

**NOTICE OF PUBLIC HEARING
BEFORE THE BOARD OF ADJUSTMENT**

(Relative to an application for permit made direct to the Board of Adjustment.)
(CONDITIONAL USE PERMIT)

Notice is hereby given that the Board of Adjustment of the City of Columbia, Missouri, will hold a public hearing at a meeting of said Board in the City Council Chamber on the First Floor of City Hall, 701 E. Broadway, in Columbia, Missouri, at **7:00 p.m. on Tuesday, the 14th day of January, 2014**, to give all interested persons an opportunity to appear and be heard in relation to the following appeal:

Request of Jeff Parshall and Daniel Beckett, attorneys for Boone County Fire Protection District, for a conditional use permit to allow 20 foot omni style antennas to a previously approved 140 foot monopole style telecommunications facility, increasing the overall height of the telecommunications tower/facility to 155 feet, per the submitted general site and construction plans dated August 27, 2013 and the Boundary and Partial Topographic Survey (SUV-1) dated December 11, 2013, as required by Sections 29-23 and 29-21.3 of the Code of Ordinances of the City of Columbia, County of Boone, State of Missouri, and further described as being:

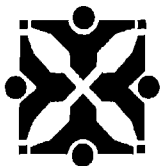
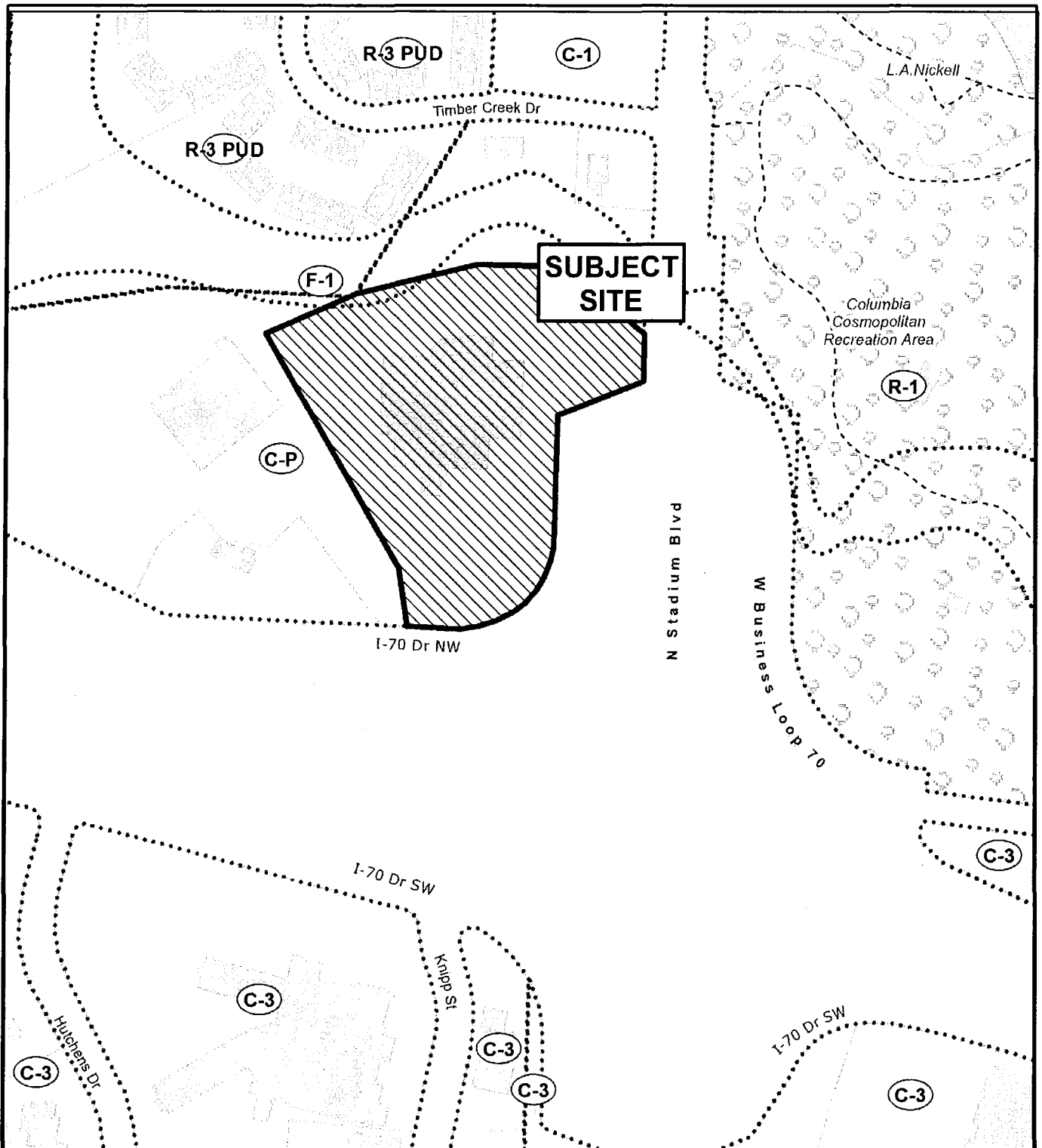
Parcel 1: Lot One (1) of Scheulen Acres Block IV as shown by the administrative subdivision replat recorded in Plat Book 18, Page 20, Records of Boone County, Missouri; and Parcel 2: Easement for the benefit of Parcel 1 as created by "Easement for Joint Entrance and Driveway" dated March 14, 1990 and recorded in Book 764, Page 852, Records of Boone County, Missouri

known as, or located at **2201 I-70 Drive Northwest.**

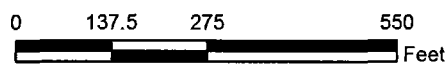
BOARD OF ADJUSTMENT
City of Columbia, Missouri

By David Townsend, Chair

INSERTION: One (1) with map, Sunday, December 29, 2013



BOA Case 1873
Boone County Fire Protection District



Parcel Data
Source: Boone County Assessor

**NOTICE OF APPLICATION TO THE BOARD OF ADJUSTMENT
(FOR CONDITIONAL USE PERMIT)**

TO: **BOARD OF ADJUSTMENT**
Office of the City Clerk
City Hall, 701 E. Broadway, Columbia, Missouri

SUBJECT: Notice of application in regard to the following described property located in the City of Columbia, County of Boone, State of Missouri (legal description):

See attached:

which is presently zoned C-P and known, or to be known, as 2201 I-70 Drive NW, Columbia Missouri 65202 (Street Number and Name)

County Assessor's 14 Digit Real Estate Tax Number: 16-211-00-01-00400-01

Notice is hereby given that Applicant(s) hereby applies to the Board of Adjustment of the City of Columbia, Missouri for a Conditional Use Permit to make the following use of the above described property:

Addition of 20' omni style antennas to a previously approved 140' monopole style telecommunications tower increasing the overall height of the communications tower, including all external and internal antennas, to 155'.

Authority to grant said permit is given to the Board of Adjustment by Section 29-23, Code of Ordinances of the City of Columbia, Missouri. Applicant(s) hereby acknowledges reading Section 29-23, and fully understands the provisions thereof.

Applicant(s) requests that a Certificate of Decision granting a Conditional Use Permit be issued by the Board.

Attached hereto and made a part hereof is a sheet entitled "Parties in Interest", which lists the names and addresses of all other parties in interest, to the best knowledge and belief of Applicant(s).

12/5/2013
DATE

SIGNATURE(S)

ADDRESS

TELEPHONE

CAPACITY OR INTEREST IN PROPERTY

OWNER AND LESSOR

I hereby acknowledge receipt of a signed copy of the above Notice of Application, and I also acknowledge receipt of the deposit required to be made with said Notice of Application.

CITY CLERK
DATE

[Signature]
12/10/13 11:26am

3210 BOWEN AVE
443-2613 *and* DANIEL BECKETT
D.B. Beckett
111 S. 4th St.
COLUMBIA, MO
443-3141



001873

Sheela Amin <skamin@gocolumbiamo.com>

Notice

1 message

Daniel Beckett <DBeckett@smithlewis.com>

Tue, Dec 10, 2013 at 1:13 PM

To: "Sheela Amin (skamin@gocolumbiamo.com)" <skamin@gocolumbiamo.com>

Sheela-

The notice can indicate that both Jeff and I represent the Fire Protection District.

Thanks,

Daniel G. Beckett

SMITH LEWIS, LLP

111 South 9th Street, Suite 200

P.O. Box 918

Columbia, MO 65205-0918

dbeckett@smithlewis.com

(573) 443-3141

(573) 442-6686 (Facsimile)

PLEASE NOTE: All Missouri lawyers are required to notify all e-mail recipients that (1) e-mail communication is not necessarily a secure and confidential method of communication; (2) any e-mail that is sent to you or by you may be copied and held by any or all computers through which it passes as it is transmitted; and (3) otherwise disinterested persons or persons specifically interested in the subject matter of our communication may intercept our communications by improperly accessing either of our computers or another computer unconnected to either or us through which the e-mail is passed. I am communicating with you by e-mail with your consent. If you do not wish this form of communication in the future, upon your notification, no further e-mail communication will be forthcoming.

PRIVILEGED AND CONFIDENTIAL

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12/10/13

City of Columbia, MO Mail - Notice

immediately notify the sender by e-mail or phone at (573) 443-3141.



Sheela Amin <skamin@gocolumbiamo.com>

Application for CUP

1 message

Daniel Beckett <DBeckett@smithlewis.com>

Tue, Dec 10, 2013 at 3:09 PM

To: "Sheela Amin (skamin@gocolumbiamo.com)" <skamin@gocolumbiamo.com>

Sheela,

Thanks for your continued assistance.

Can you amend the application so it reads as follows:

Addition of 20' omni style antennas to a previously approved 140' monopole style telecommunications tower increasing the overall height of the communications tower to 155', **as per the construction plans dated and submitted.**"

Thanks

Daniel G. Beckett

SMITH LEWIS, LLP

111 South 9th Street, Suite 200

P.O. Box 918

Columbia, MO 65205-0918

dbeckett@smithlewis.com

(573) 443-3141

(573) 442-6686 (Facsimile)

PLEASE NOTE: All Missouri lawyers are required to notify all e-mail recipients that (1) e-mail communication is not necessarily a secure and confidential method of communication; (2) any e-mail that is sent to you or by you may be copied and held by any or all computers through which it passes as it is transmitted; and (3) otherwise disinterested persons or persons specifically interested in the subject matter of our communication may intercept our communications by improperly accessing either of our computers or another computer unconnected to either of us through which the e-mail is passed. I am communicating with you by e-mail with your consent. If you do

not wish this form of communication in the future, upon your notification, no further e-mail communication will be forthcoming.

PRIVILEGED AND CONFIDENTIAL

This message is from the Smith Lewis, LLP law firm and may contain CONFIDENTIAL INFORMATION which may also be LEGALLY PRIVILEGED and which is intended only for the use of the individual or entity named above. If the reader of the e-mail is not the intended recipient or the employee or agent responsible for delivering it to the intended recipient, you are hereby on notice that you are in possession of confidential and privileged information. Any dissemination, distribution or copying of this e-mail is hereby strictly prohibited and may be unlawful. If you have received this e-mail in error, please immediately notify the sender by e-mail or phone at (573) 443-3141.

SPECIAL WARRANTY DEED (By a Corporation)

120

THIS INDENTURE made on the 9th day of March A.D., One Thousand Nine Hundred and Ninety-nine, by and between State Farm Mutual Automobile Insurance Company, a corporation of the State of Illinois, Party of the First Part, and Boone County Fire Protection District, whose mailing address is 1520 Business Loop 70W, of the County of Boone, State of Missouri, Party or Parties of the Second Part: Columbia MO 65202

WITNESSETH: That the said Party of the First Part, in consideration of the sum of Ten Dollars and other valuable consideration to it paid by the said Party or Parties of the Second Part, the receipt of which is hereby acknowledged, does by these presents, Grant, Convey and Confirm unto the said Party or Parties of the Second Part, its successors and assigns, the following described real estate, situated in the County of Boone and State of Missouri, to-wit:

The real estate described on Exhibit A hereto and a building located thereon containing approximately 59,000 square feet of space (the "Building") located at and known as 2201 I-70 Drive Northwest, Columbia, Missouri 65202.

Subject to covenants, conditions, easements, and restrictions of record.

TO HAVE AND TO HOLD the premises aforesaid, with all and singular the Rights, Privileges, Appurtenances and Immunities thereto belonging, or in anywise appertaining unto the said Party or Parties of the Second Part, and unto its successors and assigns, FOREVER, the said Party of the First Part, hereby covenanting that it is lawfully seized of an indefeasible Estate in Fee in the premises herein conveyed; that it has good right to convey the same; and that the said premises are free and clear of any encumbrances done or suffered by it to those under whom it claims, and that it will Warrant and Defend the title to the said premises unto the said Party or Parties of the Second Part, and unto their heirs and assigns, Forever, against the lawful claims and demands of all persons claiming by, through, or under the Party of the First Part, except taxes for the year 1999 and thereafter.

IN WITNESS WHEREOF, the said Party of the First Part has caused these presents to be signed by its Senior Vice President, attested by its Assistant Secretary, and its corporate seal to be hereto affixed, the day and year first above written.

State Farm Mutual Automobile Insurance Company

By: Barbara Cowden
Barbara Cowden, Senior Vice President

Attest: Jerrae Kuntz
Jerrae Kuntz, Assistant Secretary



STATE OF ILLINOIS)

) ss.

COUNTY OF MCLEAN)

On this 9th day of March, 1999, before me personally appeared Barbara Cowden, to me personally known, who, being by me duly sworn, did say that she is the Senior Vice President of State Farm Mutual Automobile Insurance Company, an Illinois Corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said Corporation, and that said instrument was signed and sealed in behalf of said Corporation by authority of its Board of Directors, and the said Barbara Cowden acknowledged said instrument to be the free act and deed of said Corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in Illinois, the day and year first above written.

(Seal)

"OFFICIAL SEAL"
Michelle A. Haab
Notary Public, State of Illinois
My Commission Expires 10/2/02

Michelle A. Haab
Notary Public

My term expires:

Boone County, Missouri

Unofficial Document

PARCEL 1: LOT ONE (1) OF SCHEULEN ACRES BLOCK IV AS SHOWN BY THE ADMINISTRATIVE SUBDIVISION REPLAT RECORDED IN PLAT BOOK 18, PAGE 20, RECORDS OF BOONE COUNTY, MISSOURI.

PARCEL 2: EASEMENT FOR THE BENEFIT OF PARCEL 1 AS CREATED BY "EASEMENT FOR JOINT ENTRANCE AND DRIVEWAY" DATED MARCH 14, 1990 AND RECORDED IN BOOK 764, PAGE 852, RECORDS OF BOONE COUNTY, MISSOURI.

SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

STATE OF MISSOURI)
COUNTY OF BOONE) SS.

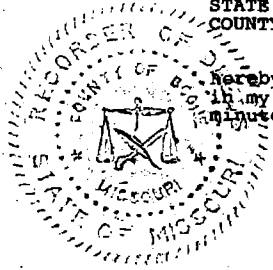
Document No. 6417

I, the undersigned Recorder of Deeds for said county and state do hereby certify that the foregoing instrument of writing was filed for record in my office on the 16th day of March, 1999 at 8 o'clock and 05:13 minutes AM and is truly recorded in Book 1509 Page 120.

Witness my hand and official seal on the day and year aforesaid.

BETTIE JOHNSON, RECORDER OF DEEDS

by Vicki Giffin deputy



001873



November 27, 2013

Pat Zenner
Development Services Manager
City of Columbia, Missouri

Re: Request for St. Charles Tower Conditional Use Permit for a 155' Tall Monopole Style Communications Facility at 2201 I-70 Drive NW, Columbia, MO 65202

Dear Mr. Zenner,

Collective Solutions, on behalf of St. Charles Tower and their landlord Boone County Fire Protection district, respectfully request that the Board of Adjustment for the City of Columbia Missouri consider granting a conditional use permit for a 155' tall monopole style communications facility. The tower will be located in the rear of the Boone County Fire Protection District Headquarters. The tower will be located within a fenced compound. The fence shall be an 8' tall chain link fence with anti-climbing precautions taken at the top of the fence. The fence shall have brown vinyl slats that shall meet the 80% opacity requirements. This tower shall be used not only to support cellular communications, but an antenna array for The Boone County Fire Protection District to enhance their communications ability on the Northwest site of the City of Columbia. The following information addresses the information requested in section 29.23-3 of the Columbia Missouri Code of Ordinances:

- a. Due to the specific coverage objectives of the Boone County Fire Protection District and the needs of St. Charles Tower there are no other towers within ½ mile of the City limits that are capable of providing a location for the proposed installation
- b. St. Charles Tower has made diligent efforts to locate the tower within Cosmos Park, however to meet the coverage objective of St. Charles Tower and Boone County Fire Protection district the park could not provide a mutually agreeable location within the park that could meet the coverage objective
- c. The nearest tower even remotely close to the coverage search area is the American Tower located at 295 I-70 Drive NW, however the tower has neither the vertical space nor sufficient ground space for the equipment need of both Boone County Fire and St. Charles Tower
- d. The proposed 140' monopole proposed by St. Charles Tower will be capable of hosting the Boone County Fire Protection District Antennas as well as a minimum of 3 additional carriers antennas.
- e. Per (d) above the tower will be made to support multiple users including a minimum of 3 additional cellular users each with an array of 6 antennas and 6 lines of coax per user. It is St.

Charles Towers business to lease space to communications companies and the Board can rest assured that the proposed tower will continue to be marketed until all available capacity is utilized.

- f. Due to the size, nature, and mounting of the Boone County Fire Protection District antennas it is impossible for the antennas to be concealed. The antennas range from sixteen feet to twenty feet in height and must be offset from the tower several feet to prevent interference and therefore cannot be concealed within any type of canister currently in existence. See also the attached letter from Dave Dunford, consultant for the Boone County Fire Protection District.

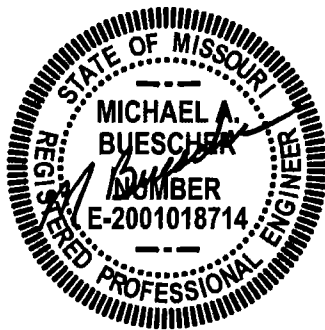
St. Charles Tower and The Boone County Fire Protection District would also like to request per section 29.17 of the Columbia Missouri Code of Ordinances a minor to the site plan for the C-P district on file with the City for the proposed location.

Thank you very much for your assistance in moving our proposal forward. Should you have any questions or need any further information please feel free to call me at (314) 989-9810.

Sincerely,



Russell S. Been
Collective Solutions, LLC
Agent for St. Charles Tower Inc.



8895 Cedar Creek Road
Desoto, KS 66018

December 6, 2013

Mr. Russ Bean
St. Charles Tower
4 West Drive, Suite 110
Chesterfield,, MO 63017
PH: 636-937-9550

Mr. Bean:

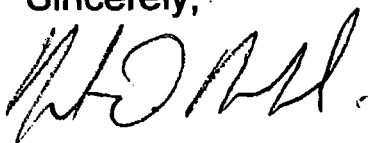
I'm writing today in regard to a request by Boone County Fire Protection District that they be allowed to install land mobile antennas atop a monopole tower your firm is proposing to construct at District property in Columbia, MO. The proposed antennas are nominal 20' in length and serve radio systems operating in the 150-160 MHz range. The purpose of the antennas is to provide omnidirectional coverage in both transmit and receive operation. As such, the antennas cannot be readily mounted immediately adjacent to a vertical structure that represents a large surface area in the frequency of operation.

Ideally, the antenna mounting areas (typically the lower 30") would be installed below the top of the tower or mounting structure (platform or pipe) with the remaining parts of the antenna protruding above the structure and free from its electronic influence.

Should an arrangement be possible to permit the antenna tips to extend above the tower steel and (any) top-mounted platform that circumstance would be welcome.

Thank you for your consideration and assistance with this District request.

Sincerely,



David O. Dunford
Technical Consultant
Columbia/Boone County Joint Communications

eCoverage

38.97022222, -92.37252778

General Location

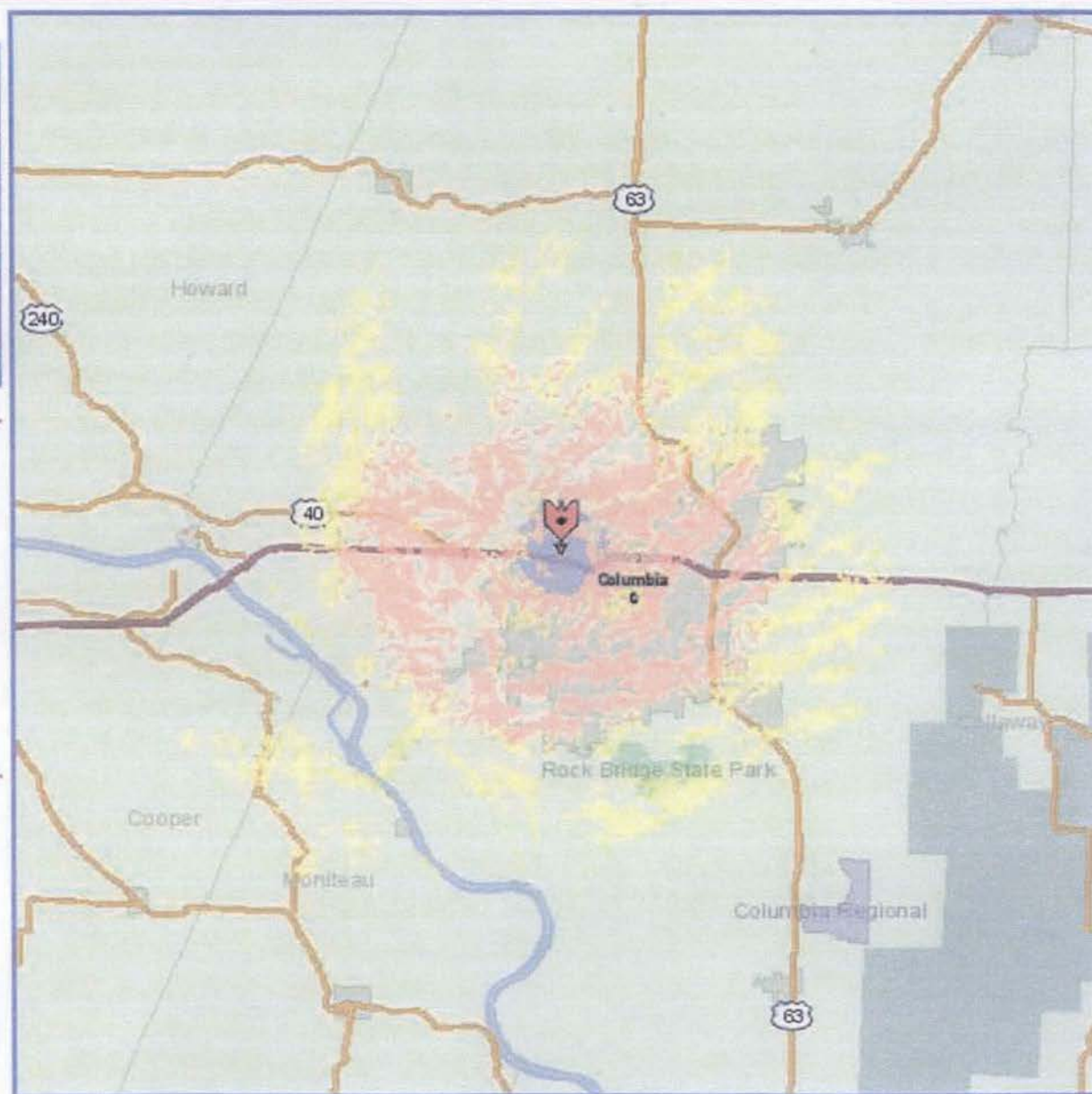


Site Data

Site Name	Russ Prop
Lat	38.97022222
Lon	-92.37252778
Structure Height	42.67 m./140.00 ft.
Antenna Type	O
Antenna Model	SC488
ERP	10 W
Frequency	850 MHz
CF	18

Signal Strength Levels

Yellow	>= -104	Red	>= -97
Blue	>= -85	Green	>= -75
Pink	>= -65		



GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.
2. AREAS SURROUNDING THIS SITE MAY CONTAIN BOTH PEDESTRIAN AND VEHICLE TRAFFIC. ALL NECESSARY CARE SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THE SAFETY OF THE GENERAL PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND MAINTAINING SAFE AND EFFICIENT PROJECT LIMITS. THE CONTRACTOR SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL GUIDELINES WITH REGARDS TO CONSTRUCTION SAFETY THROUGHOUT THE ENTIRE DURATION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY BREACHES OF SAFETY OR DESTRUCTION OF PROPERTY RELATED TO THE CONSTRUCTION OF THIS PROJECT.
3. ALL DEMOLITION DEBRIS (IF ANY) SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS NOT TO DAMAGE ANY EXISTING SITE FEATURES TO REMAIN. IF ANY DAMAGE OCCURS, THE CONTRACTOR SHALL CONTACT THE OWNERS REPRESENTATIVE IMMEDIATELY. THE CONTRACTOR SHALL REPAIR ALL DAMAGED ITEMS TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
5. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THAT THERE ARE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION PRIOR TO ANY EXCAVATION OR TRENCHING WORK TO AVOID DAMAGING THEM.
6. ALL OFFSITE PROPERTY OWNERS SHALL BE GIVEN NOTICE 48 HOURS IN ADVANCE OF ANY WORK.
7. ANY DISTURBED OFF SITE PROPERTY (I.E. BUSHES, TREES, FENCES, MAILBOXES, ETC.) SHALL BE REPLACED, IN KIND, AT THE CONTRACTOR'S EXPENSE

STREAM BUFFER STATEMENT:

THIS TRACT IS NOT REGULATED BY THE CITY OF COLUMBIA STREAM BUFFER ORDINANCE AS DETERMINED BY THE USGS MAP FOR COLUMBIA QUADRANGLE, BOONE COUNTY, MISSOURI AND ARTICLE X OF CHAPTER 12A OF THE CITY OF COLUMBIA CODE OF ORDINANCES.

FLOODPLAIN INFORMATION:

THE SURVEYED TRACT OF LAND DESCRIBED HEREON IS WITHIN THE LIMITS OF ZONE 'X', AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, AS SHOWN N FEMA FLOOD INSURANCE RATE MAP NUMBER 29019C02800, DATED MARCH 17, 2011.

A PORTION OF THIS SITE LIES WITHIN THE ZONE X SHADED FLOODPLAIN AS SHOWN ON FIRM PANEL #29019C02800 WITH AN EFFECTIVE DATE OF MARCH 17, 2011. PER CONVERSATIONS WITH THE CITY OF COLUMBIA STAFF, A FLOODPLAIN DEVELOPMENT PERMIT WILL NOT BE REQUIRED FOR THIS CELL TOWER SITE.

LOCATION PLAN

JURISDICTION: CITY OF COLUMBIA, MO

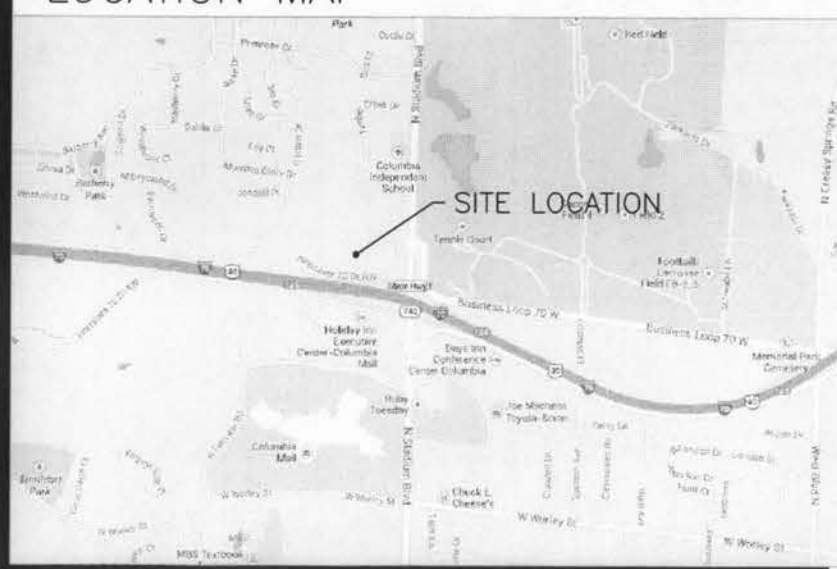
ZONING: C-P, PLANNED BUSINESS

☒ EXISTING BUILDING ☐ EXISTING TOWER
☐ EXISTING WATER TOWER ☐ RAWLAND ☐ OTHER

DRIVING DIRECTIONS

TRAVEL WEST ON HIGHWAY 70 FROM ST. LOUIS TO N. STADIUM BLVD. TURN RIGHT ON N. STADIUM BLVD. AND TRAVEL APPROX. 0.1 MILES TO I-70 DR. NW. TURN LEFT ON I-70 DR. NW. THE SITE WILL BE ON THE RIGHT.

LOCATION MAP



LEGAL DESCRIPTION:

LOCATED ON SHEET C-1.

UTILITY CONTACTS:

SEWER
STEVE HUNT
P.O. BOX 6015
COLUMBIA, MO 65205 (573) 874-7250

WATER
DONNIE NICHOLSON
P.O. BOX 6015
COLUMBIA, MO 65205 (573) 874-7315

ELECTRIC
DAN CLARK
P.O. BOX 6015
COLUMBIA, MO 65205 (573) 874-7321

WASTE COLLECTION
701 E. BROADWAY (573) 874-7380

STORMWATER
701 E. BROADWAY, 3rd FLOOR (573) 874-7250

NATURAL GAS
BRUCE DAR
AMEREN UNION ELECTRIC
P.O. BOX M
COLUMBIA, MO 65205 (573) 876-3030

BENCHMARK:

ELEVATIONS SHOWN HEREON ARE ON CITY OF COLUMBIA DATUM NAVD 88 AND HAVE BEEN DERIVED FROM GPS OBSERVATION USING MODOT'S GNSS/VRS NETWORK, WGS 1984.

PROJECT SUMMARY

SITE NUMBER: MO-2013-01
SITE NAME: BOONE COUNTY FIRE
SITE ADDRESS: 2201 I-70 DR. NW
COLUMBIA, MO 65201
FACILITY OCC: BOONE COUNTY FIRE DISTRICT
LEASE AREA: 70' x 100' x 120'
EQUIPMENT ENCLOSURE: OUTDOOR EQUIPMENT CABINETS
CURRENT ZONING: C-P, PLANNED BUSINESS
PROPERTY OWNER: BOONE COUNTY FIRE
PROTECTION DISTRICT
PROPERTY CONTACT: BOONE COUNTY FIRE
PROTECTION DISTRICT
2201 I-70 DR. NW
COLUMBIA, MO 65202
(573) 447-5000
PARCEL ID: 16-211-00-01-004.00-01
APPLICANT: ST. CHARLES TOWER
4 WEST DRIVE, SUITE 110
CHESTERFIELD, MO 63017
(636) 937-9550

ENGINEERING FIRM: GATEWAY LAND SERVICES, INC.
4 WEST DRIVE, SUITE 110
CHESTERFIELD, MO 63017
(314) 368-3040
MICHAEL BUESCHER, P.E.

Missouri One Call System, Inc.
Call Before You Dig!
1-800-DIG-RITE
(1-800-344-7483)

ST. CHARLES TOWER
BOONE COUNTY FIRE

SCT # MO-2013-01
2201 I-70 Dr. NW
Columbia, MO 65201
Boone County
GLS Project # 13-0129

GPS COORDINATES

LATITUDE: 38° 58' 14.265"

LONGITUDE: 92° 22' 24.731"

ELEVATION AT GRADE: 718'

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	
C-1	OVERALL SITE PLAN	
C-1.1	STORMWATER CALCULATIONS	
C-2	SITE PLAN	
C-3	ELEVATION	
C-4	FENCE DETAILS	
E-1	ELECTRIC DETAILS	
E-2	ELECTRIC DETAILS	
GN-1	GENERAL NOTES	
GN-2	GENERAL NOTES	
GN-3	GENERAL NOTES	
GN-4	GENERAL NOTES	
SUV-1	BOUNDARY AND TOPOGRAPHIC SURVEY	

APPROVALS

ST. CHARLES
TOWER

DATE

PROPERTY OWNER
OWNERS' REP/LESSOR

DATE

001873

GLS GATEWAY
LAND SERVICES
Engineering
Surveying

Gateway Land Services, Inc.
4 West Drive, Suite 110
Chesterfield, MO 63017
314.881.9556
1-636.530.9825
www.glsst.com

The Professional Engineer's seal affixed to this sheet indicates that the named Engineer has prepared or directed the preparation of the material shown only on this sheet. Other drawings and documents not exhibiting this seal shall not be considered prepared by or the responsibility of the undersigned.

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201

DATE: 08/27/13
DRAFTED BY: LLW
APPROVED BY: MAB

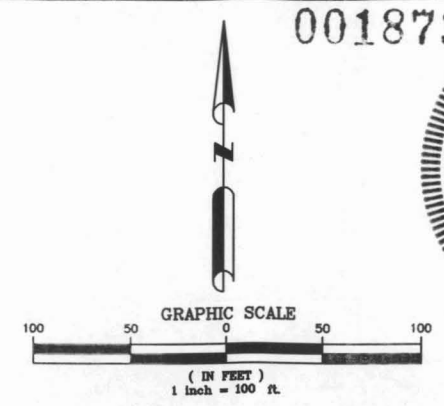
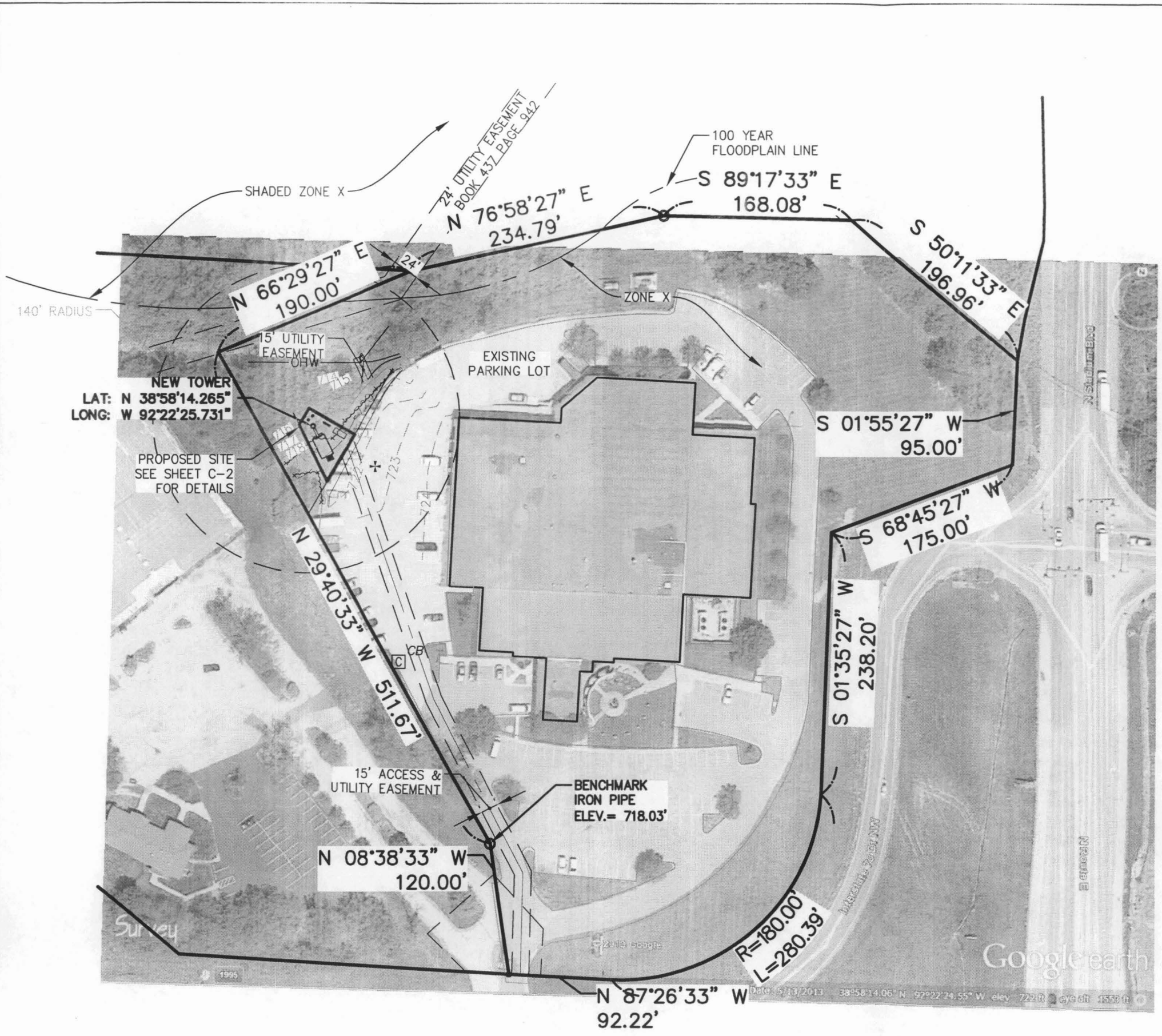
SHEET TITLE:
TITLE SHEET

SHEET NUMBER:

T-1

PROJECT NO: 13-129

G:\2013\100-199\13-129_COSMO PARK\05_CAD\13-129 N.DWG
12/11/2013 7:55 AM



001873



GLS GATEWAY
LAND SERVICES
Engineering
Surveying
Gateway Land Services, Inc.
4 West Drive, Suite 110
Chesterfield, MO 63017
314.881.9556
1-636.530.9825
www.glsll.com

Parent Tract Description:

A tract of land being Lot 1 of Scheulen Acres Block IV, recorded in Plat Book 18 page 20 of the Boone County Missouri records and being more particularly described as follows:

Beginning at the Southeast corner of a tract of land conveyed by deed to 2013-11 Bodevel, LLC., recorded in Book 4196 page 152, thence Northerly along the East line of said 2013-11 Bodevel, LLC. tract, North 08 degrees 38 minutes 33 seconds West a distance of 120.00 feet to a point; thence North 29 degrees 40 minutes 33 seconds West a distance of 511.67 feet to a point; thence North 66 degrees 29 minutes 27 seconds East a distance of 190.00 feet to a point on the South line of a tract of land conveyed by deed to North Stadium Investments, recorded in Book 4144 page 96; thence Easterly along said South line, North 76 degrees 58 minutes 27 seconds East a distance of 234.79 feet to a point; thence North 89 degrees 17 minutes 33 seconds East a distance of 168.08 feet to a point; thence South 50 degrees 11 minutes 33 seconds East a distance of 196.96 feet to a point on the West right of way line of Stadium Boulevard; thence Southerly along said West line, South 01 degrees 55 minutes 27 seconds West a distance of 95.00 feet to a point on the North right of way line of Interstate 70 Drive Northwest; thence Westerly along said North line, South 68 degrees 45 minutes 27 seconds West a distance of 175.00 feet to a point; thence South 01 degrees 35 minutes 27 seconds West a distance of 238.20 feet to a point of curvature; thence along said curve being a curve to the right having a radius of 180.00 feet, an arc length of 280.39 feet to a point; thence North 87 degrees 26 minutes 33 seconds West a distance of 92.22 feet to the point of beginning, containing 293,931 square feet or 6.748 acres more or less.

FLOODPLAIN NOTES:

Zone X: Areas determined to be outside the 0.2% annual chance floodplain. No floodplain elevation has been determined.

Shaded Zone X: Areas of 0.2% chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; an areas protected by levees from 1% annual chance flood. No floodplain elevation has been determined.

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

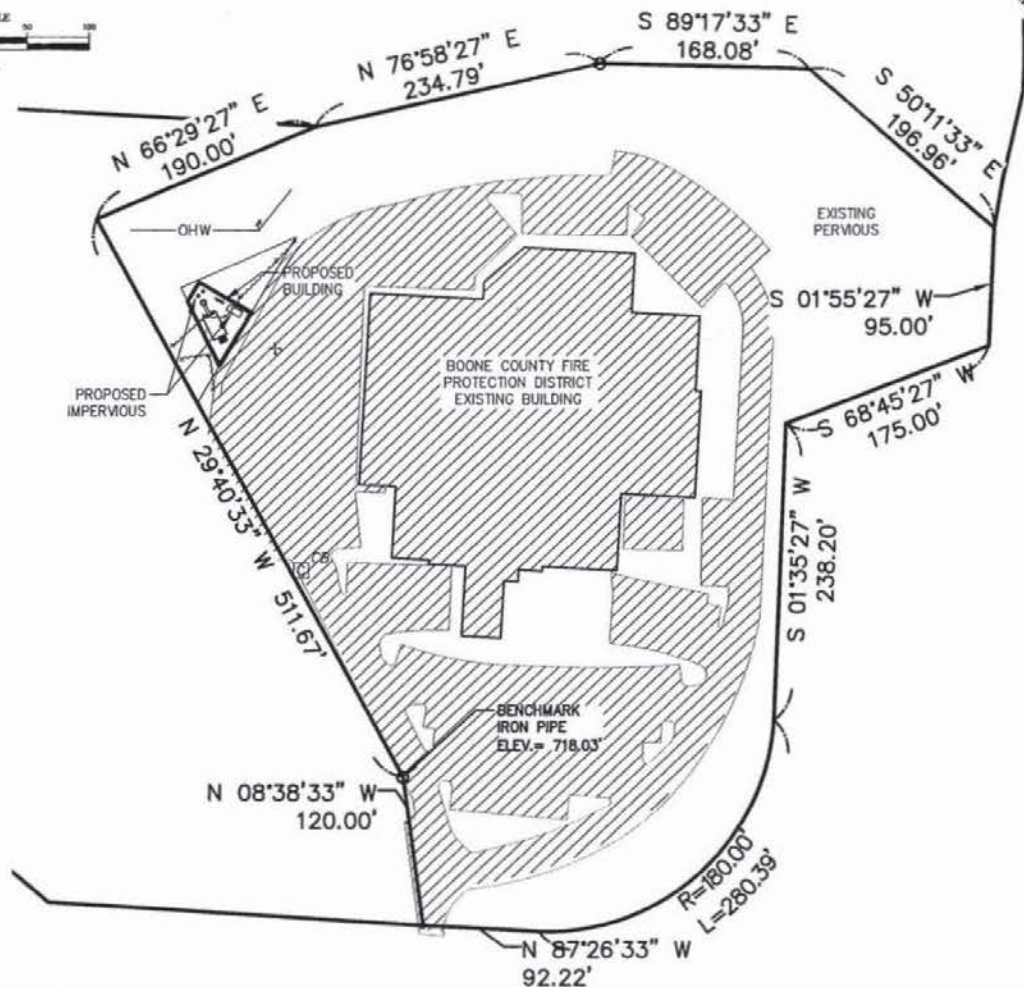
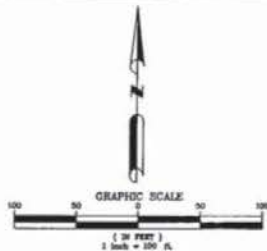
2201 I-70 Dr. NW
Columbia, MO 65201

DATE: 08/27/13
DRAFTED BY: LLW
APPRVD. BY: LCF

SHEET TITLE:
OVERALL SITEPLAN

SHEET NUMBER:
C1

PROJECT NO: 13-129



001873

1 yr Existing	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,251.68	19.85%	1.337	0.90	2.40	2.889
Pavement	103,885.41	35.41%	2.385	0.90	2.40	5.151
Pervious	131,254.41	44.74%	3.013	0.30	2.40	2.169
Total	293,391.50	100.00%	6.735			10.209

1 yr Proposed	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,505.53	19.94%	1.343	0.90	2.40	2.901
Pavement	103,935.40	35.43%	2.386	0.90	2.40	5.154
Pervious	130,950.57	44.63%	3.006	0.30	2.40	2.164
Total	293,391.00	100.00%	6.735			10.219

1 yr storm Change in CFS = 0.01 CFS

2 yr Existing	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,251.68	19.85%	1.337	0.90	3.20	3.851
Pavement	103,885.41	35.41%	2.385	0.90	3.20	6.868
Pervious	131,254.41	44.74%	3.013	0.30	3.20	2.893
Total	293,391.50	100.00%	6.735			13.612

2 yr Proposed	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,505.53	19.94%	1.343	0.90	3.20	3.868
Pavement	103,935.40	35.43%	2.386	0.90	3.20	6.872
Pervious	130,950.57	44.63%	3.006	0.30	3.20	2.886
Total	293,391.00	100.00%	6.735			13.626

2 yr storm Change in CFS = 0.013 CFS

10 yr Existing	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,251.68	19.85%	1.337	0.90	4.50	5.416
Pavement	103,885.41	35.41%	2.385	0.90	4.50	9.659
Pervious	131,254.41	44.74%	3.013	0.30	4.50	4.068
Total	293,391.50	100.00%	6.735			19.143

10 yr Proposed	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,505.53	19.94%	1.343	0.90	4.50	5.440
Pavement	103,935.40	35.43%	2.386	0.90	4.50	9.663
Pervious	130,950.57	44.63%	3.006	0.30	4.50	4.058
Total	293,391.00	100.00%	6.735			19.161

10 yr storm Change in CFS = 0.019 CFS

100 yr Existing	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,251.68	19.85%	1.337	0.90	6.70	8.064
Pavement	103,885.41	35.41%	2.385	0.90	6.70	14.381
Pervious	131,254.41	44.74%	3.013	0.30	6.70	6.057
Total	293,391.50	100.00%	6.735			28.501

100 yr Proposed	Sq. Ft	Coverage	Acres	"C"	"I"	CFS
Roof	58,505.53	19.94%	1.343	0.90	6.70	8.099
Pavement	103,935.40	35.43%	2.386	0.90	6.70	14.388
Pervious	130,950.57	44.63%	3.006	0.30	6.70	6.042
Total	293,391.00	100.00%	6.735			28.529

100 yr storm Change in CFS = 0.028 CFS

GLS Gateway
Land Services, Inc.
Engineering
Surveying

Gateway Land Services, Inc.
4 West Drive, Suite 110
Chesterfield, MO 63017
314.881.5556
1-800-530-9825
www.glsd.com

The Professional Engineer's seal is not to be used on any project unless the project is within the scope of the engineer's license and the project is within the jurisdiction of the engineer.

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201

DATE: 06/27/13
DRAFTED BY: LLW
APPROVED BY: LCT

SHEET TITLE:
STORMWATER
CALCULATIONS

SHEET NUMBER:

C1.1

PROJECT NO: 13-129

001873



NOTES:

1. CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. (1-800-DIG-RITE)
2. GRADING OF SITE TO BE LIMITED TO THE AREA WITHIN LEASE SPACE. CONTRACTOR TO GRADE SITE TO DIRECT FLOW OF WATER AWAY FROM TOWER.
3. CONTRACTOR SHALL RE-SEED OR RESURFACE ALL DISTURBED AREAS TO ORIGINAL CONDITION.
4. SCRAPE TOP 6" OF TOPSOIL TO REMOVE ROOTS AND WEEDS PRIOR TO COMPACTING BASE AND INSTALLING CRUSHED LIMESTONE SITE FINISH.
5. ALL PVC CONDUITS SHALL BE SCH 80 UNLESS ENCASED IN CONCRETE.

KEYED NOTES: ○

1. NEW 140" MONOPOLE AND CONCRETE FOUNDATION.
2. NEW 8' HIGH CHAIN LINK FENCE WITH EARTH TONE VINYL SLATS TO 80% OPACITY. SEE SHEET C-4 FOR DETAILS.
3. EQUIPMENT SHELTER (BY OTHERS).
4. PROPOSED LEASE AREA LINE.
5. UTILITY RACK (BY OTHERS).
6. NEW COMPOUND ACCESS GATE(S). SEE SHEET C-4 FOR DETAILS.
7. NEW (2) 2" CALIPER TREES TO BE USED AS NOMINAL BMPs THAT WILL IMPROVE SITE SPECIFIC EVAPOTRANSPIRATION.
8. NEW LEASE AREA ACCESS.
9. CENTURY LINK BURIED MARKERS.
10. IMPROVEMENT AREA (1,615 SQ.FT.).
11. AREA OUTSIDE IMPROVED AREA TO REMAIN UNDISTURBED.
12. FUTURE GENERATOR PAD (BY OTHERS).

GLS Gateway Engineering & Surveying

Gateway Land Services, Inc.
4 West Chase, Suite 100
Chesterfield, MO 63005
314.283.1070
FAX 314.283.1070
www.gls-engineering.com

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 L-70 Dr. NW
Columbia, MO 65201

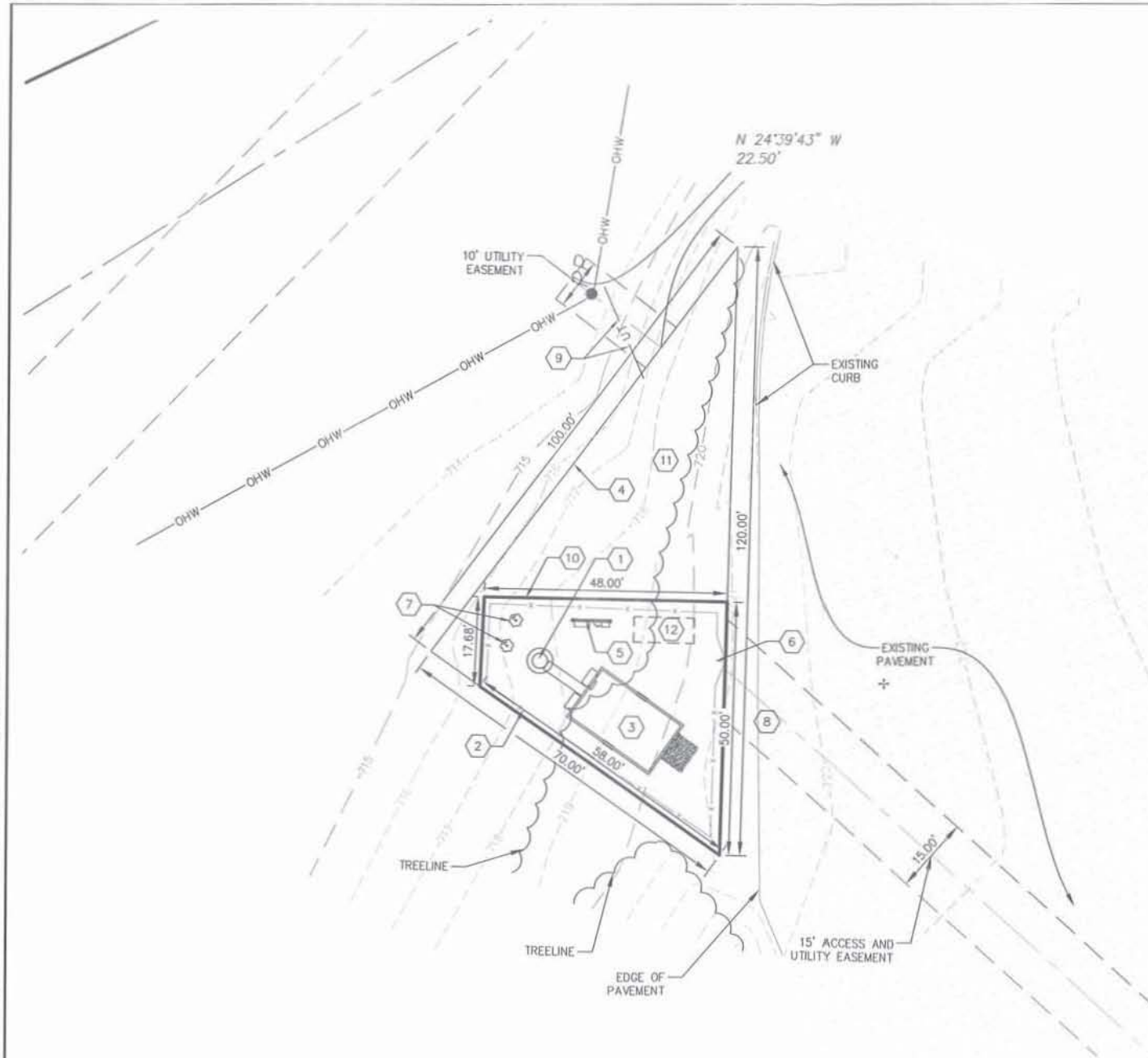
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DRAFTED BY: LLW
APPROVED BY: LST

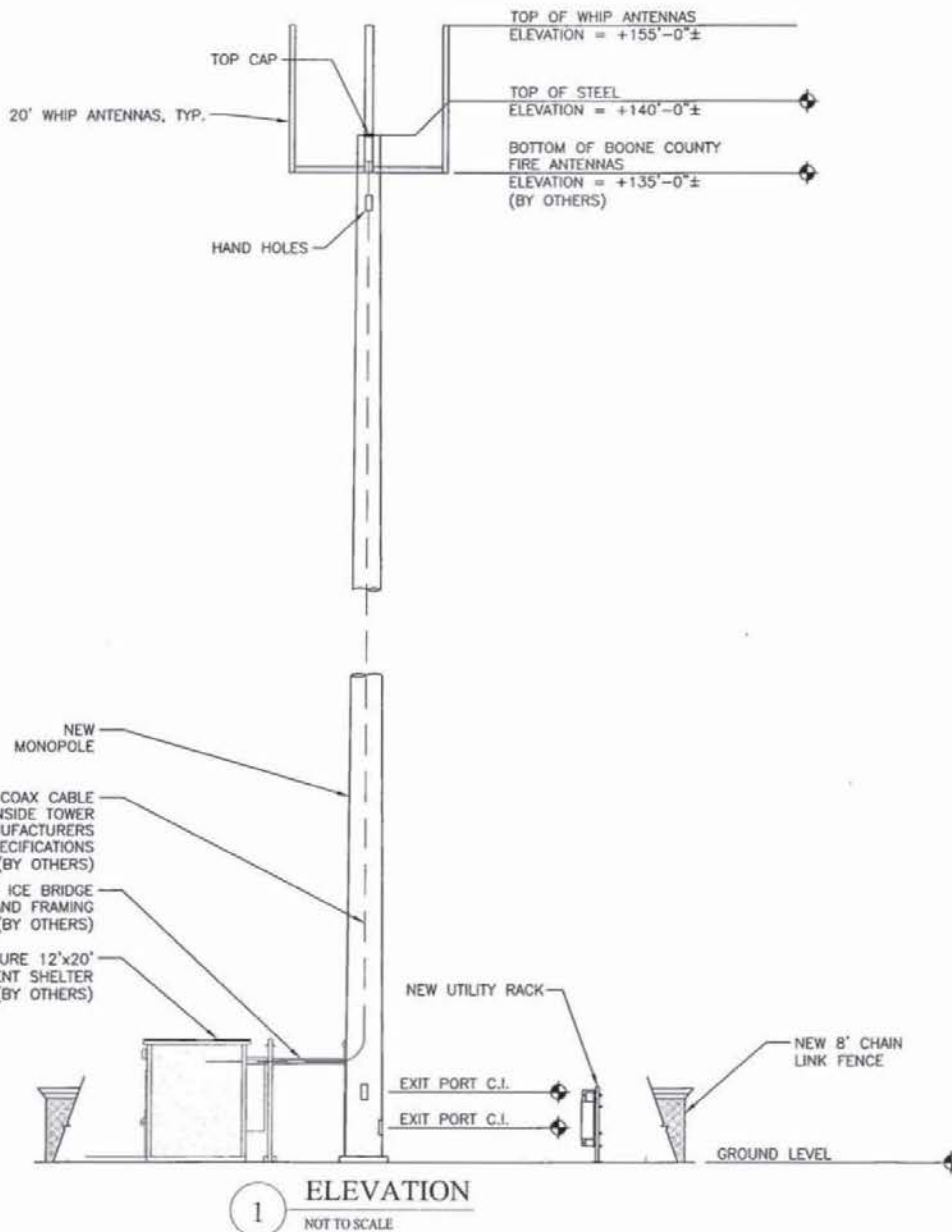
SHEET TITLE:
SITEPLAN

SHEET NUMBER:

C2

PROJECT NO: 15-129





GENERAL NOTES

- ELEVATION IS FOR REFERENCE PURPOSE ONLY. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- CONTRACTOR SHALL PERFORM WORK DONE TO OR ON STRUCTURE IN ACCORDANCE WITH PROVIDED STRUCTURAL ANALYSIS PROVIDED BY OTHERS.
- ANTENNAS, COAX, SUPPORTS, AND ETC. SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
- TOP OF ANTENNA WILL NOT EXTEND BEYOND TOP OF LIGHTNING ROD.

GENERAL NOTES

- STEEL WORK SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.
- WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS USING E70XX ELECTRODES. WELDING SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. AT THE COMPLETION OF WELDING, DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
- STEEL BOLTING - ASTM A325-N BOLTS, 3/4" DIAMETER. NON SLIP CRITICAL CONNECTIONS AND SHALL HAVE A MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY WITH THE LOCAL AUTHORITIES (CITY, COUNTY, OR STATE) FOR THE GOVERNING BUILDING CODE.
- THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING AGENCY TO PERFORM ANY STRUCTURAL INSPECTIONS WHICH ARE REQUIRED BY THE LOCAL CODE OR GOVERNING AUTHORITY. THE CONTRACTOR SHALL HAVE AN INDEPENDENT INSPECTOR VISUALLY INSPECT FIELD WELDING AND BOLTING. THE INSPECTOR SHALL PROVIDE A REPORT TO THE CONTRACTING AGENT AND OWNER'S REPRESENTATIVES. DEFICIENCIES SHALL BE RECTIFIED.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENTS AND/OR EXISTING DRAWINGS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE CONTRACTING AGENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THIS WORK.
- THE CONTRACTOR SHALL NOT INTERFERE WITH THE FACILITY'S NORMAL OPERATIONS. ACCESS TO THE WORK AREA SHALL BE AS DIRECTED BY THE FACILITY'S OWNER.
- THE CONTRACTOR SHALL CONFINE THEIR OPERATIONS TO THE DESIGNATED AREAS AND SHALL KEEP THE CONSTRUCTION AREA CLEAN. AISLES AND PATHWAYS SHALL BE KEPT UNOBSTRUCTED.
- THE CONTRACTOR SHALL COORDINATE THE WORK OF VARIOUS TRADES SO AS TO INSURE PROPER SEQUENCING AND INSTALLATION.
- DAMAGE TO THE EXISTING FACILITY SHALL BE REPAIRED OR REPLACED TO MATCH EXISTING ORIGINAL CONDITIONS AT THE CONTRACTOR'S EXPENSE.
- STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.
- STEEL 'W' SHAPES SHALL CONFORM TO ASTM A992.
- SIZE STANDARD BEAM CONNECTIONS BASED ON 3/4 OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. USE DOUBLE CLIP ANGLES AND AISC TABLE II-A UNLESS INDICATED OTHERWISE.
- STEEL ANGLES AND PLATES - ASTM A36.
STEEL TUBES SHAPES - ASTM A500 GRADE B.
STEEL PIPES - ASTM A53 TYPE E.
- CONTRACTOR SHALL COORDINATE AND VERIFY LAYOUT, PLACEMENT, ECT. OF EQUIPMENT PRIOR TO FABRICATION AND ERECTION.
- VERIFY EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.

001873

GIS GATEWAY
LAND SERVICES, INC.
Engineering
Surveying
4 West Olive, Suite 110
Chesterfield, MO 63017
314.881.8556
JAB@GSLSI.COM
www.gslsi.com

The Professional Engineer and Surveyor in the State of Missouri, hereby certifies that the work shown on this drawing was done by him or her, or under his or her direct supervision, and that he or she is a duly licensed Professional Engineer and Surveyor in the State of Missouri.

PROJECT REVISION

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201



DATE: 08/27/13
DRAWN BY: LLW
APPROVED BY: LCT

SHEET TITLE:
ELEVATION

SHEET NUMBER:
C3

PROJECT NO: 13-128

NOT TO SCALE

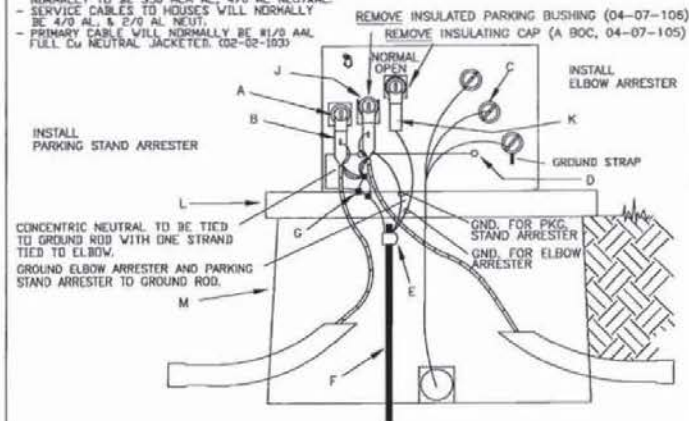
001873



GLS GATEWAY
LAND SERVICES, INC.
4 West Drive, Suite 110
Chesterfield, MO 63017
314.881.9000
FAX: 314.881.9001
www.gls.com

NOTES:

- ENGR. DEPT. TO SPECIFY TRANSFORMER SIZE.
- ENGR. DEPT. TO SPECIFY THE NUMBER AND ARRANGEMENT OF DUCTS.
- TRANSFORMER MAY BE RADIAL OR LOOP FED.
- SECONDARY CABLE TO SECONDARY BOXES NORMALLY TO BE 350 MCM AL, 4/0 AL NEUTRAL.
- SERVICE CABLES TO HOUSES WILL NORMALLY BE 4/0 AL & 2/0 AL NEUT.
- PRIMARY CABLE WILL NORMALLY BE #1/0 AAL FULL CU NEUTRAL JACKETED. (02-02-103)



NOTE: THIS IS FOR NORMAL OPEN TRANSFORMERS ONLY.

- * AS REQUIRED
- o = OWNER FURNISHED
- c = CONTRACTOR FURNISHED

BILL OF MATERIAL				
KEY	ITEM	DESCRIPTION	QTY	STOCK NUMBER
A	12KV ELBOWS		2	04-07-107
B	12KV ELBOWS		2	04-07-101
C	SECONDARY FUSED FOR TRANSFORMER		3	16-02-108
D	TANK (SCHEDULE)		2	18-05-104
E	GROUND ROD CLAMP		3	18-05-101
F	GROUND ROD		1	18-05-100
G	#2 SPLIT BOLTS		3	06-01-100
H	CLEANING KIT		4	04-01-104
J	PARKING STAND ARRESTER		1	13-01-108
K	ELBOW ARRESTER		1	13-01-105
L	PLASTIC STUB PAD		1	22-01-105
M	SECONDARY HANDHOLE		1	16-01-108
N	SILICON GREASE		2	04-02-104

CITY OF COLUMBIA, MISSOURI
DISTRIBUTION ASSEMBLIES

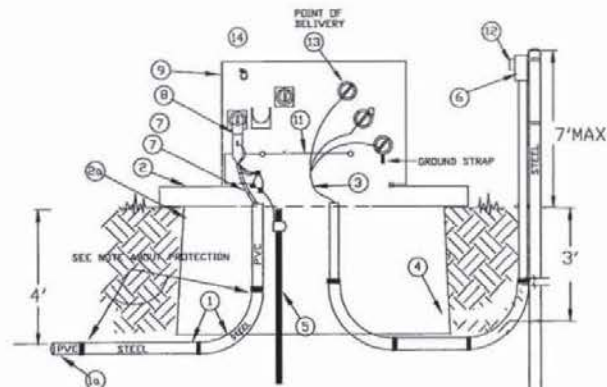
DATE: REVISIONS AND REASONS OF ISSUE BY: JTB

DRAWN BY: JTB
CHECKED BY: JTB
DATE: 12-22-95

1# TRANSFORMER
WITH NORMAL OPEN

PWT 1A

COLUMBIA WATER AND LIGHT DEPARTMENT (CW&L)

STANDARD COMMERCIAL OR INDUSTRIAL
1Ø, 600A, SERVICE TO METER CENTER

NOTE: CUSTOMER TO FURNISH AND INSTALL SCOTCHRAP PIPE PRIMER AND SCOTCHRAP 50 (4" ALL WEATHER CORROSION PROTECTION TAPE) WITH 1/2" OVERLAP ON ALL BELOW GRADE STEEL.

FURNISHED & INSTALLED BY CUSTOMER:

- #1- 36" SWEEP-RIGID STEEL 90° AND ONE 10' SECTIONS OF 3" RIGID STEEL CONDUIT
- ALL ELBOWS TO BE WRAPPED RIGID STEEL
- #1a- PRIMARY CONDUIT - SCHEDULE 40 PVC TO DEMARCATION, 4' DEEP, COORDINATE WITH CVL
- #2a- SECONDARY HAND-HOLE (#16-01-106), CALL 874-6213 FOR PICK-UP
- #3- SECONDARY CABLES
- #4- SECONDARY CONDUIT(S) OR RACEWAY THREE FEET DEEP
- #5- 5/8" X 8" GROUND ROD
- #6- METER CENTER

FURNISHED & INSTALLED BY CW&L:

- #2- BLACK FIBERGLASS BASE
- #7- PRIMARY CABLE
- #8- PRIMARY ELBOW & LB2B
- #9- PAD-MOUNT TRANSFORMER
- #11- GROUND CONDUCTOR
- #12- METER (S)
- #13- SECONDARY CONNECTORS
- #14- SECONDARY CONNECTORS

6-93 JTB

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 L-70 Dr. NW
Columbia, MO 65201

DATE: 08/27/13
DRAFTED BY: LLW
APPROVED BY: MAB

SHEET TITLE:
ELECTRIC
DETAILS

SHEET NUMBER:

E2

PROJECT NO: 13-129

DOI: 10.1002/1522-2675(200009)124:09<1205::AID-MPAG1205>3.0.CO;2-1

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PROJECT REVISION:

NO:	DATE:	DESCRIPTION:
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2201 I-70 Dr. NW
Columbia, MO 65201

PROJECT NO: 13-129

PART 1 - GENERAL

1.1 REFERENCES

- A. DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION—CURRENT EDITION).
 - B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).
 - C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION).
- 1.2. INSPECTION AND TESTING:
- A. FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS SHALL BE PERFORMED BY SUBCONTRACTORS INDEPENDENT TESTING LAB. THIS WORK TO BE COORDINATED BY THE SUBCONTRACTOR.
 - B. ALL WORK SHALL BE INSPECTED AND RELEASED BY THE GENERAL CONTRACTOR WHO SHALL CARRY OUT THE GENERAL INSPECTION OF THE WORK WITH SPECIFIC CONCERN TO PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND/OR CALLED FOR ON THE DRAWINGS. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO REQUEST TIMELY INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF WORK INACCESSIBLE OR DIFFICULT TO INSPECT.
- 1.3. SITE MAINTENANCE AND PROTECTION:
- A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE SUBCONTRACT.
 - B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
 - C. KEEP SITE FREE OF ALL PONDING WATER.
 - D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT AND EPA REQUIREMENTS.
 - E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
 - F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ENGINEER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.
1. PROVIDE A MINIMUM 48-HOUR NOTICE TO THE ENGINEER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.

PART 2 - PRODUCTS

- 2.1 SUITABLE BACKFILL: ASTM D2321 (CLASS I, II, OR NA) FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.2 NON-POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS III, NA OR I/B) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.3 POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS I, II, OR I/B) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.
- 2.4 SELECT STRUCTURAL FILL: GRANULAR FILL MATERIAL MEETING THE REQUIREMENTS OF ASTM E850-85. FOR USE AROUND AND UNDER STRUCTURES WHERE STRUCTURAL FILL MATERIAL ARE REQUIRED.
- 2.5 GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRADED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (SE OR SW-SM).
- 2.6 COARSE AGGREGATE FOR ACCESS ROAD SUBBASE COURSE SHALL CONFORM TO ASTM D2940.
- 2.7 UNSUITABLE MATERIAL: HIGH AND MODERATELY PLASTIC SILTS AND CLAYS (LL>45), MATERIAL CONTAINING REFUSE, FROZEN LUMPS, DEMOLISHED STRUCTURAL MATERIAL, VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN ANY DIMENSION, AND DEBRIS AS DETERMINED BY THE CONSTRUCTION MANAGER. TYPICAL THESE WILL BE SOILS CLASSIFIED BY ASTM AS PT, MH, CH, OH, ML, AND OL.
- 2.8 GEOTEXTILE FABRIC: MIRAFI 500X OR APPROVED EQUAL.
- 2.9 PLASTIC MARKING TAPE: SHALL BE ACID AND ALKALI RESISTANT POLYETHYLENE FILM SPECIFICALLY MANUFACTURED FOR MARKING AND LOCATING UNDERGROUND UTILITIES, 6 INCHES WIDE WITH A MINIMUM THICKNESS OF 0.004 INCH. TAPE SHALL HAVE MINIMUM STRENGTH OF 1500 PSI IN BOTH DIRECTIONS AND MANUFACTURED WITH INTEGRAL CONDUCTORS, FOL BACKING OR OTHER MEANS TO ENABLE DETECTION BY A METAL DETECTOR WHEN BURIED UP TO 3 FEET DEEP. THE METALLIC CORE OF THE TAPE SHALL BE ENCASED IN A PROTECTIVE JACKET OR PROVIDED WITH OTHER MEANS TO PROTECT IT FROM CORROSION. TAPE COLOR SHALL BE RED FOR ELECTRIC UTILITIES AND ORANGE FOR TELECOMMUNICATION UTILITIES.

PART 3 - EXECUTION

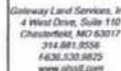
- 3.1 GENERAL:
- A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ANY TIME.

- D. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK.
 - E. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.
 - F. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE. RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.
 - G. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNSUITABLE MATERIALS.
 - H. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING AND DEMOLITION WORK COMPLETELY WITH SUITABLE FILL.
 - I. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.
 - J. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
 - K. SEPARATE AND STOCK PILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
2. BACKFILL:
- A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.
 - B. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.
 - C. BACKFILL BY PLACING AND COMPACTING SUITABLE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS AND COMPACTED. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.
 - D. WHENEVER THE DENSITY TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE SPECIFICATION REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DISKING AND DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE MINIMUM COMPACTION REQUIREMENTS.
 - E. THOROUGHLY COMPACT EACH LAYER OF BACKFILL TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.
3. TRENCH EXCAVATION:
- A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
 - B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.
 - C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, BACKFILL AT THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION AND BACKFILL WITH GRANULAR BEDDING MATERIAL.
4. TRENCH BACKFILL:
- A. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.
 - B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
 - C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
 - D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.
 - E. PROTECT CONDUIT FROM LATERAL MOVEMENT, IMPACT DAMAGE, OR UNBALANCED LOADING.
 - F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 8-INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
 - G. COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH BUT NO LESS THAN A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 698.

3.5 AGGREGATE ACCESS ROAD

- C. CLEAR, GRUB, STRIP AND EXCAVATE FOR THE ACCESS ROAD TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. SCARIFY TO A DEPTH OF 6 INCHES AND PROOF-ROLL. ALL HOLES, RUTS, SOFT SPACES AND OTHER DEFECTS SHALL BE CORRECTED.
 - B. THE ENTIRE SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D 1557.
 - C. AFTER PREPARATION OF THE SUBGRADE IS COMPLETE, THE GEOTEXTILE FABRIC (MIRAFI 500X) SHALL BE INSTALLED TO THE LIMITS INDICATED ON THE DRAWINGS BY ROLLING THE FABRIC OUT LONGITUDINALLY ALONG THE ROADWAY. THE FABRIC SHALL NOT BE DRAGGED ACROSS THE SUBGRADE. PLACE THE ENTIRE ROLL IN A SINGLE OPERATION, ROLLING OUT AS SMOOTHLY AS POSSIBLE.
1. OVERLAPS PARALLEL TO THE ROADWAY WILL BE PERMITTED AT THE CENTERLINE AND AT LOCATIONS BEYOND THE ROADWAY SURFACE WIDTH (I.E. WITHIN THE SHOULDER WIDTH) ONLY. NO LONGER ORDNAL OVERLAPS SHALL BE LOCATED BETWEEN THE CENTERLINE AND THE SHOULDER. PARALLEL OVERLAPS SHALL BE A MINIMUM OF 3 FEET WIDE.
 2. TRANSVERSE (PERPENDICULAR TO THE ROADWAY) OVERLAPS AT THE END OF A ROLL SHALL OVERLAP IN THE DIRECTION OF THE AGGREGATE PLACEMENT (PREVIOUS ROLL ON TOP) AND SHALL HAVE A MINIMUM LENGTH OF 3 FEET.
 3. ALL OVERLAPS SHALL BE PINNED WITH STAPLES OR NAILS A MINIMUM OF 10 INCHES LONG TO INSURE POSITIONING DURING PLACEMENT OF AGGREGATE. PIN LONGITUDINAL SEAMS AT 25 FOOT CENTERS AND TRANSVERSE SEAMS EVERY 5 FEET.
 - D. THE AGGREGATE BASE AND SURFACE COURSES SHALL BE CONSTRUCTED IN LAYERS NOT MORE THAN 4 INCH (COMPACTED) THICKNESS. AGGREGATE TO BE PLACED ON GEOTEXTILE FABRIC SHALL BE END-DUMPED ON THE FABRIC FROM THE FREE END OF THE FABRIC OR OVER PREVIOUSLY PLACED AGGREGATE. THE FIRST LIFT SHALL BE BLADED DOWN TO A THICKNESS OF 8 INCHES PRIOR TO COMPACTON. AT NO TIME SHALL EQUIPMENT, EITHER TRANSPORTING THE AGGREGATE OR GRADING THE AGGREGATE, BE PERMITTED ON THE ROADWAY WITH LESS THAN 4 INCHES OF MATERIAL COVERING THE FABRIC.
 - E. THE AGGREGATE SHALL BE IMMEDIATELY COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE PROCTOR TEST, ASTM D 1557 WITH A TAMPING ROLLER, OR WITH A PNEUMATIC-TIRED ROLLER, OR WITH A VIBRATORY MACHINE OR ANY COMBINATION OF THE ABOVE. THE TOP LAYER SHALL BE GIVEN A FINAL ROLLING WITH A THREE-WHEEL OR TANDEM ROLLER.
- 3.6 FINISH GRADING:
- A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH, EVEN SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.
 - B. UTILIZE SATISFACTORY FILL MATERIAL, RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
 - C. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.
- 3.7 ASPHALT PAVING ROAD:
- A. SECTION 403 - MODOT ASPHALT CONCRETE PAVEMENT.

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[illegible]

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201

DATE: 08/27/1

DRAFTED BY: LLW

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

GN2

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PROJECT NO. 12-12



CONCRETE WORK

PART 1 - GENERAL

1.1 SCOPE:

- A. FORM WORK, REINFORCING STEEL, ACCESSORIES, CAST-IN PLACE CONCRETE, FINISHING, CURING AND TESTING FOR STRUCTURAL CONCRETE FOUNDATIONS.

1.2 REFERENCES:

- A. ACI (AMERICAN CONCRETE INSTITUTE)
 1. ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
 2. ACI 304 RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE.
 3. ACI 305 RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING.
 4. ACI 306 RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING.
 5. ACI 308 STANDARD PRACTICE FOR CURING CONCRETING.
 6. ACI 309 STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE.
 7. ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
 8. ACI 347 RECOMMENDED PRACTICE FOR CONCRETE FORM WORK DRILL PIERS.
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS). THE APPLICABLE STANDARDS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS ARE LISTED IN THE ACI STANDARDS AND ARE A PART OF THIS SPECIFICATION.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS:

- A. REINFORCING BARS: ASTM A615, GRADE 60, PROPOSED DEFORMED BILLET-STEEL BARS, PLAIN FINISH.
- B. FURNISH CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS AS REQUIRED FOR SUPPORT OF REINFORCING STEEL AND WIRE FABRIC.

2.2 CONCRETE MATERIALS:

- A. PORTLAND CEMENT SHALL BE TYPE II, CONFORMING TO ASTM C-150.
- B. AGGREGATE SHALL CONFORM TO ASTM C-33.
 1. FINE AGGREGATE SHALL BE UNIFORMLY GRADED, CLEAN SHARP, WASHED NATURAL, OR CRUSHED SAND, FREE FROM ORGANIC IMPURITIES.
 2. COARSE AGGREGATE SHALL BE NATURAL WASHED GRAVEL OR WASHED CRUSHED ROCK HAVING HARD, STRONG, DURABLE PIECES, FREE FROM ADHERENT COATINGS.
 3. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4 INCH IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C-33 GRADATION SIZE NO. 67.
- C. WATER USED IN CONCRETE MIX SHALL BE POTABLE, CLEAN, AND FREE FROM OILS, ACIDS, SALTS, CHLORIDES, ALKALI, SUGAR, VEGETABLE, OR OTHER INJURIOUS SUBSTANCES.
- D. THE CONCRETE SHALL CONTAIN AN AIR-ENTRAINING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-260 AND ACI 212.1R AND A WATER-REDUCING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-494 AND ACI 212.1R. ADMIXTURES SHALL BE PURCHASED AND BATCHED IN LIQUID SOLUTION. THE USE OF CALCIUM CHLORIDE OR AN ADMIXTURE CONTAINING CALCIUM CHLORIDE IS PROHIBITED. ADMIXTURES SHALL BE OF THE SAME MANUFACTURER TO ASSURE COMPATIBILITY. ACCEPTABLE MANUFACTURERS ARE:
 1. W.R. GRACE
 2. Sika Corp.
 3. MASTER BUILDERS
 4. ELUCID CHEMICAL CO.
- E. CURING COMPOUND SHALL CONFORM TO ASTM C309, TYPE I, ID, CLASS A AND B AND ASTM C171 AS APPLICABLE.

2.3 CONCRETE MIX:

- A. PROPORTION CONCRETE MIX IN ACCORDANCE WITH REQUIREMENTS OF ACI 301. THE STRENGTH OF CONCRETE SHALL BE AS INDICATED ON THE DRAWINGS. WHERE STRENGTH IS NOT CLEARLY INDICATED, CONCRETE OF MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI SHALL BE USED.
- B. THE CONCRETE MIX SHALL BE DESIGNED FOR A MAXIMUM SLUMP OF THREE INCHES AT THE POINT OF DISCHARGE. MIXES OF THE STIFFEST CONSISTENCY THAT CAN BE EFFICIENTLY PLACED SHALL BE USED.
- C. ALL CONCRETE SHALL HAVE (3) TO FIVE (5) PERCENT ENTRAINED AIR.
- D. ALL STRUCTURAL CONCRETE SHALL CONTAIN A WATER-REDUCING AGENT.
- E. ALL POURED CONCRETE LOCATIONS SHALL HAVE 7-14 AND 28 DAY TESTING BREAKS. TESTING REPORTS MUST INDICATE LOCATION OF TEST CYLINDER.

PART 3 - EXECUTION

3.1 GENERAL:

- A. CONSTRUCT AND ERECT THE FORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 347.
- B. COLD-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306.
- C. HOT-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305.

3.2 INSERTS, EMBEDDED COMPONENTS AND OPENINGS:

- A. CONTRACTOR SHALL CHECK ALL CIVIL, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHOR BOLTS, INSERTS AND OTHER ITEMS TO BE BUILT INTO THE CONCRETE WORK.
- B. COORDINATE THE WORK OF OTHER SECTION IN FORMING AND SETTING OPENINGS. RECESSES, SLOTS, CHASES, ANCHORS, INSERTS AND OTHER ITEMS TO BE EMBEDDED.
- C. EMBEDDED ITEMS SHALL BE SET ACCURATELY IN LOCATION, ALIGNMENT, ELEVATION AND PLUMBNESS, LOCATE AND MEASURE FROM ESTABLISHED SURVEYED REFERENCE BENCHMARKS.
- D. EMBEDDED ITEMS SHALL BE ANCHORED INTO PLACE IN A MANNER TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT AND CONSOLIDATION. COMPONENTS FORMING A PART OF A COMPLETE ASSEMBLY SHALL BE ALIGNED BEFORE ANCHORING INTO PLACE. PROVIDE TEMPORARY BRACING, ANCHORAGE, AND TEMPLATES AS REQUIRED TO MAINTAIN THE SETTING AND ALIGNMENT.

3.3 REINFORCEMENT PLACEMENT:

- A. PLACE REINFORCEMENT ACCORDING TO CHECKED AND RELEASED DRAWINGS AND IN ACCORDANCE WITH ACI 301 AND ACI 318.
- B. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT FROM FORM WORK CONSTRUCTION OR CONCRETE PLACEMENT AND CONSOLIDATION. SUPPORT REINFORCING ON METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS AND HANGERS.
- C. SPLICES OF REINFORCING BARS SHALL BE CLASS B UNLESS SHOWN OTHERWISE ON THE DRAWINGS. SPLICES SHALL BE STAGGERED. FULL DEVELOPMENT LENGTH SHALL BE PROVIDED ACROSS JOINTS.
- D. LOCATE REINFORCING TO PROVIDE CONCRETE COVER AND SPACING SHOWN ON THE DRAWINGS. MINIMUM COVER SHALL BE AS REQUIRED BY ACI 318.
- E. WELDING OF AND TO ANY REINFORCING MATERIALS INCLUDING TACK WELDING OF CROSSING BARS IS STRICTLY PROHIBITED.

3.4 CONCRETE PLACEMENT:

- A. PRIOR TO PLACING CONCRETE, THE FORMS AND REINFORCEMENT SHALL BE THOROUGHLY INSPECTED. ALL TEMPORARY BRACING, TIES AND CLEATS REMOVED. ALL OPENINGS FOR UTILITIES PROPERLY BOXED; ALL FORMS PROPERLY SECURED IN THEIR CORRECT POSITION AND MADE TIGHT. ALL REINFORCEMENT AND EMBEDDED ITEMS SHALL BE SECURED IN THEIR PROPER LOCATIONS. ALL OLD AND DRY CONCRETE AND DIRT SHALL BE CLEANED OFF AND ALL STANDING WATER AND OTHER FOREIGN MATERIAL REMOVED.
- B. PLACING CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 AND ACI 304 AND SHALL BE CARRIED OUT AT SUCH A RATE THAT THE CONCRETE PREVIOUSLY PLACED IS STILL PLASTIC AND INTEGRATED WITH THE FRESHLY PLACED CONCRETE. CONCRETING ONCE STARTED, SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE SECTION IS COMPLETED. NO COLD JOINTS SHALL BE ALLOWED.
- C. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AND COMPACTED BY VIBRATION SPACING, RODDING, OR FORKING DURING THE OPERATION OF PLACING AND DEPOSITING IN ACCORDANCE WITH ACI 309. THE CONCRETE SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT, EMBEDDED ITEMS, AND INTO THE CORNER OF THE FORMS SO AS TO ELIMINATE ALL AIR AND STONE POCKETS.

3.5 CURING:

- A. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVELY HOT AND COLD TEMPERATURES AND SHALL BE MAINTAINED WITH MINIMUM MOISTURE LOSS AT A RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER HARDENING OF THE CONCRETE.
- B. CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST AT LEAST OVERNIGHT, IMMEDIATELY FOLLOWING THE INITIAL CURING. BEFORE THE CONCRETE HAS DRIED, ADDITIONAL CURING SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MATERIALS OR METHODS:
 1. PONDING OR CONTINUOUS SPRINKLING.
 2. ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.
 3. NON-ABSORPTIVE FILM (POLYETHYLENE) OVER PREVIOUSLY SPRINKLED SURFACE.
 4. SAND OR OTHER COVERING KEPT CONTINUOUSLY WET.
 5. CONTINUOUS STEAM (NOT EXCEEDING 150 F) OR VAPOR MIST BATH.
 6. SPRAYED- ON CURING COMPOUND APPLIED IN TWO COATS, SPRAYED IN PERPENDICULAR DIRECTION
- C. THE FINAL CURING SHALL CONTINUE UNTIL THE CUMULATIVE NUMBER OF DAYS OR FRACTION THEREOF, NOT NECESSARILY CONSECUTIVE, DURING WHICH TEMPERATURE OF THE AIR IN CONTACT WITH CONCRETE IS ABOVE 50F HAS TOTALED SEVEN (7) DAYS. CONCRETE SHALL NOT BE PERMITTED TO FREEZE DURING THE CURING PERIOD. RAPID DRYING AT THE END OF THE CURING PERIOD SHALL BE PREVENTED.

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PROJECT REVISIONS

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201

DATE: 08/27/13
DRAFTED BY: LLW
APPROVED BY: MAB

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN3

PROJECT NO: 13-129

ELECTRICAL NOTES

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

- A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE SUBCONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- B. THE SUBCONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE FOR THE WORK UNDER THIS SECTION.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE SUBCONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWING SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

1.3 REFERENCES:

- A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)
4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
7. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK:

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND BE OPERATIONAL.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE SUBCONTRACTOR.
- C. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE SUBCONTRACTOR SHALL FURNISH TO THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.
- E. THE SUBCONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

PART 2 - PRODUCTS

2.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.
- B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LAQUERED INSIDE IN ADDITION TO GALVANIZING.
2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC. INSTALL USING SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. CONDUCTORS AND CABLE:

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, 12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR USED.
2. 10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED AND 8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.

5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D OR APPROVED EQUAL.

D. OTHER MATERIALS:

1. THE SUBCONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
2. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

PART 3 - EXECUTION

3.1 GENERAL:

- A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN, IN A NEAT AND WORKMAN-LIKE MANNER.
- B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE SUBCONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF WORK, THE SUBCONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

- A. THE SUBCONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT:

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 1/2 INCH TRADE SIZE.
2. PROVIDE RMC CONDUIT FOR ALL EXPOSED EXTERIOR CONDUIT UNLESS NOTED OTHERWISE.
3. PROVIDE SCHEDULE 40 PVC OR RMC CONDUIT BELOW GRADE 36" MINIMUM. ALL 90 DEGREE BENDS SHALL BE RMC. EXPANSION JOINTS ARE REQUIRED ON ALL CONDUIT RISERS.
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
8. SUBCONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. SUBCONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
13. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

A. CONDUCTORS AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	240/120 VOLT
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUNDING	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDUITS APPROVED FOR THIS PURPOSE.
3. PULLING LUBRICANTS SHALL BE UL APPROVED. SUBCONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE SUBCONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

3.5 ACCEPTANCE TESTING:

- A. CERTIFIED PERSONNEL AND EQUIPMENT SHALL MAKE REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.

- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NONCOMPLIANT ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.

C. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDINGS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST LISTED TO SUBCONTRACTOR.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

001873

GS GATEWAY
Land Services, Inc.
Engineering
Surveying
Gateway Land Services, Inc.
4 West Drive, Suite 110
Chesapeake, MD 20617
304.881.9556
FAX 304.530.9520
www.gslls.com

No Professional Engineer's seal or stamp is to be placed on this drawing until the entire project has been completed and the project has been accepted by the owner. The drawing is not to be used for any other purpose without the written consent of the engineer.

PROJECT REVISION:

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201 I-70 Dr. NW
Columbia, MO 65201



DATE: 06/27/13
DRAFTED BY: LLW
APPROVED BY: MAF

SHEET TITLE:

GENERAL NOTES

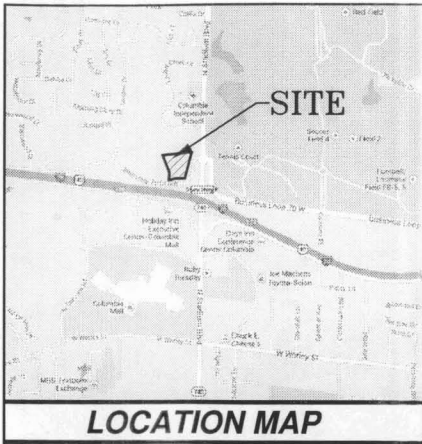
SHEET NUMBER:

GN4

PROJECT NO: 13-129

12/11/2012 2:37:41

S:\001130-18815-18-12202-2-402-01-129-0-000



Parent Tract Description:

A tract of land being Lot 1 of Scheulen Acres Block IV, recorded in Plat Book 18 page 20 of the Boone County Missouri records and being more particularly described as follows:

Beginning at the Southeast corner of a tract of land conveyed by deed to 2013-11 Bodevel, LLC., recorded in Book 4196 page 152, thence Northerly along the East line of said 2013-11 Bodevel, LLC. tract, North 08 degrees 38 minutes 33 seconds West a distance of 120.00 feet to a point; thence North 29 degrees 40 minutes 33 seconds West a distance of 511.67 feet to a point; thence North 66 degrees 29 minutes 27 seconds East a distance of 190.00 feet to a point on the South line of a tract of land conveyed by deed to North Stadium Investments, recorded in Book 4144 page 96; thence Easterly along said South line, North 76 degrees 58 minutes 27 seconds East a distance of 234.79 feet to a point; thence North 89 degrees 17 minutes 33 seconds East a distance of 168.08 feet to a point; thence South 50 degrees 11 minutes 33 seconds East a distance of 196.96 feet to a point on the West right of way line of Stadium Boulevard; thence Southerly along said West line, South 01 degrees 55 minutes 27 seconds West a distance of 95.00 feet to a point on the North right of way line of Interstate 70 Drive Northwest; thence Westerly along said North line, South 68 degrees 45 minutes 27 seconds West a distance of 175.00 feet to a point; thence South 01 degrees 55 minutes 27 seconds West a distance of 238.20 feet to a point of curvature; thence along said curve being a curve to the right having a radius of 180.00 feet, an arc length of 280.39 feet; thence North 87 degrees 26 minutes 33 seconds West a distance of 92.22 feet to the point of beginning, containing 293,931 square feet or 6.748 acres more or less.

Description of Lease Area:

A tract of land being part of Lot 1 of Scheulen Acres Block IV, recorded in Plat Book 18 page 20 of the Boone County Missouri records and being more particularly described as follows:

Commencing at the Southeast corner of a tract of land conveyed by deed to 2013-11 Bodevel, LLC., recorded in Book 4196 page 152, thence Northerly along the East line of said 2013-11 Bodevel, LLC. tract, North 08 degrees 38 minutes 33 seconds West a distance of 120.00 feet to a point; thence North 29 degrees 40 minutes 33 seconds West a distance of 342.25 feet to a point; thence Northerly leaving said East line, North 29 degrees 38 minutes 37 seconds East a distance of 34.15 feet to the true POINT OF BEGINNING of hereon described Lease Area; thence North 26 degrees 44 minutes 39 seconds West a distance of 70.00 feet to a point; thence North 65 degrees 18 minutes 09 seconds East a distance of 100.00 feet to a point; thence South 29 degrees 38 minutes 37 seconds West a distance of 120.00 feet to the point of beginning, containing 3.498 square feet.

Description of 15 foot wide Access and Utility Easement:

A tract of land being part of Lot 1 of Scheulen Acres Block IV, recorded in Plat Book 18 page 20 of the Boone County Missouri records and being more particularly described as follows:

Commencing at the Southeast corner of a tract of land conveyed by deed to 2013-11 Bodevel, LLC., recorded in Book 4196 page 152; thence South 87 degrees 26 minutes 33 seconds East a distance of 10.00 feet to the true POINT OF BEGINNING of hereon described centerline of a 15 foot wide Access and Utility Easement; thence Northerly and along said centerline, North 00 degrees 46 minutes 11 seconds East a distance of 92.67 feet to a point; thence North 27 degrees 24 minutes 12 seconds West a distance of 178.03 feet to a point; thence North 19 degrees 47 minutes 23 seconds West a distance of 242.14 feet to the point of terminus.

Description of 10 foot Utility Easement:

A tract of land being part of Lot 1 of Scheulen Acres Block IV, recorded in Plat Book 18 page 20 of the Boone County Missouri records and being more particularly described as follows:

Commencing at the Southeast corner of a tract of land conveyed by deed to 2013-11 Bodevel, LLC., recorded in Book 4196 page 152, thence Northerly along the East line of said 2013-11 Bodevel, LLC. tract, North 08 degrees 38 minutes 33 seconds West a distance of 120.00 feet to a point; thence North 29 degrees 40 minutes 33 seconds West a distance of 342.25 feet to a point; thence North 29 degrees 38 minutes 37 seconds East a distance of 34.15 feet to a point; thence North 26 degrees 44 minutes 39 seconds East a distance of 70.00 feet to a point; thence North 65 degrees 18 minutes 09 seconds East a distance of 75.00 feet to the true POINT OF BEGINNING of hereon described centerline of a 10 foot wide Utility Easement; thence Northerly and along said centerline, North 24 degrees 39 minutes 43 seconds West a distance of 22.50 feet to the point of terminus.

SURVEYOR NOTES:

BASIS OF BEARINGS: The bearing system used is Geodetic and has been adopted from GPS Observation.

Elevations are geodetic and have been derived from GPS observation using the MDOOT GPS, GNSS/VRS network, WGS 84, NAVD 88.

SITE BENCHMARK: Top of Iron Pipe along West line of Tract Surveyed. Elevation = 718.03'

FLOODPLAIN NOTES:

Zone X: Areas determined to be outside the 0.2% annual chance floodplain. No floodplain elevation has been determined.

Shaded Zone X: Areas of 0.2% chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; or areas protected by levees from 1% annual chance flood. No floodplain elevation has been determined.

A portion of this site lies within the Zone X shaded floodplain as shown on FIRM Panel #29019C02B00 with an effective date of March 17, 2011. Per conversations with the City of Columbia staff, a floodplain development permit will not be required for this cell tower site.

A current Title Commitment has not been made available for our use. It is possible there are easements and other instruments of record that affect the subject tract that would be exposed in the Title Commitment Report and are unknown to this office at the time the Survey was executed and therefore not plotted hereon. This Survey does not constitute a Title Search by the Surveyor.

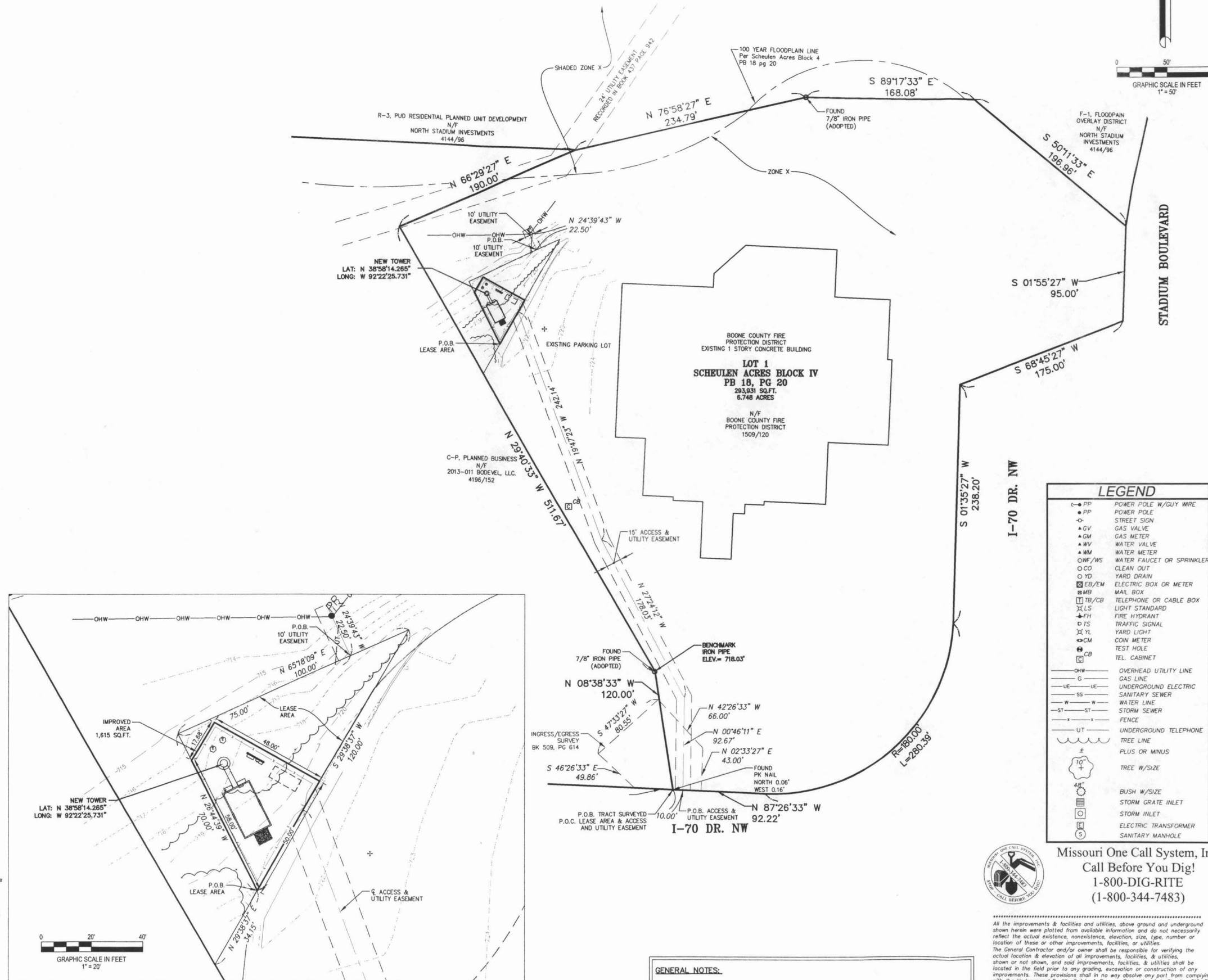
This is to certify that at the request of St. Charles Tower, we have during the month of November, 2013 executed a partial Property Boundary and Improvement Survey on Lot 1 of Scheulen Acres, Block 4 as recorded in Plat Book 18 page 20 of the Boone County Records as shown hereon and that the results of said survey are represented upon this plot. The purpose of this Survey is to establish and describe the Lease Tract and associated easements. This is not a Property Boundary Survey of the Parent Tract.

Gateway Land Services, Inc. (Agent)

By *Lee C. Ferrenbach III*
(Agent) Lee C. Ferrenbach III PLS - 2310
Vice President

BOONE COUNTY FIRE

A TRACT OF LAND BEING LOT 1 OF SCHEULEN ACRES BLOCK 4, RECORDED IN PLAT BOOK 18 PAGE 20 IN THE RECORDS OF BOONE COUNTY, MISSOURI



LEGEND	
PP	POWER POLE W/GUY WIRE
PP	POWER POLE
SV	STREET SIGN
GV	GAS VALVE
GM	GAS METER
WV	WATER VALVE
WM	WATER METER
OW/WS	WATER FAUCET OR SPRINKLER
OCO	CLEAN OUT
YD	YARD DRAIN
EB/EM	ELECTRIC BOX OR METER
MB	MAIL BOX
TB/CB	TELEPHONE OR CABLE BOX
LS	LIGHT STANDARD
TH	FIRE HYDRANT
TS	TRAFFIC SIGNAL
YL	YARD LIGHT
CM	COIN METER
CH	TEST HOLE
CB	TEL. CABINET
OHW	OVERHEAD UTILITY LINE
G	GAS LINE
UE	UNDERGROUND ELECTRIC
SS	SANITARY SEWER
W	WATER LINE
ST	STORM SEWER
UT	UNDERGROUND TELEPHONE
+	TREE LINE
±	PLUS OR MINUS
+	TREE W/SIZE
+	BUSH W/SIZE
+	STORM GRATE INLET
+	STORM INLET
+	ELECTRIC TRANSFORMER
+	SANITARY MANHOLE

Missouri One Call System, Inc.
Call Before You Dig!
1-800-DIG-RITE
(1-800-344-7483)

DATE: 12/11/13
BOOK NO.: N/A
DRAFTED BY: LLW
APPROVED BY: LCF
FILE NAME:
13-129 N.DWG

SHEET TITLE:
BOUNDARY &
TOPOGRAPHIC
SURVEY

SHEET NUMBER
SUV-1

SHEET NO: 1 OF 1
PROJECT NO: 13-129

GENERAL NOTES:

Reduced size sheets (11"x17") will not be to scale. Survey has been created on a 24"x36" sheet.

LETTER OF NOTICE TO PARTIES IN INTEREST
(PERTAINING TO PUBLIC HEARING BEFORE THE BOARD OF ADJUSTMENT)

DATE: December 30, 2013

TO: Whom it may concern

RE: **A request by Jeff Parshall and Daniel Beckett, attorneys for Boone County Fire Protection District, for a conditional use permit to allow 20 foot omni style antennas to a previously approved 140 foot monopole style telecommunications facility, increasing the overall height of the telecommunications tower/facility to 155 feet, per the submitted general site and construction plans dated August 27, 2013 and the Boundary and Partial Topographic Survey (SUV-1) dated December 11, 2013.**

Notice of public hearing before the Board of Adjustment of the City of Columbia, Missouri in relation to the following described property located in the City of Columbia, County of Boone, State of Missouri:

Parcel 1: Lot One (1) of Scheulen Acres Block IV as shown by the administrative subdivision replat recorded in Plat Book 18, Page 20, Records of Boone County, Missouri; and Parcel 2: Easement for the benefit of Parcel 1 as created by "Easement for Joint Entrance and Driveway" dated March 14, 1990 and recorded in Book 764, Page 852, Records of Boone County, Missouri

and known as, or to be known as **2201 I-70 Drive Northwest.**

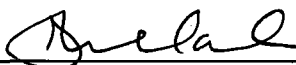
Notice is hereby given that there will be a **public hearing** before the Board of Adjustment of the City of Columbia, Missouri at **7:00 p.m. on Tuesday, the 14th day of January, 2014**, in the **City Council Chamber** on the **First Floor of City Hall, 701 E. Broadway**, in Columbia, Missouri.

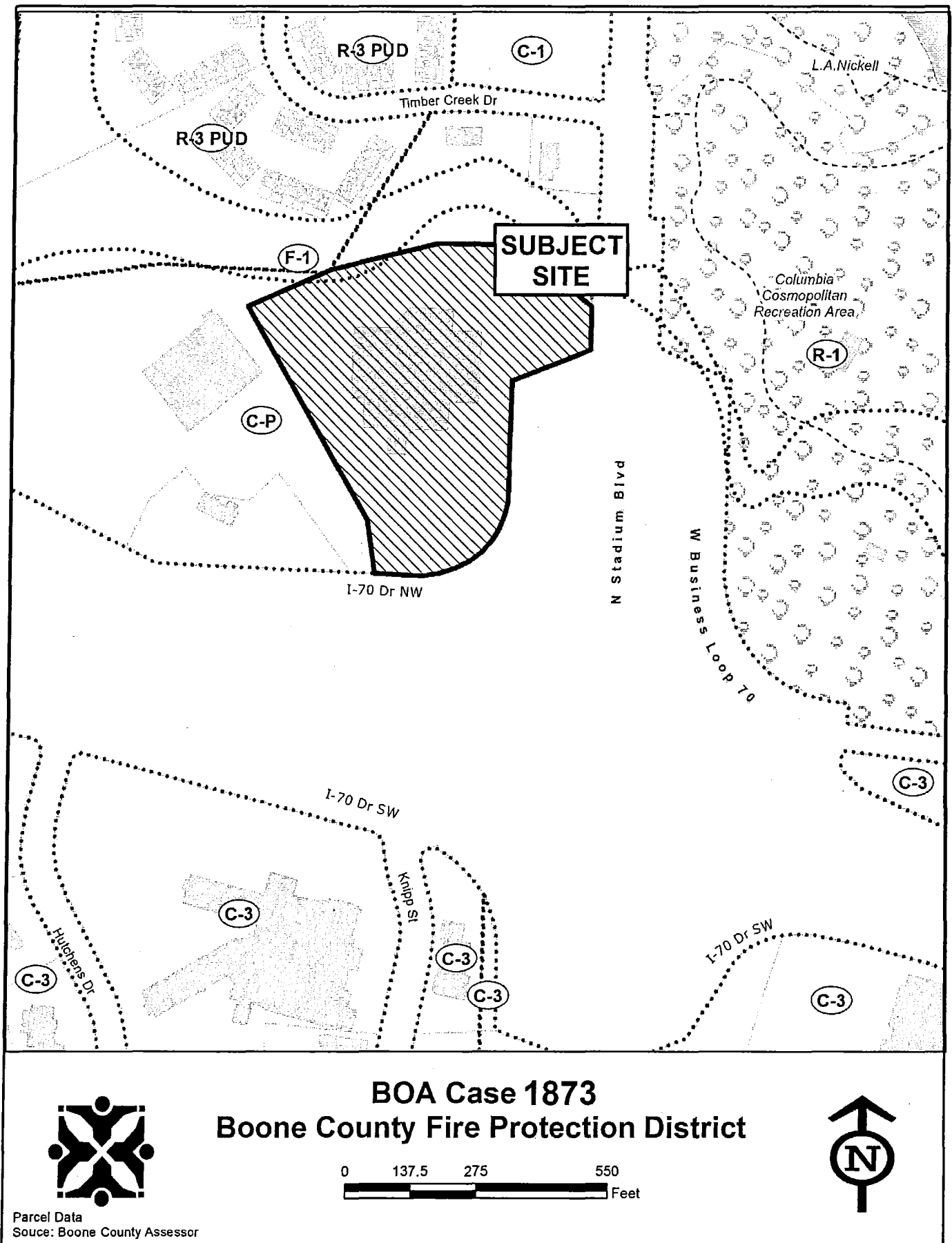
The person or persons requesting said hearing have listed you as a party in interest to an application or appeal to the Board of Adjustment relative to the above described property.

The filed copy of the Notice of Appeal or Notice of Application may be seen at the Office of the City Clerk, 701 E. Broadway, Columbia, Missouri. It can also be seen on City's website www.GoColumbiaMo.com.

Notices of the public hearing are being published in a newspaper circulated within the City of Columbia, Missouri. The relative property is, or will be, posted with a notice pertaining to the public hearing.

The Board of Adjustment invites you to attend the Public Hearing and make known your interests in the appeal or application.

Signed: 
Sheela Amin, City Clerk and Secretary to the Board of Adjustment
Post Office Box 6015
Columbia, Missouri 65205
Telephone: (573) 874-7208
E-mail: cityclerk@gocolumbiamo.com



001873

TOTAL P.02

PARCEL	OWNER	MAILING ADDRESS			
1621100010030101	COLUMBIA BOARD OF REALTORS	2309 I-70 DRIVE NW	COLUMBIA	MO	65202
1621100010020101	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100010050001	SATTIZAHN KENNETH E & PATRICIA ROSE SATTIZAHN	1009 LAKE POINT LN	COLUMBIA	MO	65203
1621100010030001	2013-011 BODEVEL LLC	1207 W BROADWAY STE C	COLUMBIA	MO	65203
1621100010040001	BOONE COUNTY FIRE PROTECTION DISTRICT	2201 I-70 DR NW	COLUMBIA	MO	65202
1621100080010701	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010801	EDHIN LLC	1205 STONERIDGE CT	MANHATTAN	KS	66503
1621100080010601	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010901	EDHIN LLC	1205 STONERIDGE CT	MANHATTAN	KS	66503
1621100080011001	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010501	EDHIN LLC	1205 STONERIDGE CT	MANHATTAN	KS	66503
1621100080011101	EDHIN LLC	1205 STONERIDGE CT	MANHATTAN	KS	66503
1621100080010401	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010301	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010201	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1621100080010001	NORTH STADIUM INVESTMENTS LLC	3000 S RUNNING DEER CT	COLUMBIA	MO	65201
1620200000010001	CITY OF COLUMBIA	COLUMBIA COSMOPOLITAN RECREATION			00000

1621100010030001Print Real Estate Summary Page

Owner 2013-011 BODEVEL LLC

Address 1207 W BROADWAY STE C

City, State, Zip COLUMBIA , MO

65203 1621100080010001

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080011101Print Real Estate Summary Page

Owner EDHIN LLC

Address 1205 STONERIDGE CT

City, State, Zip MANHATTAN , KS

66503

1621100080011001Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080010901Print Real Estate Summary Page

Owner EDHIN LLC

Address 1205 STONERIDGE CT

City, State, Zip MANHATTAN , KS

66503

1621100080010801Print Real Estate Summary Page

Owner EDHIN LLC

Address 1205 STONERIDGE CT

City, State, Zip MANHATTAN , KS

66503

1621100080010701Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080010601Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080010501Print Real Estate Summary Page

Owner EDHIN LLC

Address 1205 STONERIDGE CT

City, State, Zip MANHATTAN , KS

66503

1621100080010401Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080010301Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100080010201Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100010020101Print Real Estate Summary Page

Owner NORTH STADIUM INVESTMENTS

Address 3000 S RUNNING DEER CT

City, State, Zip COLUMBIA , MO

65201

1621100010050001Print Real Estate Summary Page

Owner SATTIZAHN KENNETH E &

Address 1009 LAKE POINT LN

Care Of REVOCABLE TRUST

City, State, Zip COLUMBIA , MO

65203-2900

1620200000010001Print Real Estate Summary Page

Owner CITY OF COLUMBIA

Address COLUMBIA COSMOPOLITAN

City, State, Zip RECREATION ,

00000

1621100010030101Print Real Estate Summary Page

Owner COLUMBIA BOARD OF REALTORS

Address 2309 I-70 DRIVE NW

City, State, Zip COLUMBIA , MO

65202

**AGENDA REPORT
BOARD OF ADJUSTMENT
January 14, 2014**

001873

REQUEST FOR A CONDITIONAL USE PERMIT

Case #1873

**Prepared by:
Community Development Department – Planning and Zoning Division**

Applicant: Boone County Fire Protection District (lessor) represented by Jeff Parshall and Daniel Beckett (agent on behalf of St. Charles Tower (lessee))

Location: 2201 I-70 Drive NW

Property Size: Subject site contains approximately 6.89 acres, is zoned C-P (Planned Commercial), and is identified as parcel number 16-211-00-01-004.00 01.

Proposed Uses: Construction of a 155-foot tall self-supporting monopole telecommunication tower and associated telecommunication equipment shelter. This application will increase the height of a previously approved (BOA Case #1870) 140-foot tower by an additional 15-feet.

Existing Conditions:

Orientation from Site	Zoning District	Land Use
North	C-P and R-3 PUD	Office and multi-family
South	C-3	Commercial and interstate
East	R-1	Cosmo Park
West	C-P	Commercial

Discussion:

This application requests to amend the height of a previously approved (BOA Case #1870) 140-foot communication tower on the subject site. During the previous hearing, the applicant's site plan showed two antenna extending 15-feet above the 140-foot height of the proposed monopole. The application was submitted for only a 140-foot tower and was advertised as such.

The Board was informed that the height of a tower, according to the City code, is to include not only the primary pole height, but also all antennas attached thereto. The Board was further informed that the application was not advertised for a 155-foot tower; therefore, could not be considered as such at the meeting. The applicant desired to obtain approval of the 140-foot tower so that it could begin installation prior to the end of 2013. The applicant chose not to defer action on the pending application. The Board approved the 140-foot tower with the applicant understanding that a new application for a conditional use would be required if the 155-foot height was necessary.

The additional height that is being sought with this application is to support the needs of the Boone County Fire Protection District (BCFPD). The additional height will accommodate "whip" antennas that are 2-3 inches in diameter and extend 15-feet above the top of the approved 140-foot monopole (see attached tower elevation).

Staff's initial analysis and recommendation for a 155-foot tower at this location was not supported based on its location just south of residentially developed property. This recommendation was predicated on the belief that if the additional height were granted additional cellular service carriers could utilize that height by simply extending the structural steel thereby creating a greater visual impact. Additional information provided by the applicant and discussions with representatives from the BCFPD have addressed those concerns.

Based on structural plans and discussion with BCFPD representatives, the ability for commercial cellular carriers to utilize the requested additional height will not be feasible. BCFPD antenna will be attached to the 140-foot monopole at a height of 135-feet and extend upward. Commercial carrier locations have been proposed at pole heights of 125, 115, and 105 foot locations respectively. Based on review of the structural calculations and soils report the 140-foot tower was approved for construction on December 23, 2013.

As required by Section 29-21.3 of the Code, the applicant has submitted a fully compliant application package including a revised site plan (to match the construction drawings) and additional justification as to why the BCFPD antenna cannot go inside the monopole or lower on the monopole than proposed.

Staff has reviewed the application and presents the following findings:

1. The proposed design complies with the definition of a "tower" as found in Section 29-21.3(b).
2. The applicant has provided the required application materials to the City Clerk in accordance to Section 29-23 (Conditional Uses).
3. The proposed location and height of the tower requires the requested conditional use since the tower exceeds the C-P height limit by 110-feet and cellular structures in the C-P district are only permissible after a conditional use permit is approved by the Board of Adjustment. (**Note:** This application seeks to increase the approved height by a total of 15-feet)
4. The applicant has evaluated the ability to co-locate the proposed antenna on other facilities within the prescribed carrier search area. A letter, as required by Section 29-21.3(e)(1)(b), has been provided (see attached) noting that a diligent effort was made to co-locate; however, such efforts were not successful.
5. The applicant has also provided information within the same letter (see attached) required by Section 29-21.3(e)(1)(e) stating that the location of the proposed tower and antenna on the closest existing tower was not feasible due to capacity issues on both the tower and within the compound area.
6. Attached to the applicant's letter is a letter from the technical consultant for BCFPD indicating why the "whip" antennas cannot be located inside the existing monopole and the additional height is necessary to support communication objectives.

7. The applicant has submitted a revised site plan showing the proposed tower and appurtenant facilities. The details shown on this plan meet the criteria specified within Section 29-21.3(e)(1)(g) and are consistent with the site plan approved as part of the construction plans for the previously approved 140-foot tower.
8. In accordance with Section 29-21.3(f)(5) the applicant is seeking approval to exceed the height limit within the C-P district by 110-feet. The Board, per Case #1870, approved 95-feet of this variance. This application would permit 15-feet of additional height if the Board deems it appropriate.

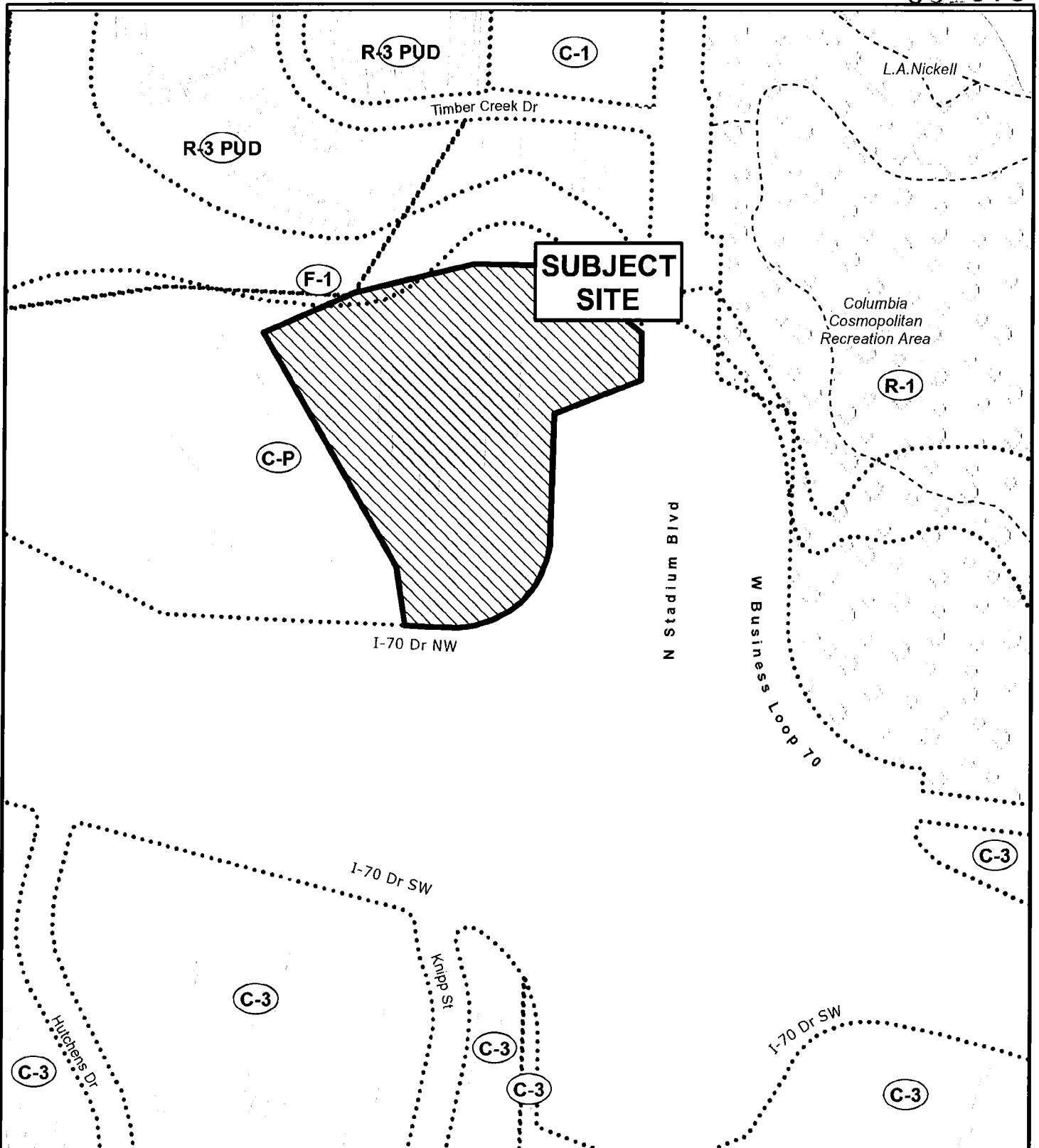
Given the additional information and insight into the future usage of the tower with its proposed additional height, the ability for the additional height to support broader community public safety needs, and the fact that this facility will support multiple communication carriers and technologies, staff finds this tower to be consistent in meeting the objectives for communication structures as set forth in Section 29-21.3 of the Code.

While an enclosed, stealth structure would be preferred in this location to minimize the aesthetic impacts upon adjacent residential development this option is no longer a possibility. The applicant's request to increase the approved 140-foot structure to a maximum height of 155-feet for the installation of 2-3 inch "whip" antennas will not result in any greater aesthetic impact.

Recommendation:

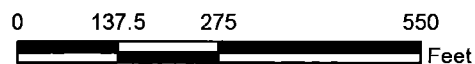
Based on the applicant's submitted materials and the potential public benefit that may be received, staff recommends **approval** of the requested conditional use to modify the 140-foot monopole, approved per BOA Case #1870, such that its height may increase by 15-feet to a maximum of 155-feet. This recommendation is subject to:

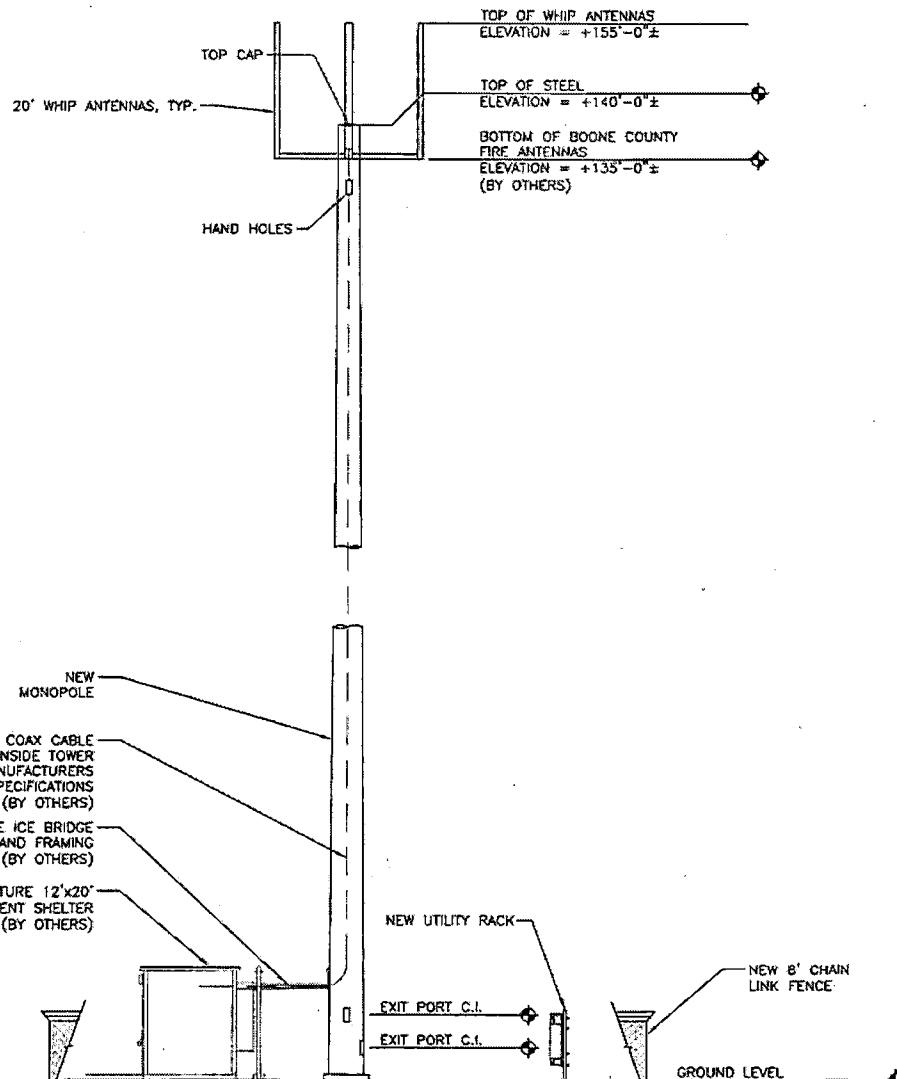
1. Extension of any structural steel beyond 140-feet shall not be permitted without conversion of the existing monopole to a "stealth" design approved by the Board of Adjustment following a public hearing.



BOA Case 1873

Boone County Fire Protection District





GENERAL NOTES

- ELEVATION IS FOR REFERENCE PURPOSE ONLY. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- CONTRACTOR SHALL PERFORM WORK DONE TO OR ON STRUCTURE IN ACCORDANCE WITH PROVIDED STRUCTURAL ANALYSIS PROVIDED BY OTHERS.
- ANTENNAS, COAX, SUPPORTS, AND ETC. SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
- TOP OF ANTENNA WILL NOT EXTEND BEYOND TOP OF LIGHTNING ROD.

GENERAL NOTES

- STEEL WORK SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.
- WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS USING E70XX ELECTRODES. WELDING SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. AT THE COMPLETION OF WELDING, DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
- STEEL BOLTING - ASTM A325-N BOLTS, 3/4" DIAMETER. NON SLIP CRITICAL CONNECTIONS AND SHALL HAVE A MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY WITH THE LOCAL AUTHORITIES (CITY, COUNTY, OR STATE) FOR THE GOVERNING BUILDING CODE.
- THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING AGENCY TO PERFORM ANY STRUCTURAL INSPECTIONS WHICH ARE REQUIRED BY THE LOCAL CODE OR GOVERNING AUTHORITY. THE CONTRACTOR SHALL HAVE AN INDEPENDENT INSPECTOR VISUALLY INSPECT FIELD WELDING AND BOLTING. THE INSPECTOR SHALL PROVIDE A REPORT TO THE CONTRACTING AGENT AND OWNER'S REPRESENTATIVES. DEFICIENCIES SHALL BE RECTIFIED.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENTS AND/OR EXISTING DRAWINGS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE CONTRACTING AGENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THIS WORK.
- THE CONTRACTOR SHALL NOT INTERFERE WITH THE FACILITY'S NORMAL OPERATIONS. ACCESS TO THE WORK AREA SHALL BE AS DIRECTED BY THE FACILITY'S OWNER.
- THE CONTRACTOR SHALL CONFINE THEIR OPERATIONS TO THE DESIGNATED AREAS AND SHALL KEEP THE CONSTRUCTION AREA CLEAN. AISLES AND PATHWAYS SHALL BE KEPT UNOBSTRUCTED.
- THE CONTRACTOR SHALL COORDINATE THE WORK OF VARIOUS TRADES SO AS TO INSURE PROPER SEQUENCING AND INSTALLATION.
- DAMAGE TO THE EXISTING FACILITY SHALL BE REPAIRED OR REPLACED TO MATCH EXISTING ORIGINAL CONDITIONS AT THE CONTRACTOR'S EXPENSE.
- STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.
- STEEL "W" SHAPES SHALL CONFORM TO ASTM A992.
- SIZE STANDARD BEAM CONNECTIONS BASED ON 3/4 OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. USE DOUBLE CLIP ANGLES AND AISC TABLE II-A UNLESS INDICATED OTHERWISE.
- STEEL ANGLES AND PLATES - ASTM A36.
STEEL TUBES SHAPES - ASTM A500 GRADE B.
STEEL PIPES - ASTM A53 TYPE E.
- CONTRACTOR SHALL COORDINATE AND VERIFY LAYOUT, PLACEMENT, ECT. OF EQUIPMENT PRIOR TO FABRICATION AND ERECTION.
- VERIFY EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.

001873

GIS Gateway
Land Services, Inc.
4 West Drive, Suite 110
Columbia, MO 65201
314.881.8386
FAX 314.881.8425
www.gis.com

As Prepared By and Checked By the
Professional Engineer, the Engineer
shall be responsible for the design and
construction of the project. The Engineer
shall not be responsible for the design and
construction of the project if the design
and construction are not in accordance
with the approved plans.

PROJECT REVISION

NO.	DATE	DESCRIPTION

BOONE COUNTY FIRE

2201-170 Dr. NW
Columbia, MO 65201



DATE: 08/27/13
DESIGNED BY: LLW
APPROVED BY: LCT

SHEET TITLE:
ELEVATION

SHEET NUMBER:

C3

PROJECT NO: 15-123

001873



November 27, 2013

Pat Zenner
Development Services Manager
City of Columbia, Missouri

Re: Request for St. Charles Tower Conditional Use Permit for a 155' Tall Monopole Style Communications Facility at 2201 I-70 Drive NW, Columbia, MO 65202

Dear Mr. Zenner,

Collective Solutions, on behalf of St. Charles Tower and their landlord Boone County Fire Protection district, respectfully request that the Board of Adjustment for the City of Columbia Missouri consider granting a conditional use permit for a 155' tall monopole style communications facility. The tower will be located in the rear of the Boone County Fire Protection District Headquarters. The tower will be located within a fenced compound. The fence shall be an 8' tall chain link fence with anti-climbing precautions taken at the top of the fence. The fence shall have brown vinyl slats that shall meet the 80% opacity requirements. This tower shall be used not only to support cellular communications, but an antenna array for The Boone County Fire Protection District to enhance their communications ability on the Northwest site of the City of Columbia. The following information addresses the information requested in section 29.23-3 of the Columbia Missouri Code of Ordinances:

- a. Due to the specific coverage objectives of the Boone County Fire Protection District and the needs of St. Charles Tower there are no other towers within ½ mile of the City limits that are capable of providing a location for the proposed installation
- b. St. Charles Tower has made diligent efforts to locate the tower within Cosmos Park, however to meet the coverage objective of St. Charles Tower and Boone County Fire Protection district the park could not provide a mutually agreeable location within the park that could meet the coverage objective
- c. The nearest tower even remotely close to the coverage search area is the American Tower located at 295 I-70 Drive NW, however the tower has neither the vertical space nor sufficient ground space for the equipment need of both Boone County Fire and St. Charles Tower
- d. The proposed 140' monopole proposed by St. Charles Tower will be capable of hosting the Boone County Fire Protection District Antennas as well as a minimum of 3 additional carriers antennas.
- e. Per (d) above the tower will be made to support multiple users including a minimum of 3 additional cellular users each with an array of 6 antennas and 6 lines of coax per user. It is St.

Charles Towers business to lease space to communications companies and the Board can rest assured that the proposed tower will continue to be marketed until all available capacity is utilized.

- f. Due to the size, nature, and mounting of the Boone County Fire Protection District antennas it is impossible for the antennas to be concealed. The antennas range from sixteen feet to twenty feet in height and must be offset from the tower several feet to prevent interference and therefore cannot be concealed within any type of canister currently in existence. See also the attached letter from Dave Dunford, consultant for the Boone County Fire Protection District.

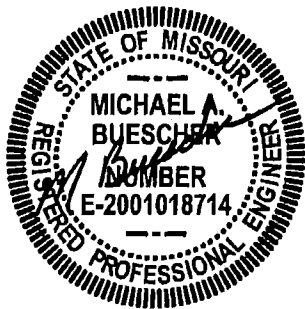
St. Charles Tower and The Boone County Fire Protection District would also like to request per section 29.17 of the Columbia Missouri Code of Ordinances a minor to the site plan for the C-P district on file with the City for the proposed location.

Thank you very much for your assistance in moving our proposal forward. Should you have any questions or need any further information please feel free to call me at (314) 989-9810.

Sincerely,



Russell S. Been
Collective Solutions, LLC
Agent for St. Charles Tower Inc.



001873

8895 Cedar Creek Road
Desoto, KS 66018

December 6, 2013

Mr. Russ Bean
St. Charles Tower
4 West Drive, Suite 110
Chesterfield,, MO 63017
PH: 636-937-9550

Mr. Bean:

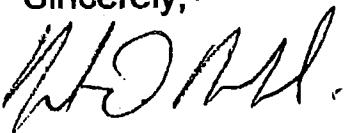
I'm writing today in regard to a request by Boone County Fire Protection District that they be allowed to install land mobile antennas atop a monopole tower your firm is proposing to construct at District property in Columbia, MO. The proposed antennas are nominal 20' in length and serve radio systems operating in the 150-160 MHz range. The purpose of the antennas is to provide omnidirectional coverage in both transmit and receive operation. As such, the antennas cannot be readily mounted immediately adjacent to a vertical structure that represents a large surface area in the frequency of operation.

Ideally, the antenna mounting areas (typically the lower 30") would be installed below the top of the tower or mounting structure (platform or pipe) with the remaining parts of the antenna protruding above the structure and free from its electronic influence.

Should an arrangement be possible to permit the antenna tips to extend above the tower steel and (any) top-mounted platform that circumstance would be welcome.

Thank you for your consideration and assistance with this District request.

Sincerely,



David O. Dunford
Technical Consultant
Columbia/Boone County Joint Communications