## COMMONWEALTH OF KENTUCKY

## In the Matter of:

## APPLICATION OF BLUEGRASS WIRELESS LLC FOR ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE (BRONSTON) IN RURAL SERVICE AREA \#6 (PULASKI) OF THE COMMONWEALTH OF KENTUCKY

CASE NO. 2005-00449

## APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (BRONSTON)

Bluegrass Wireless LLC ("Bluegrass Wireless"), through counsel, pursuant to KRS 278.020 and 278.040, hereby submits this application for a certificate of public convenience and necessity to construct a cell site to be known as the Bronston cell site in and for rural service area ("RSA") \#6 of the Commonwealth of Kentucky, namely the counties of Boyle, Casey, Garrard, Laurel, Lincoln, Madison, Pulaski, and Rockcastle, Kentucky.

1. As required by 807 KAR 5:001 Sections 8 (1) and (3), and 807 KAR 5:063, Bluegrass Wireless states that it is a Kentucky limited liability company whose full name and post office address are: Bluegrass Wireless LLC, 2902 Ring Road, Elizabethtown, Kentucky, 42701.
2. Pursuant to 807 KAR § 1 (1)(b), a copy of the applicant's applications to the Federal Aviation Administration and Kentucky Airport Zoning Commission are Exhibit "A". Written authorizations from these agencies will be supplied to the Commission upon their approval.
3. Pursuant to 807 KRS 5:063 §1(1)(d), a geotechnical investigation report, signed and sealed by a professional engineer registered in Kentucky, that includes boring logs, foundation design recommendations, and a finding as to the proximity of the proposed site to flood hazard areas is Exhibit "B".
4. Pursuant to 807 KRS 5:063 $\S 1(1)(\mathrm{e})$, clear directions from the county seat to the proposed site, including highway numbers and street names, if applicable, with the telephone number of the person who prepared the directions are Exhibit "C",
5. Pursuant to 807 KRS 5:063 §1(1)(f), a copy of the lease (or sale agreement) for the property on which the tower is proposed to be located, is Exhibit "D".
6. Pursuant to $807 \mathrm{KAR} \S 1(1)(\mathrm{g})$, experienced personnel will manage and operate the Bronston cell site. The President of Bluegrass Cellular Inc., Mr. Ron Smith, is ultimately responsible for all construction and operations of the cellular system of Bluegrass Wireless, of which system the Bronston cell site will be a part. Bluegrass Cellular Inc. provides management services to Bluegrass Wireless under a management contract, just as it does with three (3) other wireless carriers in the Commonwealth. And, Bluegrass Cellular Inc. has been providing these management services to these other wireless carriers for well over a decade. This extensive management experience with Bluegrass Cellular demonstrates that Bluegrass Cellular Inc.'s management and technical ability to supervise the operations of a wireless carrier.
7. Pursuant to $807 \mathrm{KAR} \S 1(1)(\mathrm{g})$, Sabre Communications Corporation is responsible for the design specifications of the proposed tower (identified in Exhibit "B").
8. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(\mathrm{h})$, a site development plan or survey, signed and sealed by a professional engineer registered in Kentucky, that shows the proposed location of the tower and all easements and existing structures within 500 feet of the proposed site on the property on which the tower will be located, and all easements and existing structures within 200 feet of the access drive, including the intersection with the public street system, is Exhibit "B".
9. Pursuant to $807 \mathrm{KRS} 5: 063$ §1(1)(i), a vertical profile sketch of the tower, signed and sealed by a professional engineer registered in Kentucky, indicating the height of the tower and the placement of all antennas; is Exhibit "B".
10. Pursuant to 807 KRS 5:063 §1(1)(j), the tower and foundation design plans and a description of the standard according to which the tower was designed, signed and sealed by a professional engineer registered in Kentucky, is Exhibit " B ".
11. Pursuant to $807 \mathrm{KRS} 5: 063$ § 1 (1)(k), a map, drawn to a scale no less than one (1) inch equals 200 feet, that identifies every structure and every owner of real estate within 500 feet of the proposed tower, is Exhibit "E".
12. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(1)$, applicant's legal counsel hereby affirms that every person who owns property within 500 feet of the proposed tower has been: (i) notified by certified mail, return receipt
requested, of the proposed construction; (ii) given the commission docket number under which the application will be processed; and (iii) informed of his right to request intervention.
13. Pursuant to KRS 278.665(2), applicant's legal counsel hereby affirms that every person who, according to the records of the property valuation administrator, owns property contiguous to the property where the proposed cellular antenna tower will be located has been: (i) notified by certified mail, return receipt requested, of the proposed construction; (ii) given the commission docket number under which the application will be processed; and (iii) informed of his right to request intervention.
14. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(\mathrm{m})$, a list of the property owners who received the notice together with copies of the certified letters sent to listed property owners, is Exhibit " $F$ ".
15. Pursuant to 807 KRS 5:063 § 1 (1)(n), applicant's legal counsel hereby affirms that the Pulaski County Judge Executive has been: (i) notified by certified mail, return receipt requested, of the proposed construction; (ii) given the commission docket number under which the application will be processed; and (iii) informed of its right to request intervention.
16. Pursuant to 807 KRS 5:063 §1(1)(0), a copy of the notice sent to the Pulaski County Judge Executive is Exhibit "G".
17. Pursuant to 807 KRS 5:063§ 1 (1)(p), applicant's legal counsel hereby affirms that (i) two written notices meeting subsection two (2) of this section have been posted, one in a visible location on the proposed site and one on the nearest public road; and (ii) the notices shall remain posted for at least two weeks after the application has been filed.
18. Pursuant to $807 \mathrm{KAR} 5: 063 \S 1$ (2)(a), applicant's legal counsel affirms that:
(a) A written notice, of durable material at least two (2) feet by four (4) feet in size, stating that "Bluegrass Wireless, LLC proposes to construct a telecommunications tower on this site", including the addresses and telephone numbers of the applicant and the Kentucky Public Service Commission, has been posted and shall remain in a visible location on the proposed site until final disposition of the application; and
(b) A written notice, of durable material at least two (2) feet by four (4) feet in size, stating that "Bluegrass Wireless, LLC proposes to construct a telecommunications tower near this site", including the addresses and telephone numbers of the applicant and the Kentucky Public Service Commission, has been posted on the public road nearest the site.

A copy of each sign is attached as Exhibit "H".
19. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1$ (1)(q), a statement that notice of the location of the proposed construction has been published in a newspaper of general circulation in the county in which the construction is proposed, is Exhibit "I".
20. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(\mathrm{r})$, the cell site which has been selected is in a relatively undeveloped area in Bronston, Kentucky.
21. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(\mathrm{s})$, Bluegrass Wireless has considered the likely effects of the installation on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate service to the area can be provided, and that there is no reasonably available opportunity to co-locate. Bluegrass Wireless has attempted to co-locate on towers designed to host multiple wireless service providers' facilities or existing structures, such as a telecommunications tower, or another suitable structure capable of supporting the utility's facilities.
22. Pursuant to $807 \mathrm{KRS} 5: 063 \S 1(1)(\mathrm{t})$, a map of the area in which the tower is proposed to be located, that is drawn to scale and that clearly depicts the search area in which a site should, pursuant to radio frequency requirements, be located is Exhibit " J ".
23. Pursuant to KRS $100.987(2)$ (a), a grid map, that is drawn to scale, that shows the location of all existing cellular antenna towers and that indicates the general position of proposed construction sites for new cellular antenna towers is Exhibit "K".
24. No reasonably available telecommunications tower, or other suitable structure capable of supporting the cellular facilities of Bluegrass Wireless and which would provide adequate service to the area exists.
25. Correspondence and communication with regard to this application should be addressed to:

John E. Selent 1400 PNC Plaza
500 West Jefferson Street
Louisville, KY 40202
(502) 540-2300
selent@dinslaw.com
WHEREFORE, Bluegrass Wireless requests the Commission to enter an order:

1. Granting a certificate of public convenience and necessity to construct the Bronston cell site; and
2. Granting all other relief as appropriate.

Respectfully submitted,


106013 vl
33597-11

# LUKAS, NACE <br> GUTIERREZ \& SACHS 

CHARTERED

1650 TYSONS BOULEVARD, SUITE 1500
MCLEAN, VIRGINIA 22102
$7035848678 \cdot 7035848696$ FAX

RUSSELL D. Lukas*
David L. NAcE* thomas Gutierrez* ELIzABETH R. SACHS* GEORGE L. LYON, JR. Pamela l. Gist*

David A. LaFuria
B. Lynn F. Ratnavale*

TODD SLAMOWITZ*
STEVEN M. CHERNOFF*

Via Federal Express

Dear FAA Evaluator:
Enclosed please find a completed FAA Form 7460-1, Notice of Proposed Construction/Alteration, for a new tower structure (Bronston) near Burnside, Kentucky. The height of the structure, including top-mounted PCS antennas, will be 255 feet Above Ground Level ("AGL").

The enclosed FAA Form 7460-1 and the attached Exhibit include all the pertinent information for the new structure at this site. Also enclosed is a non-reduced copy of a portion of the $7-1 / 2^{\prime}$ US Geological Survey map illustrating the location of the proposed cell site. Additionally, the copy of the 1A Certification is enclosed. Please do not hesitate to contact the undersigned if there are questions regarding this matter.


## Enclosures

cc: Scott McCloud


Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718 . Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $\$ 1,000$ per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

| Date | Typed or Printed name and Title of Person Filing Notice <br> Leila Rezanavaz / Consulting Engineer | Signature |
| :--- | :---: | :---: |



BLUEGRASS CELLULAR<br>2902 Ring Road<br>Elizabethtown, KY 42702

1 A Letter

Site Name:
For Aeronautical Study No.

| Location: | City |
| :--- | :--- |
|  | County |

U.S.G.S. Quadrangle:
$\begin{array}{ll}\text { (NAD 27) } & \text { LATIIUDE } \\ & \text { LONGITUDE }\end{array}$
(NAD 83) LATITUDE

Date: October 25, 2005
FSTAN Project No: 05-3597

## Bronston

Bronston, KY
Pulaṣk'

LONGITUDE
SITE ELEVATION (NAVD 88)
PROPOSED TOWER HEIGHT
TOWER HEIGHT WITH ANTENNA
OVERALL HEIGHT ELEVATION

Frazer, KY
$36^{\circ} 58^{\prime} 26.10^{\prime \prime}$

```
84* 39'10.28"
```

$36^{\circ} 58^{\prime} 26.37^{\prime \prime}$
$84^{\circ} 39^{\prime} 10.07^{\prime \prime}$

I Certify, to the best of my knowledge and belief, that the horizontal and vertical datum as established from the referenced U.S.G.S. Quedrangle, Frazer, is accurate to 1 A Reporting requirements of $\pm 20$ feet horizontally and $\pm 3$ vertically.

The horizontal datum (coordinates) are in terms of the North American Datum of 1927 (NAD 27) and 1983 (NAD 83) and expressed as degrees, minutes and seconds.

The vertical ciatum (heights) are in terms of the National Geodetic Vortical Datum of 1988 and are determined to the nearest foot.

Kentucky State Plane Coordinates (South Zone) were established with Trimble Global Positioning Systems (GPS) receivera. This site has ties to the National Geodetic Reference System established by the National Geodetic Survey, formerly the U.S. Coast if Geodetic Survey by measurements to PID Station "GZ2627", designated as "SOMERPORT".

CONSULTANT


November 11, 2005

|  | Telephone |
| :--- | ---: |
|  | (703)584-8668 |
| Via Federal Express | FACSIMILE |

Mr. John Houlihan
Kentucky Airport Zoning Commission
200 Mero Street
Frankfort, Kentucky 40622
Dear Mr. Houlihan:

Enclosed please find two completed TC 56-50 forms, Application for Permit to Construct or Alter a Structure, for a new tower (Bronston) near Burnside, Kentucky. The Structure will have an overall height of 255 feet Above Ground Level.

Enclosed Form TC 56-50 and the attached exhibit include all the pertinent information for this existing tower structure. Also enclosed are copies of the completed FAA Form 7460-1 for the proposed site, a non-reduced $7-1 / 2^{\prime}$ U.S. Geological Survey map indicating the exact location of the site, and a copy of the 1 A Certification survey.

Please do not hesitate to contact the undersigned if there are questions regarding this matter.
Sincerely,


Consulting Engineer
Enclosures

CC: Scott McCloud

## APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE


20. Description of Location: (Attach a USGS 7.5 minute Quadrangle Map or an Airport Layout Drawing with the precise site marked and any certified survey)

The proposed site is located 3.0 miles west of Burnside, KY.

| $\square$ Red Lights and Paint | $\square$ Dual-Red \& Megium Intensity White |
| :--- | :--- |
| $\square$ White-Medium Intensity | $\square$ Dual-Red \& Figh Intensity White |
| $\square$ White-High Intensity | $\square$ Other |
| 8. FAA Aeronautical Study Number | N/A |

21. Description of Proposal:

Stracture: The tower including top-mounted PCS antennas will have an overall height of 255' AGL.

Frequencies: 1975-1982.5 MHz (Base Transmit)
Max ERP: 200 Watts


CERTIFICATION: I hereby centify that all the above statements made by me are truc, complete and conect to the best of my boowledge and belief


PENALTIES: Persons failing to comply with Kentucky Revised Statutes (KRS 183.861 through 183.990) and Xentuchy Administrative Regulations (602 KAR 050: Series) are liable for fores and/or imprisomment as set forth in KRS $183.990(3)$. Non-compliance with Federal Aviation Administration Regulations may result in further penalties.

## Commission Action

$\square$ Chairman, KAZC
$\square$ Administrator, KAZC

ApprovedDisapproved

BLUEGRASS CELLULAR<br>2902 Ring Road<br>Elizabethtown, KY 42702

1A Letter

Site Name:
For Aeronautical Study No.

| Location: | City | Bronston, KY <br>  <br>  <br>  <br> U.S.G.S. Quadrangle: <br>  <br>  <br> County |
| :--- | :--- | :--- |
| NAD 27) | LATITUDE | Frazer, KY |

SITE ELEVATION (NAVD 88) PROPOSED TOWER HEIGHT TOWER HEIGHT WITH ANTENNA OVERALL HEIGHT ELEVATION

Date: October 25, 2005
FSTAN Project No: 05-3597
Bronston
$84^{\circ} 39^{\prime} 10.07^{\prime \prime}$

I Cortify, to the best of my knowledge and bellef, that the horizontal and vertical catum as established from the referenced U.S.G.S. Quedrangle, Frazer, is accurate to 1 A Reporting requirements of $\pm 20$ feet horizontally and $\pm 3$ vertically.

The horizontal datum (coordinates) are in terms of the North American Datum of 1927 (NAD 27) and 1983 (NAD 83) and expressed as dogrees, minutes and seconds.

The verical datum (heights) are in terms of the National Geodetic Vertical Datum of 1988 and are determined to the nearest foot.

Kentucky State Plane Coordinates (South Zone) were established with Trimble Global Positioning Systems (GPS) recelvers. This site has ties to the National Geodetic Refarence System established by the National Geodetic Survey, formerly the U.S. Coast \& Geodetic Survey by measurements to PID Station "GZ2627", designated as "SOMERPORT".


CONSULTANT


FSTAN Land Surveyors and Consulting Engineers 2313/2315 Crittenden Drive, Loulsville, Ky. 40217 Phone: 502-635-5866 Fax: 502-636-5263


## BLUEGRASS CELLULAR

## Permit Pkg with Foundation

Bronston, KY
Sabre Job Number 06-12048
STAMPED PERMIT DRAWINGS

YOUR SABRE
REPRESENTATIVE IS
Jim Gibson
1-800-369-6690 EXT. 173


# Structural Design Report <br> 240' S3R Self-Supporting Tower located at: Bronston, KY 

# prepared for: BLUEGRASS WIRELESS LLC by: Sabre Communications Corporation ${ }^{\text {TM }}$ 

Job Number: 06-12048

December 7, 2005
Tower Profile. ..... 1
Foundation Design Summary (Option 1). ..... 2
Foundation Design Summary (Option 2). ..... 3
Maximum Leg Loads. ..... 4
Maximum Diagonal Loads. ..... 5
Maximum Horizontal Loads. ..... 6
Maximum Foundation Loads. ..... 7
Calculations ..... A1-A12
Prepared by $R E B$
Checked by







NOTES:

1. The tower model is S3R.
2. Transmission lines are to be attached to standard 6-over-6 waveguide ladders. Azimuths are relative (not based on true north).
3. Foundation loavs shown are maximuns.
(4) $11 / 2^{\prime \prime}$ dia. A572 anchor bolts per leg. Minimum 49" embedment from top of concrete to top of nut.
4. All unequal angles are oriented with the short leg vertlcal.

| NO | ELEV | ANTENNA | TX-LINE |
| :---: | :---: | :---: | :---: |
| 1 | 240* | (6) $59210+3$ - Boom | (6) : $5 / 8$ |
| 2 | $220{ }^{\circ}$ | (6) $59210+3 \mathrm{~T}$-Boom | (6) $15 / 8$ |
| 3 | $200^{\circ}$ | (6) $59210+3 \mathrm{~T}$ - Bocm | (6) $15 / 8$ |
| 4 | $180^{\circ}$ | (6) $59210+3 \mathrm{~T}$-Boom | (5) $15 / 8$ |
| 5 | $160^{\prime}$ | (6) $59210+3 \mathrm{~T}$-Boom | (6) $15 / 8$ |
| $\epsilon$ | $140^{\prime}$ | (1) 6' H.P. Dish | (1) $15 / 8$ |

hatBaikl List

| No | TYEE |
| :---: | :---: |
| A | ( $3^{\text {n }} \times 3^{-\times 3 / 16 " ~}$ |
| B | L $2-1 / 2^{\prime \prime} \times 2-1 / 2^{*} \times 3 / 16^{\prime \prime}$ |
| C | 1 1-3/4* $\times-3 / 4^{\prime \prime} \times 3 / 16^{\prime \prime}$ |



| TOTAL EODMDATION LOADS | INDIVIDUAL FOOTING LOADS |
| :--- | :--- |
| $\mathrm{H}=30.70 \mathrm{k}$ | $\mathrm{B}=18.96 \mathrm{k}$ |
| $\mathrm{V}=75.47 \mathrm{k}$ | $\mathrm{V}=210.49 \mathrm{k}$ |
| $\mathrm{K}=3859.70 \mathrm{k}-\mathrm{Ft}$ | $\mathrm{U}=-163.98 \mathrm{k}$ |
| $\mathrm{T}=2.12 \mathrm{k}-\mathrm{ft}$ |  |

## Customer: BLUEGRASS WIRELESS LLC

 Site: Bronston, KY240 ft. Model S3R Self Supporting Tower At 70 mph Wind +0.5 in . Ice per ANSI/TIA/EIA-222-F-1996. Antenna Loading per Page 1

Two (2) \#4 ties within top $5^{\prime \prime}$ of concrete

Notes:
1). Concrete shall have a minimum 28-day compressive strength of 3000 PSI, in accordance with ACl 318-02.
2). Rebars to conform to ASTM specification A615 Grade 60.
3). All rebar to have a minimum of $3^{\prime \prime}$ concrete cover.
4). All exposed concrete corners to be chamfered 3/4".
5). The foundation design is based on the geotechnical report by Terracon project no. 57057366G, dated: 11-14-05
6). See the geotechnical report for drilled pier installation requirements, if specified.

## ELEVATION VIEW

( 4.84 Cu. Yds. each)
(3 REQUIRED)

| Rebar Schedule per Pier |  |  |
| :---: | :---: | :---: |
| Pier | (12) \#7 vertical rebar w/\#4 ties, two (2) <br> within top $5^{\prime \prime}$ of pier then 12" $\mathrm{C} / \mathrm{C}$ |  |

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Customer: BLUEGRASS WIRELESS LLC

## Site: Bronston, KY

240 ft . Model S3R Self Supporting Tower At 70 mph Wind +0.5 in. Ice per ANSIITIAJE|A-222-F-1996.

Antenna Loading per Page 1

Two (2) \#4 ties within top $5^{\prime \prime}$ of concrete

## Notes:

1). Concrete shall have a minimum 28 -day compressive strength of 3000 PSI, in accordance with ASl 318-02.
2). Rebar to conform to ASTM specification A615 Grade 60.
3). All rebar to have a minimum of $3^{\prime \prime}$ concrete cover.
4). All exposed concrete corners to be chamfered $3 / 4^{\prime \prime}$.
5). The foundation design is based on the geotechnical report by Terracon project no. 57057366G, dated: 11-14-05
6). See the geotechnical report for compaction requirements, if specified.

## ELEVATION VIEW

(10.55 Cu. Yds. each) (3 REQUIRED)

|  | Rebar Schedule per Pad and Pier |
| :---: | :---: |
| Pier | $(12) \# 7$ vertical rebar w/hooks at bottom <br> w/\#4 ties, two (2) within top 5" of pier then <br> $12^{\prime \prime} \mathrm{C} / \mathrm{C}$ |
| Pad | (12) \#7 horizontal rebar evenly spaced each <br> way top and bottom (48 Total) |

formation contained herein is the sole property of Sabre Communications Corporation, constitutes a irade secret as defined by Iowa Code Ch. 550 and shall not be reproduced, copied or used in whole or part for any purpose whatsoever without the prior written consent of Sabre Communications Corporation.

240' S3R BLUEGRASS WIRELESS LLC Bronston KY (06-12048) REBEACOM
Maximum


240' S3R BLUEGRASS WIRELESS LLC Bronston KY (06-12048) REBEACOM Maximum


240' S3R BLUEGRASS WIRELESS ILC Bronston KY (06-12048) REBEACOM Maximum

240' S3R BLUEGRASS WIRELESS LLC Bronston KY (06-12048) REBEACOM
Maximum
Maximum

TOTAL FOUNDATION LOADS (kip, ft-kip)


INDIVIDUAL FOOTING LOADS (kip)


MAST - Latticed Tower Analysis (Unguyed) (c)1997 Guymast Inc. 416-736-7453 Processed under license at:
sabre Communications Corporation
on: 7 dec 2005 at: 8:19:51
24
$240^{\prime}$ S3R BLUEGRASS WIRELESS LLC Bronston KY (06-12048) REBEACOM

MAST GEOMETRY ( ft )

| PANEL TYPE | NO. OF LEGS | $\begin{gathered} \text { ELEV.AT } \\ \text { BOTTOM } \end{gathered}$ | $\begin{aligned} & \text { ELEV. AT } \\ & \text { TOP } \end{aligned}$ | $\begin{aligned} & \text { F.W. .AT } \\ & \text { BOTTOM } \end{aligned}$ | $\begin{array}{r} \text { F.W. .AT } \\ \text { TOP } \end{array}$ | TYPICAL PANEL HEIGHT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| x | 3 | 220.00 | 240.00 | 3.00 | 3.00 | 4.00 |
| x | 3 | 200.00 | 220.00 | 3.00 | 3.00 | 4.00 |
| x | 3 | 180.00 | 200.00 | 5.00 | 3.00 | 4.00 |
| x | 3 | 160.00 | 180.00 | 7.00 | 5.00 | 4.00 |
| X | 3 | 140.00 | 160.00 | 9.00 | 7.00 | 5.00 |
| X | 3 | 120.00 | 140.00 | 11.00 | 9.00 | 5.00 |
| x | 3 | 100.00 | 120.00 | 13.00 | 11.00 | 5.00 |
| $\times$ | 3 | 80.00 | 100.00 | 15.00 | 13.00 | 6.67 |
| x | 3 | 60.00 | 80.00 | 17.00 | 15.00 | 6.67 |
| $\times$ | 3 | 40.00 | 60.00 | 19.00 | 17.00 | 6.67 |
| X | 3 | 20.00 | 40.00 | 21.00 | 19.00 | 6.67 |
| A | 3 | 0.00 | 20.00 | 23.00 | 21.00 | 10.00 |

MEMBER PROPERTIES

| MEMBER TYPE | $\begin{gathered} \text { BOTTOM } \\ \text { ELEV } \\ \mathrm{ft} \end{gathered}$ | $\begin{aligned} & \text { TOP } \\ & \text { ELEV } \\ & \mathrm{ft} \end{aligned}$ | $\begin{array}{r} \text { X-SECTN } \\ \text { AREA } \\ \text { in. } 5 q \end{array}$ | $\begin{gathered} \text { RADIUS } \\ \text { OF GYRAT } \\ \text { in } \end{gathered}$ | ELASTIC MODULUS ksi | THERMAL EXPANSN /deg |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LE | 220.00 | 240.00 | 2.405 | 0.000 | 29000. | 0.0000000 |
| LE | 200.00 | 220.00 | 3.142 | 0.000 | 29000. | 0.0000000 |
| LE | 160.00 | 200.00 | 3.976 | 0.000 | 29000. | 0.0000000 |
| LE | 140.00 | 160.00 | 4.909 | 0.000 | 29000. | 0.0000000 |
| LE | 100.00 | 140.00 | 5.940 | 0.000 | 29000. | 0.0000000 |
| LE | 60.00 | 100.00 | 8.296 | 0.000 | 29000. | 0.0000000 |
| LE | 0.00 | 60.00 | 9.621 | 0.000 | 29000. | 0.0000000 |
| DI | 160.00 | 240.00 | 0.621 | 0.000 | 29000. | 0.0000000 |
| DI | 120.00 | 160.00 | 0.715 | 0.000 | 29000. | 0.0000000 |
| DI | 100.00 | 120.00 | 0.902 | 0.000 | 29000. | 0.0000000 |
| DI | 60.00 | 100.00 | 1.090 | 0.000 | 29000. | 0.0000000 |
| DI | 20.00 | 60.00 | 1.687 | 0.000 | 29000. | 0.0000000 |
| DI | 0.00 | 20.00 | 1.090 | 0.000 | 29000. | 0.0000000 |
| но | 236.00 | 240.00 | 0.621 | 0.000 | 29000. | 0.0000000 |
| но | 216.00 | 220.00 | 0.621 | 0.000 | 29000. | 0.0000000 |
| HO | 196.00 | 200.00 | 0.621 | 0.000 | 29000. | 0.0000000 |
| Ho | 0.00 | 20.00 | 1.090 | 0.000 | 29000. | 0.0000000 |
| BR | 0.00 | 20.00 | 1.090 | 0.000 | 29000. | 0.0000000 |

* 12 wind directions were analyzed, with \& without ice. only two conditions are shown in full.
MAST LOADING

| $\begin{aligned} & \text { LOAD } \\ & \text { TYPE } \end{aligned}$ | ELEV ft | APPLY.. LOAD. AT |  | $\begin{aligned} & \text { LOAD } \\ & \text { AZI } \end{aligned}$ | . FORCES. |  | . . . . . MOMENTS. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | RADIUS | AZI |  | $\begin{array}{r} \text { HORIZ } \\ \text { kip } \end{array}$ | $\begin{aligned} & \text { DOWN } \\ & \text { kip } \end{aligned}$ | VERTICAL ft-kip | TORSNAL ft-kip |
| c | 240.0 | 0.00 | 0.0 | 0.0 | 1.36 | 2.49 | 0.00 | 0.00 |
| c | 220.0 | 0.00 | 0.0 | 0.0 | 1.33 | 2.49 | 0.00 | 0.00 |
| c | 200.0 | 0.00 | 0.0 | 0.0 | 1.30 | 2.49 | 0.00 | 0.00 |
| c | 180.0 | 0.00 | 0.0 | 0.0 | 1.26 | 2.49 | 0.00 | 0.00 |
| C | 160.0 | 0.00 | 0.0 | 0.0 | 1.22 | 2.49 | 0.00 | 0.00 |
| D | 240.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.06 | 0.00 | 0.00 |
| D | 236.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.06 | 0.00 | 0.00 |
| D | 236.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.05 | 0.00 | 0.00 |
| D | 220.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.05 | 0.00 | 0.00 |
| D | 220.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.07 | 0.00 | 0.00 |
| D | 216.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.07 | 0.00 | 0.00 |
| D | 216.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.07 | 0.00 | 0.00 |
| D | 200.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.07 | 0.00 | 0.00 |
| D | 200.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.09 | 0.00 | 0.00 |
| D | 196.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.09 | 0.00 | 0.00 |
| D | 196.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.09 | 0.00 | 0.00 |
| D | 180.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.09 | 0.00 | 0.00 |
| D | 180.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.10 | 0.00 | 0.00 |
| D | 160.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.10 | 0.00 | 0.00 |
| D | 160.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.12 | 0.00 | 0.00 |
| D | 140.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.13 | 0.00 | 0.00 |
| D | 140.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.14 | 0.00 | 0.00 |
| D | 120.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.14 | 0.00 | 0.00 |
| D | 120.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.15 | 0.00 | 0.00 |
| D | 100.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.16 | 0.00 | 0.00 |
| D | 100.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.18 | 0.00 | 0.00 |
| D | 80.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.19 | 0.00 | 0.00 |
| D | 80.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.19 | 0.00 | 0.00 |
| D | 60.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.19 | 0.00 | 0.00 |
| D | 60.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.24 | 0.00 | 0.00 |
| D | 40.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.25 | 0.00 | 0.00 |
| D | 40.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.25 | 0.00 | 0.00 |
| D | 20.0 | 0.00 | 0.0 | 0.0 | 0.10 | 0.26 | 0.00 | 0.00 |
| D | 20.0 | 0.00 | 0.0 | 0.0 | 0.13 | 0.26 | 0.00 | 0.00 |
| D | 0.0 | 0.00 | 0.0 | 0.0 | 0.13 | 0.27 | 0.00 | 0.00 |

ANTENNA LOADING

| TYPE | ANTENNA. . . . . |  | ATTACHMENT |  | AXIAL kip | . ANTENNA FORCES. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { ELEV } \\ & \mathrm{ft} \end{aligned}$ | AZI | $\begin{array}{r} \text { RAD } \\ \mathrm{ft} \end{array}$ | AZI |  | SHEAR kip | GRAVITY <br> kip | TORSION ft-kip |
| HP | 140.0 | 0.0 | 6.7 | 0.0 | 0.75 | 0.00 | 0.28 | 0.00 |

$60.63 \mathrm{MPH}+0.5$ ICE WIND AZ 0 DEGREES

MAST LOADING

| $\begin{aligned} & \text { LOAD } \\ & \text { TYPP } \end{aligned}$ | $\begin{array}{r} \text { ELEV } \\ \mathrm{ft} \end{array}$ | APPLY..LOAD. .AT |  | $\begin{gathered} \text { LOAD } \\ \text { AZI } \end{gathered}$ | . FORCES. |  | . . . . . MOMENTS. . . . . |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | RADIUS | AZI |  | HORIZ | down | VERTICAL | TORSNAL |
|  |  | ft |  |  | kip | kip | ft-kip | ft-kip |
| C | 240.0 | 0.00 | 0.0 | 0.0 | 1.13 | 3.13 | 0.00 | 0.00 |
| C | 220.0 | 0.00 | 0.0 | 0.0 | 1.11 | 3.13 | 0.00 | 0.00 |
| c | 200.0 | 0.00 | 0.0 | 0.0 | 1.08 | 3.13 | 0.00 | 0.00 |
| c | 180.0 | 0.00 | 0.0 | 0.0 | 1.04 | 3.13 | 0.00 | 0.00 |
| c | 160.0 | 0.00 | 0.0 | 0.0 | 1.01 | 3.13 | 0.00 | 0.00 |
| D | 240.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.09 | 0.00 | 0.00 |
| D | 236.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.09 | 0.00 | 0.00 |
| D | 236.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.09 | 0.00 | 0.00 |
| D | 220.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.09 | 0.00 | 0.00 |
| D | 220.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.12 | 0.00 | 0.00 |
| D | 216.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.12 | 0.00 | 0.00 |
| D | 216.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.11 | 0.00 | 0.00 |
| D | 200.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.11 | 0.00 | 0.00 |
| D | 200.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.15 | 0.00 | 0.00 |
| D | 196.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.15 | 0.00 | 0.00 |
| D | 196.0 | 0.00 | 0.0 | 0.0 | 0.06 | 0.14 | 0.00 | 0.00 |
| D | 180.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.15 | 0.00 | 0.00 |
| D | 180.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.17 | 0.00 | 0.00 |
| D | 160.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.17 | 0.00 | 0.00 |
| D | 160.0 | 0.00 | 0.0 | 0.0 | 0.07 | 0.21 | 0.00 | 0.00 |
| D | 140.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.21 | 0.00 | 0.00 |
| D | 140.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.23 | 0.00 | 0.00 |
| D | 120.0 | 0.00 | 0.0 | 0.0 | 0.08 | 0.24 | 0.00 | 0.00 |
| D | 120.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.25 | 0.00 | 0.00 |
| D | 100.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.26 | 0.00 | 0.00 |
| D | 100.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.28 | 0.00 | 0.00 |
| D | 80.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.29 | 0.00 | 0.00 |
| D | 80.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.29 | 0.00 | 0.00 |
| D | 60.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.30 | 0.00 | 0.00 |
| D | 60.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.36 | 0.00 | 0.00 |
| D | 40.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.37 | 0.00 | 0.00 |
| D | 40.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.38 | 0.00 | 0.00 |
| D | 20.0 | 0.00 | 0.0 | 0.0 | 0.09 | 0.39 | 0.00 | 0.00 |
| D | 20.0 | 0.00 | 0.0 | 0.0 | 0.12 | 0.42 | 0.00 | 0.00 |
| D | 0.0 | 0.00 | 0.0 | 0.0 | 0.12 | 0.42 | 0.00 | 0.00 |

ANTENNA LOADING

|  | EnNA |  | ATTA | IENT |  | ANTEN | FORCES |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| TYPE | ELEV | AZI | RAD | AZI | AXIAL | SHEAR | GRAVITY | TORSION |
|  | ft |  | ft |  | kip | kip | kip | ft-kip |
| HP | 140.0 | 0.0 | 6.7 | 0.0 | 0.57 | 0.00 | 0.50 | 0.00 |

MAXIMUM MAST DISPLACEMENTS:


| 06-12048.txt |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 232.0 | 2.248 G | 2.147 J | 0.029 s | 1.469 G | 1.415 J | 0.018 |
| 228.0 | 2.146 G | 2.048 J | 0.028 s | 1.457 G | 1.403 J | 0.018 |
| 224.0 | 2.044 G | 1.950 J | 0.026 s | 1.438 G | 1.384 J | 0.018 D |
| 220.0 | 1.944 G | 1.854 J | 0.025 s | 1.412 G | 1.359 J | 0.018 |
| 216.0 | 1.845 G | 1.759 J | 0.024 s | 1.385 G | 1.332 J | 0.018 |
| 212.0 | 1.750 G | 1.667 J | 0.023 s | 1.347 G | 1.296 J | 0.018 D |
| 208.0 | 1.657 G | 1.578 | 0.022 s | 1.300 G | 1.250 J | 0.018 |
| 204.0 | 1.566 G | 1.491 J | 0.021 s | 1.241 G | 1.192 J | 0.018 |
| 200.0 | 1.481 G | 1.409 J | 0.020 s | 1.171 G | 1.125 J | 0.018 |
| 196.0 | 1.401 G | 1.332 J | 0.019 s | 1.114 G | 1.069 J | 0.018 |
| 192.0 | 1.326 G | 1.260 J | 0.018 s | 1.061 G | 1.018 J | 0.018 |
| 188.0 | 1.253 G | 1.190 J | 0.018 s | 1.010 G | 0.968 J | 0.018 |
| 184.0 | 1.184 G | 1.124 J | 0.017 S | 0.962 G | 0.922 J | 0.018 |
| 180.0 | 1.118 G | 1.061 J | 0.016 s | 0.917 G | 0.878 J | 0.018 |
| 176.0 | 1.056 G | 1.001 J | 0.016 s | 0.873 G | 0.835 J | 0.018 |
| 172.0 | 0.996 G | 0.944 J | 0.015 s | 0.830 G | 0.794 J | 0.018 |
| 168.0 | 0.939 G | 0.890 J | 0.014 S | 0.789 G | 0.754 J | 0.018 |
| 164.0 | 0.885 G | 0.838 J | 0.014 s | 0.749 G | 0.715 J | 0.018 |
| 160.0 | 0.834 G | 0.789 J | 0.013 s | 0.709 G | 0.677 J | 0.018 |
| 155.0 | 0.773 G | 0.731 J | 0.013 s | 0.670 G | 0.639 J | 0.018 |
| 150.0 | 0.716 G | 0.677 J | 0.012 s | 0.632 G | 0.603 J | 0.018 D |
| 145.0 | 0.661 G | 0.624 J | 0.012 s | 0.595 G | 0.566 J | 0.018 D |
| 140.0 | 0.610 G | 0.576 J | 0.011 s | 0.558 G | 0.5313 | 0.018 D |
| 135.0 | 0.562 G | 0.530 J | 0.011 s | 0.528 G | 0.502 J | 0.016 D |
| 130.0 | 0.516 G | 0.487 J | 0.010 w | 0.499 G | 0.474 J | 0.014 D |
| 125.0 | 0.473 G | 0.445 J | 0.010 s | 0.470 G | 0.446 J | 0.013 |
| 120.0 | 0.432 G | 0.407 J | 0.009 w | 0.441 G | 0.419 J | 0.011 D |
| 115.0 | 0.393 G | 0.370 J | 0.009 s | 0.413 G | 0.391 J | 0.010 D |
| 110.0 | 0.358 G | 0.337 J | 0.008 W | 0.385 G | 0.365 J | 0.009 D |
| 105.0 | 0.324 G | 0.305 J | 0.008 S | 0.357 G | 0.338 J | 0.008 D |
| 100.0 | 0.293 G | 0.2763 | 0.007 W | 0.330 G | 0.312 J | 0.007 D |
| 93.3 | 0.255 G | 0.239 J | 0.007 s | 0.304 G | 0.287 J | 0.006 D |
| 86.7 | 0.220 G | 0.207 J | 0.007 W | 0.279 G | 0.263 J | 0.006 |
| 80.0 | 0.188 G | 0.176 J | 0.006 s | 0.254 G | 0.239 J | 0.005 D |
| 73.3 | 0.158 G | 0.148 J | 0.006 W | 0.229 G | 0.216 J | 0.004 D |
| 66.7 | 0.131 G | 0.123 J | 0.005 S | 0.204 G | 0.193 J | 0.004 D |
| 60.0 | 0.107 G | 0.100 J | 0.005 W | 0.180 G | 0.170 J | 0.003 D |
| 53.3 | 0.086 G | 0.081 J | 0.004 s | 0.159 G | 0.150 J | 0.003 D |
| 46.7 | 0.068 G | 0.063 J | 0.004 w | 0.139 G | 0.131 J | 0.002 D |
| 40.0 | 0.052 G | 0.048 J | 0.003 s | 0.119 G | 0.112 J | 0.002 D |
| 33.3 | 0.038 G | 0.035 J | 0.003 M | 0.098 G | 0.093 J | 0.002 D |
| 26.7 | 0.025 G | 0.023 J | 0.002 s | 0.078 G | 0.073 J | 0.002 D |
| 20.0 | 0.016 G | 0.014 J | 0.002 M | 0.058 G | 0.055 J | 0.001 D |
| 10.0 | 0.006 G | 0.005 J | 0.001 P | 0.029 G | 0.027 J | 0.001 D |
| 0.0 | 0.000 A | 0.000 A | 0.000 A | 0.000 A | 0.000 A | 0.000 A |

MAXIMUM ANTENNA ROTATIONS:

| $\begin{gathered} \text { ELEV } \\ \mathrm{ft} \end{gathered}$ | ANT <br> AZI | $\begin{aligned} & \text { ANT } \\ & \text { TYPE } \end{aligned}$ | --------BEAM | M DEFLECTIONS (DEG) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | PITCH | YAW | ROLL | TOTAL |
| 140.0 | 0.0 | HP | -0.531 J | 0.018 D | -0.558 | 0.531 |

MAXIMUM TENSION IN MAST MEMBERS (kip)

| ELEV |  |  |  |
| ---: | :---: | :---: | :---: |
| ft | LEGS | DIAG | HORIZ | BRACE


| 06-12048.txt |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 236.0 | 0.23 | 0.79 | $F$ | 0.01 A |  | $0.00 \mathrm{~A}$ |  |
|  | 2.68 | 1.01 | B |  |  |  |  |
| 232.0 |  |  |  | 0.00 E |  | 0.00 A |  |
|  | 5.45 | 1.08 | H |  |  | 0.00 A |  |
| 228.0 | 8.67 | 1.29 | J |  |  |  |  |
| 224.0 | 12.18 | 1.36 | H | 0.01 E |  | 0.00 A |  |
| 220.0 | 16.06 | 2.20 | F | 0.20 M |  | 0.00 A |  |
| 216.0 | 16.06 | 2.20 | F | 0.03 A |  | 0.00 A |  |
|  | 22.93 | 2.49 | $F$ |  |  |  |  |
| 212.0 | 29.17 | 2.49 | H | 0.01 I |  | 0.00 A |  |
| 208.0 | 36.79 A | 2.76 | B | 0.01 A |  | 0.00 A |  |
| 204.0 | 43.76 | 2.77 | H | 0.02 A |  | 0.00 A |  |
| 200.0 | 43.76 | 2.77 | H | 0.18 G |  | 0.00 A |  |
|  | 48.02 | 1.34 | A |  |  |  |  |
| 196.0 | 51.76 | 1.40 | G | 0.03 A |  | 0.00 A |  |
| 192.0 | 53.47 | 1.13 | A | 0.00 |  | 0.00 A |  |
| 188.0 | 56.36 A |  |  | 0.02 |  | 0.00 A |  |
| 184.0 |  | 1.22 | G | 0.01 A |  | 0.00 A |  |
|  | 57.98 | 1.04 | A |  |  |  |  |
| 180.0 | 59.98 | 1.53 | B | 0.01 M |  | 0.00 A |  |
| 176.0 | 62.82 | 1.47 | B | 0.01 A |  | 0.00 A |  |
| 172.0 |  |  |  | 0.01 M |  | 0.00 A |  |
| 168.0 | 65.65 | 1.48 | B | 0.01 E |  | 0.00 A |  |
|  | 68.17 | 1.45 | H |  |  |  |  |
| 164.0 | 70.70 | 1.48 | J | 0.01 A |  | 0.00 A |  |
| 160.0 | 72.79 | 2.02 | H | 0.00 Q |  | 0.00 A |  |
| 155.0 | 76.77 | 2.08 | J | 0.01 A |  | 0.00 A |  |
| 150.0 |  |  |  | 0.00 M |  | $0.00$ |  |
|  | 80.02 | 2.01 | I |  |  |  |  |
| 145.0 | 83.57 | 2.08 | H | 0.01 |  | $0.00 \mathrm{~A}$ |  |
| $\begin{aligned} & 140.0 \\ & 135.0 \end{aligned}$ | 86.80 | 2.44 | H | 0.00 |  | 0.00 A |  |
|  | 90.25 | 2.78 | L |  | G | 0.00 | A |
| 130.0 | 93.71 |  |  | 0.00 H |  | 0.00 A |  |
| 125.0 | 93.71 | 2.46 |  | 0.01 |  | 0.00 A |  |
|  | 96.70 | 2.78 | L |  |  |  |  |
| 120.0 | 100.14 | 2.52 | H | 0.00 |  | 0.00 A |  |
| 115.0 | 103.00 A | 2.83 | L | 0.01 |  | 0.00 A |  |
| 110.0 | 106.27 |  |  | 0.00 |  | 0.00 A |  |
| 105.0 | 106. 27 |  | H | 0.00 | M | 0.00 | A |
|  | 109.07 A | 2.91 | L |  |  |  |  |

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MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

| $\begin{array}{r} \text { ELEV } \\ \mathrm{ft} \end{array}$ | LEGS | DIAG |  | HORIZ |  | BRACE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 240.0 |  |  |  | -0.18 | A | 0.00 A |
|  | -1.910 | -0.87 | F |  |  |  |
| 236.0 |  |  |  | 0.00 | G | 0.00 A |
| 232.0 | -4.73 G | -0.94 | H | 0.00 | K | 0.00 A |
|  | -7.50 G | -1.15 | H |  |  |  |
| 228.0 |  | -----1. |  | 0.00 | A | 0.00 A |
| 224.0 | -11.22 G | -1.22 | H |  |  |  |
| 224.0 | -14.80 G | -1.43 | H | -0.01 | G | 0.00 A |
| 220.0 |  |  |  | -0.05 | K | 0.00 A |
|  | -20.58 G | -2.37 | G |  |  |  |
| 216.0 |  |  |  | -0.03 | C | 0.00 A |
| 212.0 | -28.36G | -2.35 | H | -0.01 | C | 0.00 A |
|  | -34.62 G | -2.63 | H |  |  |  |
| 208.0 |  |  |  | 0.00 | C | 0.00 A |
|  | -43.18 G | $-2.63$ | H |  |  |  |
| 204.0 | -50.24 G | -2.90 | B | -0.02 | G | 0.00 A |
| 200.0 | 50.24 G | 2.90 | B | -0.18 | I | 0.00 A |

06-12048.txt

| 196.0 |  |  |  | -0.03 |  | 0.00 A |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | -61.25 G | -1.18 | A |  |  |  |
| 192.0 |  |  |  | 0.00 | G | 0.00 A |
| 188.0 | -62.85 G | -1.34 | G | -0.02 |  | 0.00 A |
|  | $-66.52 \mathrm{G}$ | -1.04 | A |  |  |  |
| 184.0 |  |  |  | -0.01 | G | 0.00 A |
| 180.0 | -68.20 G | -1.23 | 5 | -0.01 |  | 0.00 A |
|  | $-72.46 \mathrm{G}$ | -1.51 | B |  |  |  |
| 176.0 |  |  |  | -0.01 | G | 0.00 A |
| 172.0 | -75.63 G | -1.50 | B | -0.01 | G | 0.00 A |
|  | -78.96 G | -1.46 | B |  |  |  |
| 168.0 | 85 | -1.48 | B | -0.01 | $K$ | 0.00 A |
| 164.0 | -8.1.85 G |  | B | -0.01 | G | 0.00 A |
| 160.0 | -84.88 G | -1.47 | J | 0.00 | C | 0.00 A |
|  | $-89.04 \mathrm{G}$ | -2.11 | G |  |  |  |
| 155.0 | -93.84 G | -2.01 | H | -0.01 | G | 0.00 A |
| 150.0 |  |  |  | 0.00 | C | 0.00 A |
| . | -97.58 K | -2.08 | H | -0.01 |  | A |
|  | -101.93 G | -2.03 | L |  |  |  |
| 140.0 | -106.08 G | -2.81 | , | 0.00 | A | 0.00 A |
| 135.0 | -106.08 G |  | L | -0.01 | J | 0.00 A |
| 130.0 | -110.20 G | -2.45 | H | 0.00 |  | 0.00 A |
|  | -114.19 G | -2.78 | L |  |  |  |
| 125.0 | -118.16 G | -2.49 | H | 0.00 | J | 0.00 A |
| 120.0 | -118.16 G |  | H | 0.00 | B | 0.00 A |
| 115.0 | -122.00 G | -2.81 | L | 00 | J | 0.00 A |
|  | -125.86 G | -2.57 | H |  |  |  |
| 110.0 | -129.63 G | -2.88 | L | 0.00 | B | 0.00 A |
| 105.0 |  |  |  | 0.00 | J | 0.00 A |
| 100.0 | -133.43 G | -2.68 | H | 0.00 | K | 0.00 A |
| 93.3 | -137.78 G | -3.12 | L |  |  |  |
| 93.3 | $-142.82 \mathrm{G}$ | -2.96 | H | 0.00 | G | 0.00 A |
| 86.7 |  |  |  | 0.00 | K | 0.00 A |
| 80.0 | -147.78 G | -3.25 | L | 0.00 | G | 0.00 A |
| 73.3 | -152.77 G | -3.13 | H |  |  |  |
|  | -157.70 G | -3.40 | L |  |  |  |
| 66.7 | -162.65 G | -3.30 | H | 0.00 | G | 0.00 A |
| 60.0 |  |  |  | 0.00 | K | 0.00 A |
| 53.3 | -167.61 G | -3.57 | L | 0.00 | G | 0.00 A |
| 46.7 | -172.66 G | -3.50 | H |  |  |  |
|  | -177.69 G | -3.76 | L | 0.00 | K | 0.00 A |
| 40.0 |  |  |  | 0.00 | G | 0.00 A |
| 33.3 | -182.75 G | -3.70 | H | 0.00 | C | 0.00 A |


|  | -187.78 G | -3.94 B | $06-12048 . \mathrm{txt}$ |  |
| ---: | :--- | ---: | ---: | ---: |
| 26.7 | -192.83 G | -3.89 H | 0.00 G | 0.00 A |
| 20.0 | -19.8 G | -5.35 L | -4.11 B | 0.00 L |
| 10.0 | -195.82 G | -4.26 B | 0.00 V |  |
| 0.0 | -203.47 G | -5.60 L | 0.00 A | 0.00 A |

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)


DRILLED STRAIGHT PIER DESIGN BY SABRE COMMUNICATIONS CORP.
Tower Description $240^{\prime}$ SUR
Customer Name BLUEGRASS WIRELESS LLC
Job Number 06-12048
Date 12/7/2005
Engineer REB
Uplift (kips)
Download (kips)
Shear (kips)
Allowable End Bearing (ks)
Water Table Below Grade (ft)
Bolt Circle Diameter (in)
Top of Concrete to Top
of Bottom Threads (in)
Pier Diameter ( ft )
Ht. Above Ground (ft)
Pier Length Below Ground (ft)
Quantity of Bars
Bar Diameter (in)
Tie Bar Diameter (in)
Spacing of Ties (in)
Area of Bars (in ${ }^{2}$ )
Spacing of Bars (in) fc (ki) fy (ki)
Unit Wt. of Soil (kef)
Unit Wt. of Concrete (kef)
Load Factor
S.F. of Concrete
S.F. of Skin Friction

Volume of Concrete ( $\mathrm{yd}^{3}$ )
Skin Friction Factor for Uplift Ignore Bottom Length in Download?


## Download:

Net Weight of Concrete (kips) Allowable End Bearing (kips) Allowable Skin Friction (kips) Allowable Download (kips)


DRILLED STRAIGHT PIER DESIGN BY SABRE COMMUNICATIONS CORP. (CONTINUED) Uplift:
Allowable Skin Friction (kips) 361.9
WC, Weight of Concrete (kips) 19.6
$\mathrm{W}_{\mathrm{R}}$, Soil Resistance (kips) 330.0
( $\mathrm{W}_{\mathrm{R}} / 2$ ) $+(\mathrm{Wc} / 1.25$ ) (kips)
180.7
$\left(W_{R}+W_{C}\right) / 1.5(\mathrm{kips}) \quad 233.1$
Allowable Uplift (kips)


$\phi V_{c}=\phi 2\left(1+N_{u} /\left(500 A_{g}\right)\right) P_{c}^{1 / 2} \mathrm{~b}_{\mathrm{w}} \mathrm{d}(\mathrm{kips})$
Maximum Spacing (in)

49.5


$$
\begin{equation*}
* * * V_{s} \max =4 f_{c}^{1 / 2} b_{w} d(k i p s) \tag{22維数}
\end{equation*}
$$

(Only if Shear Ties are Required)
*** Ref. To Spacing Requirements ACl 11.5.4.3
Anchor Bolt PullOut:
$\phi P_{\mathrm{c}}=\phi \lambda(2 / 3) \mathrm{f}_{\mathrm{c}}^{1 / 2}\left(2.8 \mathrm{~A}_{\text {SLOPE }}+4 \mathrm{~A}_{\text {FLAT }}\right)$
Rebar Development Length (in)




| Condition | 1 is $O K, 0$ Fails |
| :---: | :---: |
| Download | 1 |
| Uplift | 1 |
| Area of Steel | 1 |
| Shear | 1 |
| Anchor Bolt Pull-Out | 1 |
| Interaction Diagram Visual Check | 1 |



Pier Design (Continued) :
Maximum Spacing (in)
11.22 (Only if Shear Ties are Required)
*** Ref. To Spacing Requirements ACI 11.5.4.3

Anchor Bolt Pull-Out:
$\phi P_{\mathrm{c}}=\phi \lambda(2 / 3) \mathrm{f}_{\mathrm{c}}^{1 / 2}\left(2.8 \mathrm{~A}_{\text {SLOPE }}+4 \mathrm{~A}_{\text {FLAT }}\right)$
Pier Rebar Development Length (in)
Two-Way Shear Action:



1.23
0.00370
0.85

Maximum Steel Ratio
0.0160
0.0018

Required Development in Pad (in)
$35-22$

| Condition | 1 is OK, O Fails |
| :---: | :---: |
| Maximum Soil Bearing Pressure | 1 |
| Maximum Width of Pad | 1 |
| Uplift | 1 |
| Pier Area of Steel | 1 |
| Pier Shear | 1 |
| Anchor Bolt Pull-Out | 1 |
| Two-Way Shear Action | 1 |
| One-way Shear | 1 |
| Flexure | 1 |
| Steel Ratio | 1 |
| Length of Development in Pad | 1 |

# GEOTECHNICAL ENGINEERING REPORT <br> PROPOSED BRONSTON COMMUNICATION TOWER BRONSTON, PULASKI COUNTY, KENTUCKY 

TERRACON PROJECT NO.: 57057364G
November 7, 2005

Prepared For:
RSB DESIGN
Louisville, Kentucky

Prepared by:
1Terracon
Louisville, Kentucky

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## Re: Geotechnical Engineering Report Proposed Bronston Communication Tower Bronston, Pulaski County, Kentucky Terracon Project No.: 57057364G

Dear Mr. Becker:

We are submitting, herewith, the results of our subsurface exploration for the referenced project. The purpose of this exploration was to obtain information on subsurface conditions at the proposed project site and, based on this information, to provide recommendations regarding the design and construction of foundations for the proposed tower.

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

Sincerely,
Tlerracon


Shaikh Z. Rahman, EIT. Staff Engineer

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# GEOTECHNICAL ENGINEERING REPORT 

# PROPOSED BRONSTON COMMUNICATION TOWER BROSTON, PULASKI COUNTY, KENTUCKY 

TERRACON PROJECT NO.: 57057364G
November 7, 2005

### 1.0 INTRODUCTION

The purpose of this report is to describe the subsurface conditions encountered in the boring, analyze and evaluate the test data, and provide recommendations regarding the design and construction of foundations and earthwork for the proposed tower. One (1) boring extending to a depth of about 18 feet below the existing ground surface was drilled at the site. An individual boring log and a boring location plan are included with this report.

### 2.0 PROJECT DESCRIPTION

Terracon understands the proposed project will consist of the construction of a 240 -foot self supporting lattice tower. Exact tower loads are not available, but based on our past experience are anticipated to be as follows:

| Vertical Load: | 600 kips |
| :--- | ---: |
| Horizontal Shear: | 80 kips |
| Uplift: | 500 kips |

A small, lightly loaded equipment building will also be constructed. Wall and floor loads for this building are not anticipated to exceed 1 kip per linear foot and 100 pounds per square foot, respectively. Existing and proposed grades within the tower leasehold area were not available as of this writing. We assumed minimal cut and fill will be required to level the site for construction.

### 3.0 EXPLORATION PROCEDURES

### 3.1 Field Exploration

The subsurface exploration consisted of drilling and sampling one (1) boring at the site to a depth of about 18 feet below existing grade. The boring was advanced at the center of the tower, staked by the project surveyor. Ground surface elevation was not available at the time of this writing and has been omitted from the boring log. The location of the boring should be considered accurate only to the degree implied by the means and methods used to define them.

The boring was drilled with a truck-mounted rotary drill rig using hollow stem augers to advance the borehole. Representative soil samples were obtained by the split-barrel
sampling procedure in general accordance with the appropriate ASTM standard. In the split-barrel sampling procedure, the number of blows required to advance a standard 2 -inch O.D. split-barrel sampler the last 12 inches of the typical total 18 -inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance (SPT) value ( N -Value). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils. The sampling depths, penetration distance, and standard penetration resistance values are shown on the boring log. The samples were sealed and delivered to the laboratory for testing and classification.

Auger refusal was encountered at a depth of about 8 feet below the existing ground surface. The boring was extended into the refusal materials using a diamond bit attached to the outer barrel of a double core barrel. The inner barrel collected the cored material as the outer barrel was rotated at high speeds to cut the rock. The barrel was retrieved to the surface upon completion of each drill run. Once the core samples were retrieved, they were placed in a box and logged. The rock was later classified by an engineer and the "percent recovery" and rock quality designation (RQD) was determined.

The "percent recovery" is the ratio of the sample length retrieved to the drilled length, expressed as a percent. An indication of the actual in-situ rock quality is provided by calculating the sample's RQD. The RQD is the percentage of the length of broken cores retrieved which have core segments at least 4 inches in length compared to each drilled length. The RQD is related to rock soundness and quality as illustrated below:

Table 1 - Rock Quality Designation (RQD)

| Relation of RQD and In-situ Rock Quality |  |
| :---: | :---: |
| RQD (\%) | Rock Quality |
| $90-100$ | Excellent |
| $75-90$ | Good |
| $50-75$ | Fair |
| $25-50$ | Poor |
| $0-25$ | Very Poor |

A field $\log$ of the boring was prepared by a subcontract driller. This log included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. The final boring log included with this report represents an interpretation of the driller's field log and a visual classification of the soil samples made by the Geotechnical Engineer.

### 3.2 Laboratory Testing

The samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring log are in accordance with the enclosed General Notes and the Unified Soil Classification System. Estimated group symbols according to the Unified Soil Classification System are given on the boring log. A brief description of this classification system is attached to this report.

The laboratory testing program consisted of performing water content tests and an Atterberg Limits test on representative soil samples. A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of the samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone. Information from these tests was used in conjunction with field penetration test data to evaluate soil strength in-situ, volume change potential, and soil classification. Results of these tests are provided on the boring log.

Classification and descriptions of rock core samples are in accordance with the enclosed General Notes, and are based on visual and tactile observations. Petrographic analysis of thin sections may indicate other rock types. Percent recovery and rock quality designation (RQD) were calculated for these samples and are noted at their depths of occurrence on the boring log.

### 4.0 EXPLORATORY FINDINGS

### 4.1 Subsurface Conditions

Conditions encountered at the boring location are indicated on the boring log. Stratification boundaries on the boring log represent the approximate location of changes in soil types and the transition between materials may be gradual. Water levels shown on the boring log represent the conditions only at the time of our exploration. Based on the results of the boring, subsurface conditions on the project site can be generalized as follows.

In general our boring encountered about 3 inches of topsoil overlying native fat clays (CH) to a depth of about 6 feet below grade. Under the clay stratum, highly weathered limestone was encountered, extending to auger refusal at about 8 feet below grade. The clays exhibited a very stiff to hard consistency based on standard penetration test ( N ) values in the range of 29 to 30 blows per foot (bpf). The underlying highly weathered limestone was hard based on an N -value of over 50 bpf .

Auger refusal was encountered at a depth of about 8 feet below existing grade. Rock coring techniques were employed to sample the refusal materials. The core samples consist of slightly weathered, hard, closely jointed limestone. Core recovery was 87 percent. Bedrock
quality is considered fair as defined by an RQD value of 69 percent. Coring operations were terminated at a depth of approximately 18 feet below grade.

### 4.2 Site Geology

Based on a review of the Frazer, Kentucky Geologic Quadrangle Map (1975), the site is underlain by the Kidder Limestone member of the Monteagle Limestone formation. The Kidder limestone member is made up of limestone, siltstone and shale. The limestone is medium to light-bluish gray and yellowish gray, micro-grained to medium-grained, thick bedded with interbedded clay shale. The Kidder limestone member can be 105 to 125 feet thick and the Monteagle limestone formation can be up to 190 feet thick.

It should be noted that the site is underlain by a limestone formation that is highly susceptible to dissolution along joints and bedding planes in the rock mass. This results in voids and solution channels within the rock strata and a highly irregular bedrock surface. The weathering of the bedrock and subsequent collapse or erosion of the overburden into these openings results in what is referred to as a karst topography. Any construction in karst topography is accompanied by some degree of risk for future internal soil erosion and ground subsidence that could affect the stability of the proposed structures. Our review of the available topographic and geologic mapping did not note any sinkholes on or around the site, or within a 1 mile radius of the property. Furthermore, the boring drilled at the site did not disclose any obvious signs of impending overburden collapse.

### 4.3 Groundwater Conditions

No groundwater was encountered during the auger drilling portion of the borehole. Water was used to advance the borehole during rock coring operations. The introduction of water into the borehole precluded obtaining accurate groundwater level readings at the time of drilling operations. Long term observation of the groundwater level in monitoring wells, sealed from the influence of surface water, would be required to obtain accurate groundwater levels on the site.

It should be recognized that fluctuations of the groundwater table may occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the boring was performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring log. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

### 5.0 ENGINEERING RECOMMENDATIONS

Based on the encountered subsurface conditions, the proposed tower can be either founded on drilled piers or on a mat foundation. The equipment building may be supported on shallow
spread footings. Design recommendations for the tower drilled piers and mat foundation as well as shallow footings for the equipment building are presented in the following paragraphs.

### 5.1 Tower Foundation

Tower Foundations - Drilled Pier Alternative: The proposed tower can be supported on drilled pier foundations. Based on the results of the boring, the following tower foundation design parameters have been developed:

## Drilled Pier Foundation Design Parameters

| Depth * <br> (feet) | Description <br> $* *$ | Allowable <br> Skin <br> Friction <br> (psf) | Allowable <br> End <br> Bearing <br> Pressure <br> (psf) | Allowable <br> Passive <br> Pressure <br> (psf) | Internal <br> Angle of <br> Friction <br> (Degree) | Cohesion <br> (psf) | Lateral <br> Subgrade <br> Modulus <br> (pci) | Strain, <br> $\mathbf{R}_{50}$ <br> (in/in) |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $0-3$ | Topsoil and <br> Fat Clay | Ignore | Ignore | Ignore | - | - | Ignore | Ignore |
| $3-6$ | Fat Clay | 475 | 4,000 | 2,000 | 0 | 2,000 | 160 | 0.006 |
| $6-8$ | Weathered <br> Limestone | 650 | 8,000 | 4,000 | 0 | 4,000 | 320 | 0.004 |
| $8-18$ | Competent <br> Limestone <br> $* * *$ | 6,000 | 20,000 | 12,500 | 0 | 120,000 | 3,000 | 0.00001 |

* Pier inspection is recommended to adjust pier length if variable soil/rock conditions are encountered.
** A total unit weight of 120 and 150 pcf can be estimated for the clays and limestone, respectively.
*** The pier should be embedded a minimum of 3 feet into competent limestone to mobilize these higher rock strength parameters. Furthermore, it is assumed the rock socket will be extended using coring techniques rather than blasting/shooting.

The above indicated cohesion, friction angle, lateral subgrade modulus and strain values have no factors of safety, and the allowable skin friction and the passive resistances have factors of safety of 2 . The cohesion, internal friction angle, lateral subgrade modulus and strain values given in the above table are based on the boring, published correlation values and Terracon's past experience with similar soil/rock types. These values should, therefore, be considered approximate. To mobilize the higher rock strength parameters, the pier should be socketed at least 3 feet into competent bedrock. Furthermore, it is assumed that the rock socket is developed using coring rather than blasting techniques. The allowable end bearing pressure provided in the table has an approximate factor of safety of at least 3 . Total settlement of drilled piers designed using the above parameters is not anticipated to exceed $1 / 2$ inch.

The upper 3 feet of topsoil and fat clay should be ignored due to the potential affects of frost action and construction disturbance. To avoid a reduction in lateral and uplift resistance caused by variable subsurface conditions and or bedrock depths, the drawings should instruct the contractor to notify the engineer if subsurface conditions significantly different than encountered in the boring are disclosed during drilled pier installation. Under these circumstances, it may be necessary to adjust the overall length of the pier. To facilitate these

Proposed Bronston Communication Tower
Bronston, Pulaski County, Kentucky
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adjustments and assure that the pier is embedded in suitable materials, it is recommended that a Terracon representative observe the drilled pier excavation.

If a bedrock socket is required, it is recommended that a minimum pier length and minimum competent rock socket length be stated on the design drawings. Competent bedrock was encountered in the boring below a depth of about 8 feet, but could vary between tower legs or if the tower is moved from the location of the boring. If the tower center is moved from the planned location, Terracon should be notified to review the recommendations and determine whether an additional boring is required. To facilitate pier length adjustments that may be necessary because of variable rock conditions, it is recommended that a Terracon representative observe the drilled pier excavation.

A drilled pier foundation should be designed with a minimum shaft diameter of 30 inches to facilitate clean out and possible dewatering of the pier excavation. Temporary casing may be required during the pier excavation in order to control possible groundwater seepage and support the sides of the excavation in weak soil zones. Care should be taken so that the sides and bottom of the excavations are not disturbed during construction. The bottom of the shaft should be free of loose soil or debris prior to reinforcing steel and concrete placement.

A concrete slump of at least 6 inches is recommended to facilitate temporary casing removal. It should be possible to remove the casing from a pier excavation during concrete placement provided that the concrete inside the casing is maintained at a sufficient level to resist any earth and hydrostatic pressures outside the casing during the entire casing removal procedure.

Tower Foundations - Mat Foundation Alternative: If desired, a mat foundation can be used to support the proposed tower. The mat foundation can be designed using the following natural soil/engineered fill parameters. These parameters are based on the findings of the boring, a review of published correlation values and Terracon's experience with similar soil conditions. These design parameters also assume that the base of the mat foundation will rest on natural soils or well-graded crushed stone that is compacted and tested on a full time basis.

## Mat Foundation Design Parameters

| Depth <br> (feet) | Description | Allowable Contact <br> Bearing Pressure (psf) | Allowable Passive <br> Pressure (psf) | Coefficient of <br> Friction, Tan $\delta$ | Vertical Modulus of <br> Subgrade Reaction (pci) |
| :--- | :--- | :---: | :---: | :---: | :---: |
| $0-2$ | Topsoil and <br> Fat Clays | Ignore | Ignore | - |  |
| $\geq 2$ | Fat Clay or <br> Crushed <br> Stone Fill | 4,000 | Ignore | 0.35 | 150 |

To assure that soft soils are not left under the mat foundation, it is recommended that a geotechnical engineer observe the foundation subgrade prior to concrete placement. Provided
the above recommendations are followed, total mat foundation settlements are not anticipated to exceed about 1 inch. Differential settlement should not exceed 50 percent of the total settlement. Differential settlements could reach 75 percent or more of the total settlement value, depending on the finished grades, any fill placement, and varying bedrock elevations.

### 5.2 Equipment Building Foundations

The proposed equipment shed may be supported on shallow footings bearing on stiff natural soils. The equipment building foundations should be dimensioned using a net allowable soil bearing pressure of 3,000 pounds per square foot (psf). In using net allowable soil pressures for footing dimensioning, the weight of the footings and backfill over the footings need not be considered. Furthermore, the footings should be at least 12 inches wide and a minimum of 1.5 feet square.

The geotechnical engineer or a qualified representative should observe the foundation excavations to verify that the bearing materials are suitable for support of the proposed loads. If, at the time of such observation, any soft soils are encountered at the design foundation elevation, the excavations should be extended downward so that the footings rest on stiff soils. If it is inconvenient to lower the footings, the proposed footing elevations may be re-established by backfilling after the undesirable material has been removed.

The recommended soil bearing value should be considered an upper limit, and any value less than that listed above would be acceptable for the foundation system. Using the value given, total settlement would be about 1 inch or less with differential settlements being less than 75 percent of total settlement. Footings should be placed at a depth of 2.0 feet, or greater, below finished exterior grade for protection against frost damage.

### 5.3 Parking and Drive Areas

The drive that accesses the site will be surfaced with crushed stone. Parking and drive areas that are surfaced with crushed stone should have a minimum thickness of 6 inches and be properly placed and compacted as outlined herein. The crushed stone should meet Kentucky Transportation Cabinet specifications and applicable local codes.

A paved section consisting only of crushed graded aggregate base course should be considered a high maintenance section. Regular care and maintenance is considered essential to the longevity and use of the section. Site grades should be maintained in such a manner as to allow for adequate surface runoff. Any potholes, depressions or excessive rutting that may develop should be repaired as soon as possible to reduce the possibility of degrading the soil subgrade.

### 5.4 Site Preparation

Site preparation should begin with the removal of any topsoil, loose, soft or otherwise unsuitable materials from the construction area. The geotechnical engineer should evaluate the actual stripping depth, along with any soft soils that require undercutting at the time of construction.

Any fill and backfill placed on the site should consist of approved materials that are free of organic matter and debris. Suitable fill material should consist of either granular material or low-plasticity cohesive soil (equipment building and roads only). Low-plasticity cohesive soil should have a liquid limit of less than 45 percent and a plasticity index of less than 25 percent. The on site soils are considered marginal for re-use as fill due to their high plasticity. It is recommended that during construction these soils should be further tested and evaluated prior to use as fill. Fill should not contain frozen material and it should not be placed on a frozen subgrade.

The fill should be placed and compacted in lifts of 9 inches or less in loose thickness. Fill placed below structures or used to provide lateral resistance should be compacted to at least 98 percent of the material's maximum standard Proctor dry density (ASTM D-698). Fill should be placed, compacted, and maintained at moisture contents within minus 1 to plus 3 percent of the optimum value determined by the standard Proctor test.

The geotechnical engineer should be retained to monitor fill placement on the project and to perform field density tests as each lift of fill is placed in order to evaluate compliance with the design requirements. Standard Proctor and Atterberg limits tests should be performed on the representative samples of fill materials before their use on the site.

### 6.0 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 testing and observation during excavation, grading, foundation and construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the boring performed at the indicated location and from other information discussed in this report. This report does not reflect variations that may occur 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.

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 has been 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




## GENERAL NOTES

## DRILLING \& SAMPLING SYMBOLS:

SS: Split Spoon - $1-3^{3} / 8^{\prime \prime} \mid$ D., 2" O.D., unless otherwise noted
ST: Thin-Walled Tube-2" O.D., unless otherwise noted
RS: Ring Sampler - 2.42"I.D., 3" O.D., unless otherwise noted
DB: Diamond Bit Coring-4", N, B
BS: Bulk Sample or Auger Sample

| HS: | Hollow Stem Auger |
| :--- | :--- |
| PA: | Power Auger |
| HA: | Hand Auger |
| RB: | Rock Bit |
| WB: | Wash Boring or Mud Rotary |

The number of blows required to advance a standard 2 -inch OD split-spoon sampler (SS) the last 12 inches of the total 18 -inch penetration with a 140 -pound hammer falling 30 inches is considered the "Standard Penetration" or " N -value".

## WATER LEVEL MEASUREMENT SYMBOLS:

| WL: | Water Level | WS: | While Sampling | N/E: Not Encountered |
| :--- | :--- | :--- | :--- | :--- |
| WCl: | Wet Cave in | WD: | While Drilling |  |
| DCl: | Dry Cave in | BCR: | Before Casing Removal |  |
| AB: | After Boring | ACR: After Casing Removal |  |  |

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified 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.

RELATIVE PROPORTIONS OF SAND AND GRAVEL

| Descriptive Term(s) of other | Percent of |
| :---: | :---: |
| constituents | Dry Weight |


| Trace | $<15$ |
| :--- | :---: |
| With | $15-29$ |
| Modifier | $>30$ |

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents

| Trace | $<5$ |
| :--- | :---: |
| With | $5-12$ |
| Modifiers | $>12$ |

RELATIVE DENSITY OF COARSE-GRAINED SOILS

| $\frac{\text { Standard Penetration }}{\text { or } N \text {-value } / \mathrm{SS} \text { ) }}$ |  |
| :---: | :---: |
| $\frac{B l o w s / F \mathbf{t}}{0-3}$ | Relative Density |
| $4-9$ | Very Loose |
| $10-29$ | Loose |
| $30-49$ | Medium Dense |
| $50+$ | Dense |
|  | Very Dense |

GRAIN SIZE TERMINOLOGY
Maior Component
of Sample $\quad$ Particle Size

| Boulders | Over 12 in ( 300 mm ) |
| :---: | :---: |
| Cobbles | 12 in. to 3 in. $(300 \mathrm{~mm}$ to 75 mm$)$ |
| Gravel | 3 in. to \#4 sieve $(75 \mathrm{~mm}$ to 4.75 mm$)$ |
| Sand | $\# 4$ to $\# 200$ sieve $(4.75 \mathrm{~mm}$ to 0.075 mm$)$ |
| Silt or Clay | Passing \#200 Sieve $(0.075 \mathrm{~mm})$ |

## PLASTICITY DESCRIPTION

| Term | Plasticity Index |
| :---: | :---: |
| ${ } }$ | 0 |
| Low | $1-10$ |
| Medium | $11-30$ |
| High | $30+$ |

## GENERAL NOTES

## Sedimentary Rock Classification

## DESCRIPTIVE ROCK CLASSIFICATION:

Sedimentary rocks are composed of cemented clay, silt and sand sized particles. The most common minerals are clay, quartz and calcite. Rock composed primarily of calcite is called limestone; rock of sand size grains is called sandstone, and rock of clay and silt size grains is called mudstone or claystone, siltstone, or shale. Modifiers such as shaly, sandy, dolomitic, calcareous, carbonaceous, etc. are used to describe various constituents. Examples: sandy shale; calcareous sandstone.
LIMESTONE Light to dark colored, crystalline to fine-grained texture, composed of $\mathrm{CaCO}_{3}$, reacts readily with HCl .
DOLOMITE
Light to dark colored, crystalline to fine-grained texture, composed of $\mathrm{CaMg}\left(\mathrm{CO}_{3}\right)_{2}$, harder than limestone, reacts with HCl when powdered.
CHERT

SHALE

SANDSTONE

CONGLOMERATE
Light to dark colored, very fine-grained texture, composed of micro-crystalline quartz ( $\mathrm{SiO}_{2}$ ), brittle, breaks into angular fragments, will scratch glass.
Very fine-grained texture, composed of consolidated silt or clay, bedded in thin layers. The unlaminated equivalent is frequently referred to as siltstone, claystone or mudstone.
Usually light colored, coarse to fine texture, composed of cemented sand size grains of quartz, feldspar, etc. Cement usually is silica but may be such minerals as calcite, iron-oxide, or some other carbonate.
Rounded rock fragments of variable mineralogy varying in size from near sand to boulder size but usually pebble to cobble size ( $1 / 2$ inch to 6 inches). Cemented together with various cementing agents. Breccia is similar but composed of angular, fractured rock particles cemented together.

## PHYSICAL PROPERTIES:

## DEGREE OF WEATHERING

| Slight | Slight decomposition of parent <br> material on joints. May be color <br> change. |
| :--- | :--- |
| Moderate | Some decomposition and color <br> change throughout. |
| High | Rockhighly decomposed, may be ex- <br> tremely broken. |

## HARDNESS AND DEGREE OF CEMENTATION

## Limestone and Dolomite:

Hard
Difficult to scratch with knife.
Moderately
Hard
Can be scratched easily with knife, cannot be scratched with fingernail.
Soft Can be scratched with fingernail.
Shale, Siltstone and Claystone
Hard Can be scratched easily with knife, cannot be scratched with fingernail.
Moderately
Hard
Can be scratched with fingernail.
Soft Can be easily dented but not molded with fingers.

## Sandstone and Conglomerate

Well
Capable of scratching a knife blade.
Cemented
Cemented
Poorly
Cemented

Can be scratched with knife.
Can be broken apart easily with fingers

| BEDDING AND JOINT CHARACTERISTICS |  |  |
| :---: | :---: | :---: |
| Bed Thickness | Joint Spacing | Dimensions |
| Very Thick | Very Wide | $>10^{\prime}$ |
| Thick | Wide | $3^{\prime} \cdot 10^{\prime}$ |
| Medium | Moderately Close | $1^{\prime}-3^{\prime \prime}$ |
| Thin | Close | $2^{\prime \prime} \cdot 1^{\prime \prime}$ |
| Very Thin | Very Close | $4^{\prime \prime}-2^{\prime \prime}$ |
| Laminated | - | $1^{\prime \prime}-4^{\prime \prime}$ |

Bedding Plane A plane dividing sedimentary rocks of the same or different lithology.
Joint Fracture in rock, generally more or less vertical or transverse to bedding, along which no appreciable movement has occurred.
Generally applies to bedding plane with an unspecified degree of weathering.

## SOLUTION AND VOID CONDITIONS

Solid
Vuggy (Pitted) Rock having small solution pits or cavities up to $1 / 2$ inch diameter, frequently with a mineral lining.
Porous Containing numerous voids, pores, or other openings, which may or may not interconnect.
Cavernous

Containing cavities or caverns, sometimes quite large.

## UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests^
Soil Classification
Group
Symbol
Group Name ${ }^{\text {B }}$

| Coarse Grained Soils More than 50\% retained on No. 200 sieve | Gravels <br> More than 50\% of coarse fraction retained on No. 4 sieve | Clean Gravels | $\mathrm{Cu} \geq 4$ and $1 \leq \mathrm{Cc} \leq 3^{\mathrm{E}}$ | GW | Well-graded gravel ${ }^{\text {F }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Less than 5\% fines ${ }^{\text {c }}$ | $\mathrm{Cu}<4 \mathrm{and} / \mathrm{or} 1>\mathrm{Cc}>3^{\mathrm{E}}$ | GP | Poorly graded gravel ${ }^{F}$ |
|  |  | Gravels with Fines | Fines classify as ML or MH | GM | Silty gravel ${ }^{\text {F.G.H }}$ |
|  |  | More than 12\% fines ${ }^{\text {c }}$ | Fines classify as CL or CH | GC | Clayey gravel ${ }^{\text {Fo.H }}$ |
|  | Sands $50 \%$ or more of coarse fraction passes No. 4 sieve | Clean Sands <br> Less than 5\% fines ${ }^{\text {D }}$ | $\mathrm{Cu} \geq 6$ and $1 \leq \mathrm{Cc} \leq 3^{\mathrm{E}}$ | SW | Well-graded sand ${ }^{\prime}$ |
|  |  |  | $\mathrm{Cu}<6 \mathrm{and} /$ or $1>\mathrm{Cc}>3^{\mathrm{E}}$ | SP | Poorly graded sand ${ }^{\prime}$ |
|  |  | Sands with Fines More than $12 \%$ fines ${ }^{\text {D }}$ | Fines classify as ML or MH | SM | Silty sand ${ }^{\text {C.,HJ }}$ |
|  |  |  | Fines Classify as CL or CH | SC | Clayey sand ${ }^{\text {®,4, }}$ |
| Fine-Grained Soils $50 \%$ or more passes the No. 200 sieve | Silts and Clays <br> Liquid limit less than 50 | inorganic | $\mathrm{PI}>7$ and plots on or above "A" lines | CL | Lean clay ${ }^{\text {K1/M }}$ |
|  |  |  | $\mathrm{PI}<4$ or plots below " $\mathrm{A}^{\prime}$ line ${ }^{\text {d }}$ | ML | Silt ${ }^{\text {K.M }}$ |
|  |  | organic | Liquid limit - oven dried $<0.75$ | OL | Organic clay ${ }^{\text {K.L.M. } N}$ |
|  |  |  | Liquid limit - not dried $<0.75$ |  | Organic silt ${ }^{K \_\mu, o}$ |
|  | Silts and Clays Liquid limit 50 or more | inorganic | Pl plots on or above "A" line | CH | Fat clay ${ }^{\text {x.e. }}$ |
|  |  |  | Pl lots below "A" line | M H | Elastic Silt ${ }^{\text {¢, L/ M }}$ |
|  |  | organic | Liquid limit - oven dried $<0.75$ | OH | Organic clay ${ }^{\text {k.LM. }}$ |
|  |  |  | Liquid limit - not dried |  | Organic silt ${ }^{\text {KLM, }}$ |
| Highly organic soils | Primarily organic matter, dark in color, and organic odor |  |  | PT | Peat |

${ }^{\text {A }}$ Based on the material passing the 3 -in. $(75-\mathrm{mm}$ ) sieve
${ }^{\text {B }}$ 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.
${ }^{0}$ 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
${ }^{E} \mathrm{Cu}=\mathrm{D}_{60} / \mathrm{D}_{10} \quad \mathrm{Cc}=\frac{\left(\mathrm{D}_{30}\right)^{2}}{\mathrm{D}_{10} \times \mathrm{D}_{60}}$
${ }^{F}$ If soil contains $\geq 15 \%$ 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.
' If soil contains $\geq 15 \%$ 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.
LIf soil contains $\geq 30 \%$ plus No. 200 predominantly sand, add "sandy" to group name.
M If soil contains $\geq 30 \%$ plus No. 200, predominantly gravel, add "gravelly" to group name.
${ }^{N} \mathrm{PI} \geq 4$ and plots on or above " $A$ " line.

- $\mathrm{PI}<4$ or plots below " $A$ " line.
${ }^{P}$ PI plots on or above " $A^{n}$ line.
- PI plots below " $A$ " line.




# BLUEGRASS CELLULAR 



PROJECT NAME: BRONSTON

## PROJECT NUMBER: BG-043

SITE ADDRESS:
680 JOHN GOVER LN. BRONSTON, KY. 42518

| APPROVAL SIGNATURES |
| :--- |
| BLUEGRASS CELLULAR <br> CONSTRUCTION SUPERVISOR: <br> DATE: <br> CITY REPRESENTATIVE: <br> TITLE: <br> DATE: <br> PROPERTY OWNER/OWNERS: <br> DOWER OWNER/OWNERS: |


| SHEET INDEX |  |  |
| :---: | :---: | :---: |
| SHEET NO. | DESCRIPTION | REVISION |
| TITLE SHEET | TITLE SHEET |  |
| SIIE SURVEY | STIE SURVEY |  |
| GENERAL NOTES | GENERAL NOTES |  |
| ANTENNA NOTES | ANTENNA NOTES |  |
| ANT TNNA DETALLS | ANTENNA DETALIS |  |
| GENERATOR DTLS. | GENERATOR DTLS. |  |
| $\frac{51.1}{\text { A1.0 }}$ | Foundation detall |  |
| $\frac{\text { A1.0 }}{\text { A }}$ | OVERALL STIE PLAN |  |
| $\frac{\text { A1.1 }}{\text { A1.2 }}$ |  |  |
|  | Site Elevation |  |
| ${ }^{\text {A2. } 1}$ |  |  |
| E1.1 | SIIE PLAN-ELECTRICAL |  |
| E1.2 | ELECTRICAL DETALIS |  |
| LYNCOLE | GROUNDING DESIGN |  |
| E2.1 | ELEC. PLAN-GROUNOING |  |
| E2.2 | GROUNDING DETALLS |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

COUNTY: PULASKI

TOWER LATITUDE \& LONGITUDE N 36* 58' $26.37^{\prime \prime} \quad$ W 84* $39^{\prime} 10.07^{\prime \prime}$

## FStan

F.S. Land Company Lond Surveyors and Consulting Engineers po Box 17546 2313/2315 Cittenden Dría


| Fox: $(502)$ ( $535-5868$ ( $836-526$ |
| :--- |

DESIGNED BY


BLUEGRASS CELLULAR
2902 RING ROAD. ELIZABETHTOWN, KY. 42702



CONCREIE GENERAL NOTES:
CONCRERE FOR EUILDINGS, ACl- 301 . .


4. DETALLS FARRICATIN AND PLACING OF RENNORCING SHALL CONFORM

6. FIU SHAL EE 90\% OF MAXIMUM DENSTY AS DETERMMED IN.





10. CONfRM ANCHOR bolt locations wth tower manufacturer

## general notes:

1) THE CONTRACTOR IS RESPONSIEE FOR EQUIPMEN PICK UP
DELUERTO SIE, GRECTON OF TOWER, AND CRANE SET. AL COSTS
ENCURED.

 AMPLE NoTle. 4) THE CONTRACTOR IS RESPONSIBLE FOR CONTACTNG PERSONS
RESPONIELE FOR ANY MATERIALS TESTNG, PLEASE PROVDE AMPLE
 MTH FINAL IEST RESULTS ON ALL MATERIALS TESTNG. IF ANY
PROBEMS ARE FOUN PRIOR TO FNAL RESULTS PLEASE NOTFY A\&E
OR OWNER MMMEDIATELY. 6) THE CONTRACTOR IS RESPONSBLE FOR ANY DAMAGE TO ADJOINING
PROPRT, AN RRPAIRG OR REPLACING WHAT IS NECESSARY PROPERT, AND REPARIN
TO OWNERS APROVAL
 CONTACT A\&E OR OMNER TO VERIF.
B) THE CONTRACTOR TO VERIFY WITH OUNER THAT FAA APPROVAL
HAS BEEN RECEIVED BEFORE STACKING OF TOWER.
2) THE CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY UGHTNG
 TOWR DURNG CNSTRUC
REACHED FNAL HEIGHT.
3) THE CONTRACTOR IS RESPONSIBLE FOR AL ON SITE WORK
MEAS AND MEHOSS, WORK TO BE DONE IN COMPLANCE WTH OSHA
RULES AND REGULATONS.
 to malitain any run off.
4) THE CONTRACTOR RESPONSIBLL FOR ANY SEED AND STRAW
NECESSARY TO DAMAGED AREAS. 13) CONTRACTOR TO GRADE SMOOTH OR REPAR ANY POT HOLES OR
DITCHN ONROPRT
DURING CONSTRUCTON AT COAD HAT HAS OCURERECTORS EXPENCE.

SRADING \& EXCAVATNG NOTES:

1) CONTRACTOR TO COORRINATE WTH PROPERTY OWNER
CONSTRUCTION SCHEDUE TO AVID ANY INERRUPTONS TO
PROPRRTY OWNERS OPERATONS.

## 2) CONTRACTOR TO ENSURE POSITIVE DRAINAGE DURING

 3) ANY DAMAGE TO EXISTING UTUUTES, STRUCTURES,RAOS AN PARKING AEAS TO BE REPAIRED OR REPLACED
TO OUNERS SATSFACTON owers sanisfacton.






## 5) BACK RUUNG:

CLODS OVER $21 / 2^{\prime \prime}$ MAAXIMUM CIEAE. - SHAL EE PLACED MA LIMYERS OF 6 " AND COMPACTED TO


 6) ALL MATERIAL FOR FLL TO BE APPROVED BY ENGINEER
AND AL COMPACTNG TITST TO BE COMPLEED TO SPEC'S AND AL COMPACTING TEST TO BE COMELEIED TO SPECC'S
ALL COMPACTNG RESULTS TO BE TUNNED OVER TO OWER.
 MATREIAL SUCH AS, TRASH, DEBRIS, VEGETATON AND SO
FORTH COMPLEET.
8) ANY EXCAVATNG IN WHICH CONCREEE IS TO BE PLACED
SHAL
BE SUBSTANTALLY HORIZONTAL ON UNOISTURBED AND UNROZZENTANIALY HORIZONTAL ON UNIISTURBED
AND EXCESS SROUND WATER. RER OF ANY LOOSE MATERIAL
9) IF SOUND SOIL IS NOT REACHED AT DESGNATED

 CONCRETE SPECCIFED FOR THE FOUNDATON. PPEASE
CONTACT OWNER \& ENGINERR FOR RECOMMENDATONS
 USED. STONE, IF USED, SHAL NOT BE USED AS COMPLING
CONCRTE HIICNESS. PLEASE CONTACT ENGNEER FOR
RECOMMENAATONS.

| Smmbols legend |  |
| :---: | :---: |
| $\bigcirc$ | KEMOTE |
| $\longmapsto$ | Inspec. slleve / GRND Rod |
| $\bigcirc$ | INSPECTION SLEEVE |
|  | CAD WEL CONNECTON |
| T | TRANSFORMER |
| [5] | UGHTNING SUPPRESSOR |
| $\square$ | SWTCH (DISCONNECT) |
| 面 | meter Pack |
|  | POWER |
| $\square$ | gas line |
| -W | WATER LINE |
| ss | SANITARY SEWER |
| - $T$ - | TELEPHONE |
| ${ }^{\text {SSB }}$ | storm sewer drain |
|  | fence |

* INSTAL CONCRETE PADS FOR BULDING, PROPANE TANK,
GENERATOR PAD.
* install electric and ground fied for compound.
* excavation to compound to include weed control mat. * SIE to have proper drainage \& erosion control

GC MLL BE RESPONSIBLE FOR AL CRANE OPERATONS IN ORDER TO
SET FBREBONE SULDING. COORDINATE BULLING DELUERY DATE THROUGH
BLUERASS CELULAR.

* GC MLL BE RESPONSILE FOR REPAIR OF ALL AREAS DISTURBED
DURING CONSTRUCTON. (EXCAVAING ISSUES)
* GC ML RE RESPONSIBLE FOR OFF LOADING AND STACKING OF TOWER
WHEN APPLCABE.
* GC mll be responsible for mounting all unes and antennas.
- Gc wll be responsible for supplyng and instaung ice bridge.
* GC MLI BE RESPONSIBLE FOR SCHEDULING PROPANE TANK DELVERY
AND HOOK-UP.
* GC WL BE RESPONSILEE FOR CLEANING THE INSIDE OF BUIIDING
 * GC ML ME RESPONSIBLE FOR APPLYNG FOR ELECTRICAL SERYCE AND
PAVNG NEGESSARY FEES REQURED.
* ALL WAREHOUSE MATERIAL (LNES, ANTENNAS, MOUNTNG HARDWARE,
GENERATOR, TOWER FOUNDATON KIT, ETC.) WLL NEED TO BE PICKED UP GENERA
$B Y$
GC.
* AL ALARMS ML NEED TO BE HOOKED UP bY GC, THIS IS to
Includea generator alarm and tower ught alarm. (to bluegrass INCLUDE: GEEERATOR ALARM ALA
CELLULAR INC. ALARM ELOCK)
* $\operatorname{GC}$ WL BE RESPONSBLE FOR SCHEDULNG GENERATOR START-UP MTH
CONTACT SCOTT ANDERSON (EVAPAR) $502-267-6315$

Ti CONDUIT WL NEED TO BE PLACED FROM POLE TO BUIDDNG. (IF A
MICROWAVE DISH IS USED, THE TI CONDUIT WLL STLL BE INSTALIED FOR MICROWAVE DISHE
FUTURE USE.)

* gc mll be responsile for installaton of all fencing.
* all trash and debris to be removed by gC
* ALL bIDS ARE TO be broke down as FOLLOWS:
- Excavating, road, site work, etc.
- TOWer foundaton
- tower foundation
* Tower erection
* LnNes and antennas
* ELECTRICAL AND GROUNDING
* fencing
* ice bridge
* GC to seperate all materials \& labor in bid.

NOTE: THS SCOPE OF WORK IS A BASTC OULUNE FOR THE GENERAL
COTRACTOR TO FOLOW AN DOES NOT EXCLUDE OTHR DUTES


ALL LINES AND ANTENNAS TO BE PROPERLY MOUNTED TO TOWER OR STRUCTURE PER BLUEGRASS CELLULAR SPECIFICATIONS

ALL GROUND BARS TO BE INSTALLED AND CAD WELDED TO GROUND FIELD (WHERE REQUIRED)

ALL LINES TO BE GROUNDED AT THE TOP AND BASE OF STRUCTURE OR TOWER.

ALL LINES TO BE GROUNDED AT ENTRANCE OF SHELTER BEFORE WAVE GUIDE PORTS.
(EXTERIOR OF BUILDING)
lines are to be secured to ice bridge
WAVE-GUIDE BOOTS ARE TO BE INSTALLED ON ALL LINES (BOTH INSIDE AND OUTSIDE)
ALL COAX CONNECTIONS ARE TO BE WEATHER PROOFED.
INVENTORY OF ALL MATERIAL IS TO BE DONE PRIOR TO INSTALLATION BY CONTRACTOR. (LIST WILL BE PROVIDED)

ALL TRASH AND REFUGE IS TO BE PROPERLY DISPOSED OF.

CONTRACTOR TO EXTEND HARDLINES INTO BUILDING 12" \& INSTALL POLYPHASERS, PER INSTRUCTION OF PROJECT MANAGER.

POLYPHASERS OR LIKE UNITS TO BE INSTALLED AND GROUNDED TO GROUND BAR INSIDE BUILDING AT WAVE GUIDE ENTRANCE. GO TO SUPPLY GROUND CABLE \& LUGS.

GENERAL CONTRACTOR TO MOUNT ANTENNA MOUNTS AT TOP OF STRUCTURE OR TOWER BY BLUEGRASS CELLULAR SPECIFICATIONS.

ICE BRIDGE TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR. (Additional lce Bridge if needed)
TRAPEZE KIT TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR.

CONTRACTOR TO SUPPLY \& INSTALL GPS BRACKET \& CABLING

|  | mpe |  | Numer | мдпиит | MOUNTNG HECHT |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ANTENNA (PRIMARY) | DAPA 59210 | $\begin{aligned} & L=7.3^{\circ} \\ & \begin{array}{l} \omega=0.5 \\ D=2.7^{*} \end{array} \end{aligned}$ | 6 | 40*, 150*, 260* | 240'-0" C/L |
| antenna (SECONDARY) |  |  |  |  |  |


| ANTENNA MOUNTING HARDWARE SPECS |
| :--- |
|  ITFE SIE NUMBER 世OUNTNG HEGHT <br> MOUNT (PRIMARY) TRI-SECTOR <br> MOUNT  3 YERIFY MTH <br> PROUECT MANAGER <br> MOUNT (SECONDARY)     |

ANTENNA TRANSMISSION LINES SPECS

|  | mPE | SIE | NUMEER | LENGTH |
| :--- | :---: | :---: | :---: | :---: |
| TRANSMISSION LINE <br> (PRIMARY) | ANDREW | $1-5 / 8^{\prime \prime}$ | 6 | FIELD <br> VERIFY <br> RANSISIIN LINE <br> (SECONDARY) <br> (SCO |

DISH SPECS

|  | MICROWNME/DONOR | SIE | NUMEER | AZINUTH | MOUNTNG HEOHT |
| :---: | :--- | :--- | :--- | :--- | :--- |
| DISH \#1 |  |  |  |  |  |
| DISH \#2 |  |  |  |  |  |

DISH MOUNT SPECS

|  | mpe | siIE | Number | MOUNING HEGAT |
| :---: | :---: | :---: | :---: | :---: |
| MOUNT \#1 |  |  |  |  |
| MOUNT \#2 |  |  |  |  |

DISH TRANSMISSION LINES

|  | mpe | sie | numer | Levir |
| :--- | :---: | :---: | :---: | :---: |
| TRANSMISSION LINE \#1 |  |  |  |  |
| TRANSMISSION LINE \#2 |  |  |  |  |

## ANTENNA SYNOPSIS

[^0]* ANTENNA FREQuency 1975.00 - 1982.50


COAX ENTRY DETAIL POWER SIDE (VIEW FROM INSIDE SHELTER)


COAX ENTRY DETAIL A/C SIDE (VIEW FROM INSIDE SHELTER)




GENERAL NOTES:

1) EQUIPMENT PICK-UP AND DELIVERY TO SITE BE THE CONTRACTORS RESPONSIBLITY, INCLUDING CRANE SET, AND ALL COST INCURRED.

- 2) FOR, BULLDING AND ALL CONCRETE PAD

RUCTURALS AND
3) ALL CONCRETE TO HAVE SPECIFIED COATED

COMMENDATIONS
4) ANY DAMAGE DUE TO CONSTRUCTION, TO BE REPAIRED OR REPLACED TO ORIGINAL
CONDITION. (SUBJECT TO BLUEGRASS CELLULAR'S APPROVAL).
5) ANY DAMAGE OF NATURAL SURROUNDINGS
INCLUDING BUT NOT LIMITED TO, GRASS, TREES, LANDSCAPING, ETC... TO BE REPAIRED OR REPLACED TO ORIGINAL CONDITION AT BLUEGRASS CELLULAR'S APPROVAL.
6) ROADWAYS TO BE GRADED SMOOTH AND EVEN,
REMOVNG ALL POTHOLES. ROADS TO HAVE PROPER REMOVING ALL POTHOLES. ROADS TO HAVE PROPER
DRAINAGE AND RUNOFF PER BLUEGRASS DRAINAGE AND RUNOFF PER BLUEGRASS cellular's approval
7) ANY RELOCATION OF EXISTING UTILITIES TO BE
DONE IN ACCORDANCE WITH LOCA COES AND DONE IN ACCORDANCE WTH LOCAL CODES AND OMPANIES INVOLVED FOR APPROVAL AND COMPANES INVOLVED FOR
8) FOR GRADING DETAILS, SEE GENERAL
NOTESHEET NOTESHEET
9) CONTRACTOR TO FIELD VERIFY ALL TOWER DIMENSIONS WITH TOWER MANUFACTURER PRIIOR
JOB BIDDING OR START OF ANY CONSTRUCTION 10) CONTRACTOR RESPONSIBLE FOR APPLYING FOR
SERVICE TO SITE AND PAYING ANY FEES REQURED FOR PERMITS, HOOKUP, ETC.




CHAIN LINK FENCING NOTES:





5 EXIENSION ARMS. CAST STEEL GALVANIED TO ACCOMODATE 3 STRANDS OF BARB

7 SWMG gate posts. Shall be $3^{n}$ n o.c. standard hot galvnized, weighing



$\square$


FENCE DETAIL END POLES Not to scalle


FENCE DETAIL LINE POLES
not to schle


$1 / 2^{\prime \prime}$ GRC




## NOTE

CONTRACTOR TO PLACE WARNING TAPE



CONERAL ELECTRICAL NOTES:
ARRONTRACTOR RESPONSIBLE FOR MAKING ALL SERVICE AND FEE PAYMENTS REQUILED TO obtain service.
2) CONTRACTOR RESPONSIBLE FOR MAKING ALL ARRANGEMENTS WTH THE LOCAL TELEPHONE COMP OBTAIN SERVICE.
3) GROUND RING TO BE COU
COMPOUNDS FENCED AREA.
4) FENCE TO BE GROUNDED FROM GROUND RING TO ALL CoRNER POST \& GATES. SPACE FENCE GROUNDING APPROXIMATELY $20^{\prime}-0^{\prime \prime}$ O/C. (CADD WELD ALL CONNECTIONS)
5) ALL GROUND RING CONNECTIONS TO BE AS CLOSE AS
POSSIBLE, SHARP BENDS WILL NOT BE PERMITTED AS WELL AS "T" CONNECTIONS. ALL CONNECTIONS TO HAVE A AS
SWEEPING RADIUS OF 8 I MINMUECTIONS TO GROUNDING CONFIGURATION TO BE IN PARALLEL.
6) CONTACT POINTS FOR GROUNDING TO BE CLEANED OF ANY RUST, PAINT, DIRT, ETC. TO CREATE A GOOD BOND FOR CONDUCTOR. AREA THAT HAS BEE
7) PROPERLY GROUND ANY EXPOSED METAL THAT MAY
EXIST ON EXTERIOR OF EQUIPMENT SHELTER OR CABINET.
8) WHERE GROUND CONDUCTORS REQUIRE MECHANICAL BONDING, STAINLESS STEEL CONNECTORS ARE REQUIRED AT ACH CONNECTING POINT USING LOCK WASHERS.
9) CONTRACTOR RESPONSIBLE FOR SEEING THAT UTLLTY PERSONNEL MAKE FINAL CONNECTIONS, MAKING SURE THE
TOWER ALARM IS CONNECTED AND WORKING A TELEPHONE NUMBER FOR THE ALARM MUST BE SUPPLIED.
10) CONTRACTOR RESPONSIBLE FOR MEG TESTING THE SIT AND SUPPYYNG
SPECIFICATIONS.

OONTRACTOR TO PROVIDE WARNING TAPE IN TRENCHES TAPE TO BE INSTALLED $1^{\prime}-0^{\prime \prime}$ ABOVE CONDUIT RUNS.

| SLege |  |
| :---: | :---: |
| $\Theta$ | kexnote |
| $\stackrel{\square}{\odot}$ | INSPEC. SLEEVE / GRND ROD inspection sleeve |
| T | Cad weld convection Trassfriver |
|  | LIGHTNiNG suppressur |
| $\square$ | switch (inscanect) |
| 苗 | Met |
|  | Pduer |
| $\square$ | as line |
| $\square$ | Lr |
|  | Lephine |
| $\square_{\text {S }} \mathrm{s}$ | strary sever |
|  |  |



HUB-BAND DETAIL
NO SCALE



NOTES:
——— bare \# 2 awg tinned salid capper canductar buried 30 IN. BELOW GRADE $\square R 6$ IN. BELOW FROST LINE ALL BENDS IN GRIUND CUNDUCTIR TZ BE MADE WITH MIN. 12 IN. RADIUS

Q K2L-1OCS (SEE DETAIL)

| WY*EOLE | $\begin{aligned} & \text { CLIENT / END USER } \\ & \text { RSB DESIGN / BLUEGRASS CELLULAR } \end{aligned}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | DRAWING  <br> 1 PRDIECT NAME <br> BRONSTON CELL TOWER  |  |  |  |
| TECHNICAL SERVICES <br> 3547 VIYAGER STREET, SUITE 204 TURRANCE, CA, 90503 (800)962-2610 FAX (310)214-1114 ENGINEERINGQLYNCDLE.CDM | TTTLE GROUNDING OPTION |  |  |  |
|  | LICCATIIN: CITY, STATEBRONSTON, KY |  |  | CALCULATED RESITTANCE $<50 \mathrm{OHMS}$ |
|  | $\begin{aligned} & \text { DRAWN } \\ & \text { MA } \end{aligned}$ |  | date | 11/23/2005 |
| SOIL DATA PROVIDED BY TERRACON | REFER | $\begin{aligned} & \text { ICE NUMBER } \\ & \mathrm{N} / \mathrm{A} \end{aligned}$ | SCALE NONE | LTS NUMBER <br> 050486 |




NO SCALE

## Site Name: BRONSTON

## DRIVE TO DIRECTIONS

From the Pulaski County Seat in Somerset, Kentucky take SR 1247 (South Main Street) South 0.8 miles to SR 1577 (Monticello Street). Turn right onto SR 1577 (Monticello Street) and proceed South 0.7 miles to SR 2292 (Monticello Street). Turn left onto SR 2292 and proceed South 1.9 miles to US Highway 27.
Turn left onto US Highway 27 and proceed South 4.1 miles to State Route 90 . Turn right onto State Route 90 and proceed West 3.1 miles to John Gover Road. Turn left onto John Gover Road (gravel) and proceed South 0.8 miles past the Residence and 2 barns to the proposed site. The site is located approximately $250^{\prime}$ North-Northwest of the existing guyed tower and approximately $150^{\prime}$ Southeast of the water tower.

## OPTION TO LEASE AND LEASE AGREEMENT

## I.

## OPTION TO LEASE REAL PROPERTY

THIS OPTION TO LEASE REAL PROPERTY (the "Option Agreement") is made and entered into this 30 day of Sefferlit, 2005, by and between John K. Gover whose address is $\mathbf{5 3 9}$ John Gover Lane, Bronston, KY 42518 (the "Optionor (s)" and Bluegrass Wireless LLC, a Kentucky limited liability company with principal office and place of business at 2902 Ring Road, Elizabethtown, KY 42701 (the "Optionee").

## WITNESSETH:

WHEREAS, the Optionor(s) is the owner of certain real property located in Pulaski County, Kentucky as more particularly described on Exhibit A attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS, the Optionor(s) wishes to grant to the Optionee, and the Optionee wishes to obtain from the Optionor(s), an option to lease the Property upon the terms and conditions set forth herein;

NOW, THEREFORE, in consideration of the foregoing premises and for other good and valuable consideration, the mutuality, receipt and sufficiency of which are hereby acknowledged, the parties hereto do agree as follows.

1. In consideration of One Thousand Two Hundred Dollars and Zero Cents $\mathbf{( \$ 1 , 2 0 0 . 0 0 )}$ paid by the Optionee to the Optionor(s) (the "Option Consideration"), the receipt of which is hereby acknowledged by the Optionor(s), the Optionor(s) hereby grants to the Optionee an exclusive and irrevocable option to lease the Property (the "Option"), upon the terms and conditions hereinafter set forth, upon the exercise of the Option at any time before 4:00 p.m. prevailing time on $9-38-2006$, (the "Option Period") as set forth in Paragraph $\underline{5}$ thereof.
2. The parties hereto anticipate that the Property comprises approximately a One Hundred Foot by One Hundred Foot area, and that a right of way will be given by the Optionor(s) for the purposes of ingress and egress throughout the term of the lease. The Optionee shall obtain an accurate survey of the Property by a registered land surveyor licensed in the Commonwealth of Kentucky at the sole expense of the Optionee. A copy of the survey shall be provided to the Optionor(s). The description of the Property shall include the number of acres determined by the surveyor. The Optionee shall obtain said survey within a reasonable time following the date of the Option Agreement.
3. During the term of the Option, the Optionee may enter onto the Property at its own risk to obtain soil samples and to bore soil for the purposes of determining the suitability of the Property for a communications tower.
4. Upon the Optionee's proper exercise of the Option in accordance with Paragraph $\mathbf{5}$ hereof, the Optionor(s) shall be deemed to have immediately executed, acknowledged and delivered to the Optionee the Lease Agreement contained in Section II hereof. The description of the Property shall be that determined by the registered land surveyor in accordance with Paragraph 2 hereof.
5. If the Optionee elects to exercise the Option in accordance with the terms hereof, notice of such election shall be deemed sufficient if personally delivered or sent by registered or certified mail, return receipt requested, to the address of the Optionor(s) set forth in Paragraph 14 hereof.
6. The Optionor(s) agrees not to sell, lease or offer for sale or lease the Property during the term of this Option or any renewal or extension of the Option.
7. In the event the Optionee fails to exercise the Option as set forth herein (unless such failure is due to the discovery of a defect in the Property or other matter unsatisfactory to the Optionee), the Optionor(s) shall have the right to retain the Option Consideration.
8. The Optionee may assign this Option with written consent of the Optionor(s), which consent shall not be unreasonably withheld, and upon any assignment such assignee shall have all the rights, remedies and obligations as if it were the original Optionee hereunder. From and after any such assignment, the term "Optionee" shall refer to such assignee.
9. Each party hereto shall bear any and all of its own expenses in connection with the negotiation, execution or settlement of this Option.
10. Risk of loss with respect to the Property during the term of this Option and during the term of the lease shall be upon the Optionor(s). If, during the term of the Option, any portion of the Property shall be acquired by public authority under the right or threat of eminent domain, the Optionee may, at its sole option, either (i) exercise the

Option, and in such event, all sums received from the public authority by the Optionor(s) by reason of the taking of a portion of the Property shall reduce the rent due under the lease, or (ii) terminate this Option and thereupon the Optionor(s) shall be obligated to return to the Optionee the full amount of the Option Consideration previously paid to the Optionor(s) in "good and collected funds."
11. The parties hereto represent to each other that neither has engaged any broker to represent their interests in connection with the transactions contemplated hereby, and each agrees to indemnify the other against any and all claims made by any brokers engaged or purported to be engaged by the other for brokerage commissions or fees in connection with the transactions contemplated hereby.
12. The Optionor(s) represents, warrants and covenants to the Optionee that the Optionor(s) has not caused or permitted, and shall not cause or permit, and to the best of Optionor(s)' knowledge no other person has caused or permitted any hazardous material (as defined by any applicable federal, state or local law, rule or regulation) to be brought upon, placed, held, located or disposed of at the Property. In the event any such contamination occurs for which the Optionee becomes legally liable, the Optionor(s) shall indemnify the Optionee against all claims, damages, judgments, penalties and costs and expenses, including reasonable attorneys' fees, which Optionee may incur.
13. This Option Agreement and the rights and obligations of the parties hereto shall be construed in accordance with the laws of the Commonwealth of Kentucky.
14. For the purposes of giving notice as permitted or required herein, the address of the Optionor(s)shall be: $\mathbf{5 3 9}$ John Gover Lane, Bronston, KY 42518; the Optionee's address shall be: $\mathbf{2 9 0 2}$ Ring Road, Elizabethtown, KY 42701.
15. The Optionee shall have the right, in its sole discretion, to record this Option in the Office of the Clerk of the County Court of Pulaski County, Kentucky.

## II.

## LEASE AGREEMENT

16. In the event the Optionee elects to exercise the Option to lease the Property, the terms of the Lease Agreement ("Lease Agreement" or "Lease") shall become immediately effective upon such exercise and shall be as follows.
17. The term of the Lease shall commence on the date that the Optionor(s) receives proper notice that the Optionee has exercised the Option, pursuant to Paragraph $\underline{5}$ therein. The initial term shall expire five (5) year(s) from the commencement date of the Lease Agreement and shall include three (3) additional five (5)-year terms per the Lease Agreement. Optionee may, by providing written notice at least sixty (60) days prior to the expiration of the original or any renewal Lease term, elect to unilaterally terminate this Lease at the end of any original or renewal Lease term. Such notice must be personally delivered or sent via registered or certified mail, return receipt requested, to the address of the Optioner(s) set forth in Paragraph 14 hereof. The Lease amount shall be adjusted at the end of each term by an increase of $12 \%$.
18. The Optionee shall pay to the Optionor(s) rent for the Property in the sum of Five Thousand Four Hundred Dollars and Zero Cents $(5,400.00)$ yearly, to be paid in advance. All rent payments shall be personally delivered or mailed to the Optionor(s) at the address set forth in Paragraph 14 hereof. Any check payment of the rent due under the Lease shall be payable to the order of Optionor(s).
19. The Optionee shall be entitled to use and occupy the Property for the purpose of erecting, maintaining and operating a communications tower and communications facilities thereon and for all such other uses as Optionee may, in its sole discretion, deem necessary in connection therewith.
20. The Optionor(s) shall be responsible for the payment of all real estate taxes which shall be assessed against the Property during the term of the lease. The Optionee shall pay all charges for heat, water, gas, electricity, sewer use charges and any other utility used or consumed on the Property. The Optionee shall, at its own cost and expense, maintain and keep in full force and effect during the term of the lease public liability insurance with coverage in the amount of at least one million dollars $(\$ 1,000,000.00)$ per person for bodily injury, disease, or death and shall maintain property insurance on any property the Optionee located on the Property.
21. The Optionee may assign the lease. The Optionee may sublet all or part of the space on the tower or ground space.
22. The Optionor(s) covenants that upon the Optionee's payment of the rent agreed upon herein, as well as Optionee's observing and performing all of the covenants and conditions contained in the Lease, the Optionee may peacefully
and quietly enjoy the Property subject to the terms and conditions set forth in the Lease.
23. The Optionee agrees to maintain an access road in a passable manner for the term of the lease.
24. This Option and Lease Agreement contains the entire agreement between the parties hereto and no modification or amendment shall be binding upon any party unless made in writing and signed by each of the parties hereto.
25. Upon the termination or other end of this Lease Agreement, Optionee shall have the right to remove any and all of its property (real or personal) from the Property regardless of whether or not such property may be considered a fixture thereto.
26. Upon abandonment of the property, Optionee shall have thirty (30) days to dismantle and remove the cellular antenna tower and any/all equipment located on Optionor's property.
[Remainder of Page Intentionally Left Blank]

## EXECUTION OF AGREEMENTS)

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their respective seals.


By: John K. Gover Property Owner

Date: $9-30-05$


By: Ron Smith Authorized Representative Bluegrass Wireless LLC
Date: $10-03+0$

## STATE OF hectuctry

COUNTY OF


The foregoing instrument was acknowledged before me this 30 day of SefteMhN, 2005, by John h. Govern to be his/her free act and deed.


NOTARY PUBLIC STATE AT LARGE
My commission expires: $\qquad$

## STATE OF Kentucky

COUNTY OF Hardin

The foregoing instrument was acknowledged before me this 3 fd day of October, 2005 , by Ron Smith, to be his free act and deed.


My commission expires: $\qquad$
This instrument prepared by:


John E. Selent
Dinsmore \& Shohl LLP
1400 PNC Plaza
500 West Jefferson Street
Louisville, KY 40202
(502) 540-2300

.

Land Surveyors and Consulting Engimeers

## Site Name: BRONSTON

## 500' RADIUS \& ADJOINING LANDOWNER LIST

Map 52-6-3, Lot 58<br>GOVER, JOHN K. \& RUTH G. 539 JOHN GOVER LANE BRONSTON, KY 42518<br>Deed Book 390, Page 510<br>No Zoning

Map 52-6-3, Lot 71
GOVER, JOHN K. \& RUTH G.
539 JOHN GOVER LANE
BRONSTON, KY 42518
Deed Book 261, Page 321
No Zoning
Map 52-6-3, Lot 79.1
TARA INC.
81 REALTY LANE.
SOMERSET, KY. 42501
Deed Book 468, Page 153 No Zoning

Map 52-6-3, Lot 41
GIBSON, DANNY WAYNE
91 CEDAR EDGE LANE
BRONSTON, KY 42518
Deed Book 469, Page 494
No Zoning
Map 52-6-3, Lot 51
PURCELL, BLAINE P.O. BOX 513

BRONSTON, KY 42518
Deed Book 650, Page 329
No Zoning
Map 52-6-3, Lot 57
DUFFY, ROBIN S. \& PAULA
531 SUNSET DRIVE
BRONSTON, KY 42518
Deed Book 497, Page 524
No Zoning

# Land Surveyors and Consulting Engineers 

Map 52-5, Lot 69

## WEST BRONSTON PROPERTIES, LLC

## P.O. BOX 399

BRONSTON, KY 42518
Deed Book 724, Page 202
No Zoning
Map 52-6-3, Lot 59
RAMSEY, KELLY G. \& LISA M. 6917 HARRODSBURG ROAD NICHOLASVILLE, KY 40356

Deed Book 570, Page 285
No Zoning

## COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

## In the Matter of:


#### Abstract

APPLICATION OF BLUEGRASS WIRELESS LLC FOR ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE (BRONSTON) IN RURAL SERVICE AREA \#6 (PULASKI) OF THE COMMONWEALTH OF KENTUCKY


CASE NO. 2005-00449

## AFFIDAVIT OF JOHN E. SELENT

I, John E. Selent, being duly sworn, depose and state as follows:

1. My name is John E. Selent and I am a member of the Kentucky Bar Association. I am legal counsel to Bluegrass Wireless LLC and am submitting this affidavit in conjunction with the above referenced matter.
2. Pursuant to $807 \mathrm{KAR} 5: 063 \S 1(1)(1)$, the attached list containing the names of the residents/tenants and property owners within 500 feet of the proposed tower have been: (i) notified by written notice of the proposed construction, sufficient postage prepaid, by United States certified mail, return receipt requested; (ii) given the Commission docket number under which the application will be processed; and (iii) informed of the right to request intervention.
3. A copy of the certified mail return receipts for each of the above property owners that show proof of service is attached hereto.
4. The address for Blaine Purcell is a P.O. Box and therefore cannot be served by U.S. Certified Mail, pursuant to 807 KAR 5:063 § 1(1) and (m).
5. For the reason set forth in paragraph 4, the written notice of the proposed construction for Blaine Purcell was sent via U.S. Express Mail. The proof of service is attached hereto.

Further Affiant saith not.


SUBSCRIBED AND SWORN to before me this 3 th day of December, 2005. My commission expires: $\frac{1120107}{\text { Nawy }}$

## PUBLIC NOTICE

TO: Blaine Purcell
P.O. Box 513

Bronston, Kentucky 42518
Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

## Executive Director's Office <br> Public Service Commission of Kentucky P.O. Box 615

Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.

## Track \& Confirm

## Search Results

## Label/Receipt Number: EQ31 0795 618U S Status: Delivered

Your item was delivered at 8:50 am on December 05, 2005 in BRONSTON, KY 42518. The item was signed for by B PURCELL.

## Tract A Comimm

Enter Label/Receipt Number

Adifitional Detains: Pothon to USPS.com Homes:

## Watification Options

## Track \& Confirm by email

Get current event information or updates for your item sent to you or others by email. Gos
Proof of Delivery
Verify who signed for your item by email, fax, or mail. Go $=$

## Track \& Confirm

## Search Results

Label/Receipt Number: EQ31 0795618 U S
Detailed Results:

* Delivered, December 05, 2005, 8:50 am, BRONSTON, KY 42518
- Notice Left, December 01, 2005, 3:36 pm, BRONSTON, KY 42518
- Arrival at Pick-Up-Point, November 30, 2005, 7:42 am, BRONSTON, KY 42518
* Enroute, November 30, 2005, 4:13 am, SOMERSET, KY 42501
- Arrival at Unit, November 30, 2005, 4:11 am, SOMERSET, KY 42501
- Enroute, November 29, 2005, 4:58 pm, LOUISVILLE, KY 40231
* Acceptance, November 29, 2005, 11:05 am, LOUISVILLE, KY 40270

Return to USPS com Homes

## Watification Options

Track \& Confirm by email
Get current event information or updates for your item sent to you or others by email. Go -

## Proof of Delivery

Verify who signed for your item by email, fax, or mail. Go $\geq$

## PUBLIC NOTICE

TO: West Bronston Properties, LLC<br>P.O. Box 399<br>Bronston, Kentucky 42518

Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office Public Service Commission of Kentucky P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.


## PUBLIC NOTICE

TO: John K. and Ruth G. Gover
539 John Gover Lane
Bronston, Kentucky 42518
Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office Public Service Commission of Kentucky P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.


## PUBLIC NOTICE

TO: Tara Inc.
81 Realty Lane
Somerset, Kentucky 42501
Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office<br>Public Service Commission of Kentucky P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.


## PUBLIC NOTICE

TO: Danny Wayne Gibson
91 Cedar Edge Lane
Bronston, Kentucky 42518
Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office<br>Public Service Commission of Kentucky<br>P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.


## PUBLIC NOTICE

## TO: Robin S. and Paula Duffy

531 Sunset Drive
Bronston, Kentucky 42518
Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office Public Service Commission of Kentucky P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.


## PUBLIC NOTICE

TO: Kelly G. and Lisa M. Ramsey<br>6917 Harrodsburg Road<br>Nicholasville, Kentucky 40356

Bluegrass Wireless LLC, is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity for construction and operation as a new cell facility to provide cellular radio service. The facility would include a 240 foot tower to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location is attached. This notice is being sent to you because you either own property and/or reside on property that is located within a 500 ft . radius of the proposed tower or you own property contiguous to the property where the proposed tower will be located.

The Commission invites your comments regarding the utility's proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office Public Service Commission of Kentucky<br>P.O. Box 615<br>Frankfort, Kentucky 40602

Please refer to case number 2005-00449 in your correspondence.

SENDER COMPMETETHISSECHON
国 Complete items 1,2 , and 3 . Also complete item 4 if Restricted Delivery is desired.
© Print your name and address on the reverse so that we can return the card to you.

- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Kelly G. a Lisa. Ramsey
6917 Harrodsburg Rod. Micholasrille, KY 40356

COMPREsS THIS SEGHON ONDDELVERY


| 3. Service Type |  |  |
| :--- | :--- | :--- |
| $\square$ Certified Mail | $\square$ Express Mall |  |
| $\square$ Registered | $\square$ Return Receipt for Merchandise |  |
| $\square$ Insured Mail | $\square$ c.O.D. |  |
| 4. | Restricted Delivery? (Extra Fee) | $\square$ Yes |



# Dinsmore\&Shohlıр <br> ATTORNEYS <br> Kerry W. Ingle <br> (502) 540-2354 (Direct Dial) <br> kerry.ingle@dinslaw.com 

November 14, 2005

## Via Certified Mail

Honorable Darrell BeShears
Pulaski County Judge Executive
Courthouse
100 North Main Street
Somerset, Kentucky 42501
RE: Public Notice - Public Service Commission of Kentucky Case No. 2005-00449

Bluegrass Wireless LLC is applying to the Public Service Commission of Kentucky (the Commission") for a Certificate of Public Convenience and Necessity to propose construction and operation for a new facility to provide cellular radio telecommunications service in rural service area (RSA) \#6 in Pulaski County. The facility will include a 240 ft . tower and an equipment shelter to be located at 680 John Gover Lane, Bronston, Kentucky, 42518. A map showing the location of the proposed new facility is enclosed.

The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter.

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to case number 2005-00449 in your correspondence.

Very truly yours,

enclosure
KWI

## SENDERS GOMPIFTE THIS SEGTOM

䭗 Complete items 1，2，and 3 ．Also complete tem 4 if Restricted Delivery is desired
－Print your name and address on the re so that we can return the card to you．
Attach this card to the back of the mailpiece， or on the front if space permits．
1．Article Addressed to：
Hon．Darrell Bo Shears pulaski CO．Judse Executive Courthouse
100 N．Main St． Somerset，KY 42501

CORYPLETE THIS SEGMON OWDEMMERTR

$\square$ Agent


D．Is deliveryaddres diff
IfYES，
If YES，enter delivery address below： $\square$ No

2．Article Number アロロ4 ロ75ロ ロロロコ 235」 ロ24ヨ


## AFFIDAVIT OF PUBLICATION

I, Jessica Mullins $\qquad$ , of the Commonwealth Journal, a legal newspaper holding a second-class mailing permit, published daily except Mondays in Somerset, county of Pulaski, Commonwealth of Kentucky, do swear and subscribe that the attached proof of publication of a

- legal notice, as required and prescribed by KRS
$\square$ paid advertisement
was published in said newspaper in the issue of november 13 and 16 for which the sum of $\$$ $\qquad$ is due and payable.

Signed: Qeosica Mullins
Title: Claosifu'd Ad Manager

Subscribed and sworn to before me, a notary public for the County of Pulaski, Commonwealth of Kentucky, this $\qquad$ day of $\qquad$ November , 20 $\qquad$ .

y's Paper for Auction e www.godbyrealty.
\& Auction Co. Ste. N1, Somersel, Ky 42502 ** 800-678-8160
Auclion At:
or www.godbyreally.com

## AUGIC <br> LOT

19 AT 12 NC
 WELL EST SON VALLI
E. Hwy 80, take Rd. (at Nelson go $16 / 10 \mathrm{mi}$ he Subdivision, right. WATCH

Mobile Home \& Nice Lot Campground Rd. HWY 39 area. $\$ 40,000$. (606)6790078
** Owner Financed** 2002. Fleetwood doublewide with lot Huge bed rooms, 2 full baths, fire ${ }^{-1}$ place and central heat and air. $\$ 5000$ down $\$ 575$ mth. 385 Cedar Bluff Shores 305-5449

440 Lots \& Acreage
Wooded Creek Side Lots 2 mi . W. of Somerset, 6366701 or $875-4936$

## Central Lake Area Lots

 Hopeful School House Rd Nancy Exit \#78. 871-7303
## 21 Half Acre

Building Lots in Nancy Some Pestrictions 636 4186 or 305-5984

## NOTICE

Bluegrass Wireless LLC is applying to the Public Service Commission of Kentucky for a Certificate of Pubblic Convenience and Necessity to construct and operate a new facility to provide cellülar radio telecommunications service in rural service area \#6 of the Commonwealth of Kentucly (Bronston Cell Site). The facility is a 240 -foot tower and an equipment shelter to be located at 680 John Gôer Lane, Bronston, Kentucky 42518. Your comments and requests for intervention should be addressed to: Executive Director's Office, Public Service Commission, Post Office Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602 Please refer to Case No 2005' 00449 in your correspondencer

## DISABILITY CLAIMS SERVICE

 (Social Security \& SSI Claims) Retired Social Security Supervisor; 32 Years Experience. I know how the system works and can help you with your claim. Don't.miss out on benefits you may be due. For a FREE consultation on your claim, come by and visit or phone.Dale Walker or Bruce Smith
Disability Claims Service,
Rose Bookkeeping Bidg.
412 Master Street, Corbin, Ky. 40701 1 (800) $601-1874$ or ( 606 ) $526-0247$
TF WE DONT WIN - YOI DONT PAY


With Warmest Wishes Special thoughts and loving pride because it's your Birthday Jinmy Dandy and because you're you.
Happy Birthday Jim Dandy Love always Peaches

## Qprac annan




## NOTICE

Bluegrass Wireless LLC is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility tc provide cellular radio telecommunica: tions service in rural service area \#6 of the Commonwealth of Kentucky (Bronston Cell Site). The facility is a 240 -foot tower and an equipment shelter to be located at 680 John Gover Lane, Bronston, Kentucky 42518. Your comments and requests for intervention should be addressed to: Executive Director's Office, Public Service Commission, Post Office Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602. Please refer to Case No. 2005 00449 in your correspondence.

## NOTICE

TO THE UNKNOWN SPOUSE, i any, AND UNKNOWN HEIRS, if any, OF MITCHELL LYONS, FRONA LYONS AND/OR ETHEL LYONS ENTITLED TO AND/OR CLAIMING AN INTEREST IN AND/OR TITLE TO certain Property located in Pulaskj County, Kentucky, which was owned by the late MITCHELL LYONS.

A civil action has been filed in the Pulaski County Circuit Court involving the property stated above in which the aforementioned OWNERS, HEIRS OR SPOUSES mav have an interest


## NOTICE

Bluegrass Wireless LLC is applying to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular radio telecommunications service in rural service area \#6 of the Commonwealth of Kentucky (Norwood Cell Site). The facility is a 240 -foot tower and an equipment shelter to be located at 74 Reid Mill Road, Somerset, Kentucky 42503. Your comments and requests for intervention should be addressed to: Executive Director's Office, Public Service Commission, Post Office Box 615, 211 Sower Boulevard, Frankfort, Kentucky 40602. Please refer to Case No. $2005-$ 00438 in your correspondence.

803 Cleaning S

Call the best! mates No Job small (606)-271
805 Constructic
Bluegrass $C$ Remodeling, $R$ Roofing \& Gen 25 yrs exp Lic 2487


ADVE
Separate struction © Colle
will be Somerset of Somex prevailin
Novembe office publ
The COl be examin

- City Verno:
- Vaugh St., M
- F.W. Suite
- F.W. Circle Copies MENT me Vaughn Engineer P.O. Box 40965, up able depos


## HOROSCOPE

## FOR MONDAY, NOV. 14

IF YOU WERE BORN TODAY The word casual is not in your vocabulary. You're careful, precise, thorough and caring. Your curiosity about everything makes you observant. In a given situation, you see what is needed and know how to provide it. Be flexible with changes coming your way this year. Something as significant as whatever took place in 1996-97 might happen.
SCORPIO (Oct. 23 to Nov. 21) It's hard to please partners and close friends today. People are a bit prickly. It's the Full Moon. Don't take things personally.
SAGITTARIUS (Nov. 22 to Dec. 21) Don't let the comments of others confirm your worst fears about yourself. This Full Moon (it peaks tomorrow) shakes your selfconfidence.

CAPRICORN (Dec. 22 to Jan. 19) Tension between you and others is likely,

TAURU Tomorrow your sign feel a buil? relax; it's n

GEMIN] extra-patit Tomorrow's to your jok (Nothing a

CANCE Because th feel increa: sion at the what's hat extra-patie

LEO (J sure whert to home a career? Hc


Information on Towers Registered with the FCC
in Pulaski County and 1/2 mile Area Outside of the County Boundary

LNGS Engineering
Information on Towers Registered with the FCC
in Pulaski County and $1 / 2$ mile Area Outside of the County Boundary
Tower Owner

Global Tower, LLC
Hemphill Corporation
Educational Media Foundation
Bluegrass Wireless LLC
Bluegrass Wireless LLC
Bluegrass Wireless LLC
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[^0]:    * antennas to have a 2* electrical. downtllt

