALL BE PREVENTED FROM FREEZING BY USE OF APPROVED ADMIXTURES OR BY USE OF APPROVED PROTECTIVE MATERIALS ON THE SURFACE, OR BOTH.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318.
2. ALL CONCRETE SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINED WITH A MAXIMUM SLUMP OF 4", AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED BARS. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD UNLESS OTHERWISE INDICATED.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS OTHERWISE NOTED ON THE DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.

   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....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.

5. ALL EXPOSED EDGES OF CONCRETE TO RECEIVE A 3/4" CHAMFER IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. CONCRETE EQUIPMENT PAD TO RECEIVE A BRUSHED FINISH.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT DURING DRILLING WITHOUT PRIOR REVIEW BY THE ENGINEER.

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SHELTER FOUND. PLAN, DETAILS AND NOTES

C-7

Sheet No. 9 of 9

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

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HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

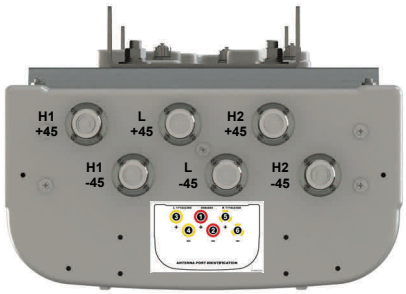
HPA-65R Multi-Band Antenna

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

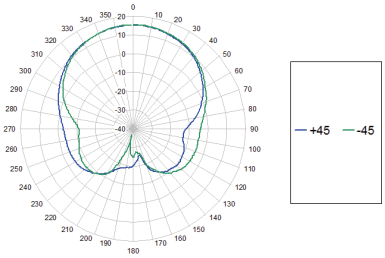
Dimensions (LxWxD)	92.4 x 14.8 x 7.4 inches (2348 x 376 x 189 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	332 lbs (1479 N) @ 100 mph (161 kph)
Side Wind Load	193 lbs (860 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	13.0 ft^2 (1.2 m^2)
Weight (without Mounting)	68 lbs (31 kg)
RET System Weight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



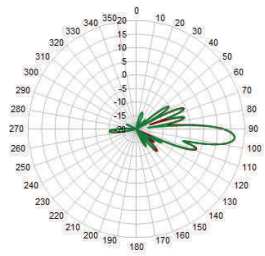
Bottom View

Rear View

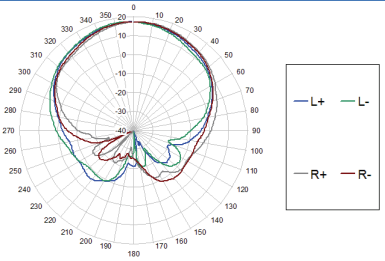
Antenna Patterns*



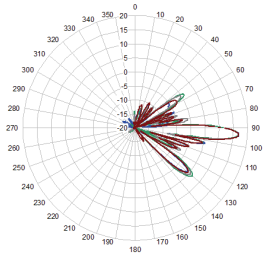
894 MHz Azimuth



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.

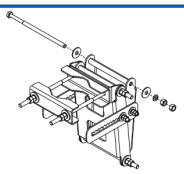
HexPort Multi-Band Antenna

Model HPA-65R-BUU-H8

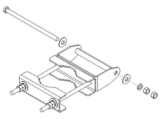
Ordering Information:

HPA-65R-BUU-H8	8 Foot Hexport Antenna with 65° Azimuth Beamwidth with Factory Installed RET 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

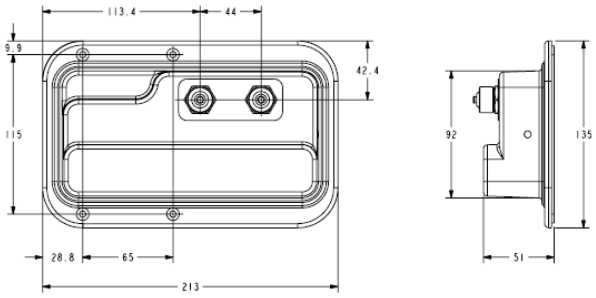
Part Number	BSA-RET200
Protocols	AISG 2.0
Adjustment Cycles	>10,000 cycles
Tilt Accuracy	±0.1°
Temperature Range	-40°C to +70°C

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