

Memorandum Department of Planning & Public Works



To: Planning and Public Works Committee

From: Shawn Seymour, AICP
Senior Planner

Date: September 8, 2011

RE: T.S.P. 28-2011 AT&T (471 North Woodsmill Road): A request to obtain approval to amend a Telecommunications Siting Permit for the purpose of upgrading existing facilities to accommodate and provide 4G LTE data service on an existing telecommunications tower on a 10,000 square foot lease area "NU" Non-Urban District-zoned tract of land located on N. Woods Mill Road (17Q230085).

Summary

AT&T, has requested an amendment to a telecommunications siting permit to allow the location of upgraded antennas to facilitate 4G LTE data service on an existing tower located on the west side of the Parkway Central School Campus.

City of Chesterfield Ordinance 2391, which governs telecommunications and facilities siting, permits applications for equipment upgrades to be submitted for sites that currently hold a telecommunications siting permit without the need for a public hearing. Staff has reviewed the request by AT&T and has determined that the proposed addition of the 4G LTE antennas are indeed an upgrade to an existing and permitted site and may amend said existing permit without the need for a public hearing.

Attached are copies of the site plan, elevations, boundary plat, and propagation study.

Respectfully submitted,

Shawn Seymour, AICP
Senior Planner

CC: Michael G. Herring, City Administrator
Rob Heggie, City Attorney
Michael O. Geisel, Director of Planning & Public Works
Aimee Nassif, Planning & Development Services Director

Attachments: AT&T 4G LTE Upgrade Packet



June 24, 2011

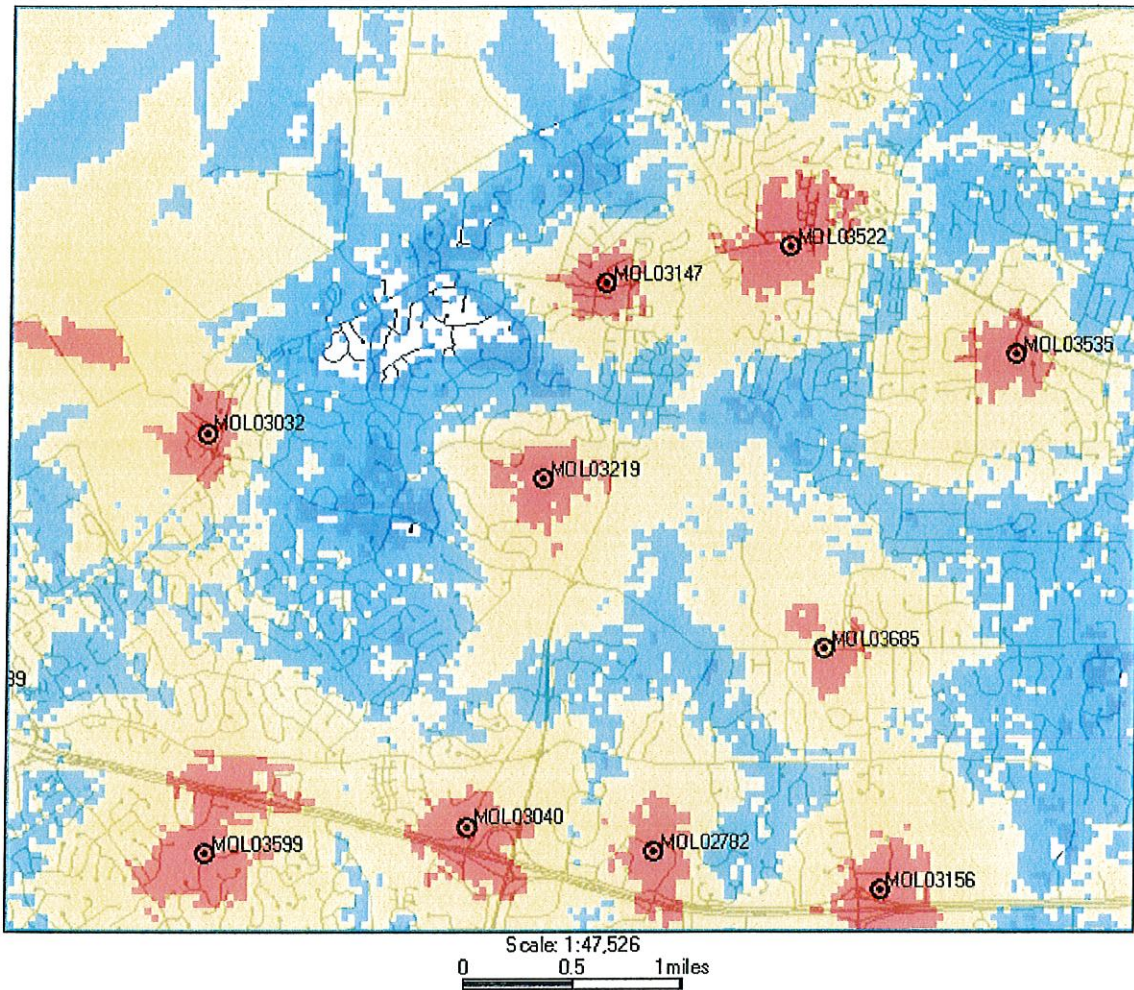
The following is a brief explanation of why AT&T Mobility is proposing to have the current wireless communication facility at 471 North Woods Mill road modified. This facility is labeled as MOL03219 on Map 1. Currently this facility is only capable of broadcasting our older technologies.

This facility currently is broadcasting our "2G" technology (called GSM) and our "3G" technology (called UMTS). Each technology uses its own antennas and equipment. The modification we are proposing is to add our "4G" technology (called LTE). Perhaps you have seen all the television commercials from various wireless carriers talking about their 4G systems. 4G, short for 4th generation of wireless technology, allows wireless carriers to provide much faster data speeds than our current networks. 4G is only for data at this point. All voice calls will still be served on older technologies. Currently AT&T still has the fastest data network. Although as other carriers implement and optimize their 4G networks we expect to lose that advantage and eventually fall behind other carriers unless we also launch our 4G network. The proposed modifications will allow us to implement our 4G technology by using additional antennas and equipment.

Because of national E911 requirements, this site needs to run all technologies. The 4G technology is not capable of handling voice calls at this time and all 911 calls made from a wireless device will be routed through our older technologies. These technologies require that we use a total of 3 antennas for each direction covered. This site, like most of our locations, serves three directions creating a need for 9 antennas. This requires us to add 3 additional antennas for this location.

This plan will have no effect on our coverage for current technologies. Map 1 below shows the proposed coverage for our 4G network in the area. AT&T Mobility has acceptable coverage in most of the surrounding area. Because 4G is a data only service the different signal levels don't indicate whether service exists or not. In general on 4G the stronger the signal (to a point) the faster the data rates will be. It is expected that red, yellow and light blue will have data speeds faster than our 3G technology. The dark blue will likely have data speeds nearly identical to the 3G technology.

Map 1 Proposed AT&T "4G" coverage



Ron Humphrey

Radio Frequency Design Engineer

AT&T Mobility Division



13075 MANCHESTER RD, SUITE 100
ST LOUIS, MO 63131



BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

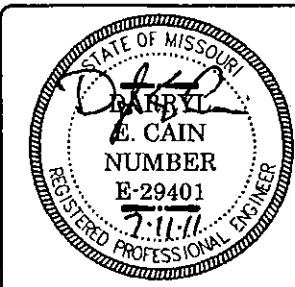
BLACK & VEATCH PROFESSIONAL ENGINEERING CORPORATION
MISSOURI STATE CERTIFICATE OF AUTHORITY # 001944

PROJECT NO: 168986

DRAWN BY: RCC

CHECKED BY: GPX

REV	DATE	DESCRIPTION
0	07/11/11	ISSUED FOR ZONING



DARRYL E. CAIN E-29401
PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

MO3219
PARKWAY CENTRAL
471 N WOODSMILL RD
CHESTERFIELD, MO 63017
LTE - MONOPOLE

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
Z-4

NOTES

- ALL MAIN CABLES WILL BE GROUNDED W/ COAXIAL CABLE GROUNDING KITS AT:
 - THE ANTENNA LEVEL.
 - MID LEVEL IF TOWER IS OVER 200'.
 - BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
 - OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
- ALL PROPOSED GROUNDING BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
- THE SUB CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION, MAKE AND MODELS, PRIOR TO INSTALLATION.
- ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S STANDARD DETAILS.
- THE EXISTING TOWER IS CURRENTLY BEING ANALYZED BY OTHERS TO DETERMINE ITS STRUCTURAL CAPACITY TO CARRY THE PROPOSED NEW COAX AND ANTENNAS. THESE DRAWINGS HAVE BEEN CREATED BASED ON THE ASSUMPTION THE STRUCTURAL ANALYSIS WILL SHOW THAT THE TOWER HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED NEW LOADS. INSTALLATION OF THE COAX AND ANTENNAS SHALL NOT COMMENCE UNTIL AN APPROVED STRUCTURAL ANALYSIS HAS BEEN RECEIVED BY THE OWNER OR AT&T AND HAS BEEN REVIEWED BY BLACK AND VEATCH.
- SUBCONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

COAXIAL ANTENNA CABLE NOTES

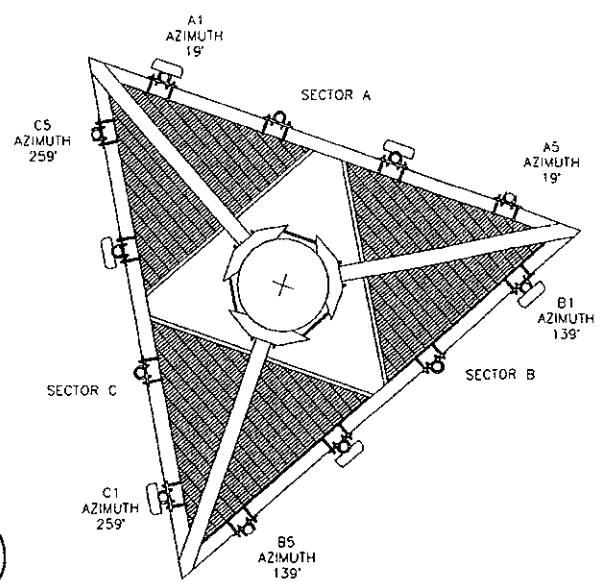
- TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, SUBCONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- SUB CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR TO CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" NO-00027 REFER TO THE LATEST VERSION.
- ALL JUMPERS TO THE ANTENNAS FROM THE RRH LINE WILL BE 1/2" DIA. LDF AND SHALL NOT EXCEED A DIFFERENTIAL OF 12'-0".
- ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
- WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.

ANTENNA/RRH MOUNTING NOTES

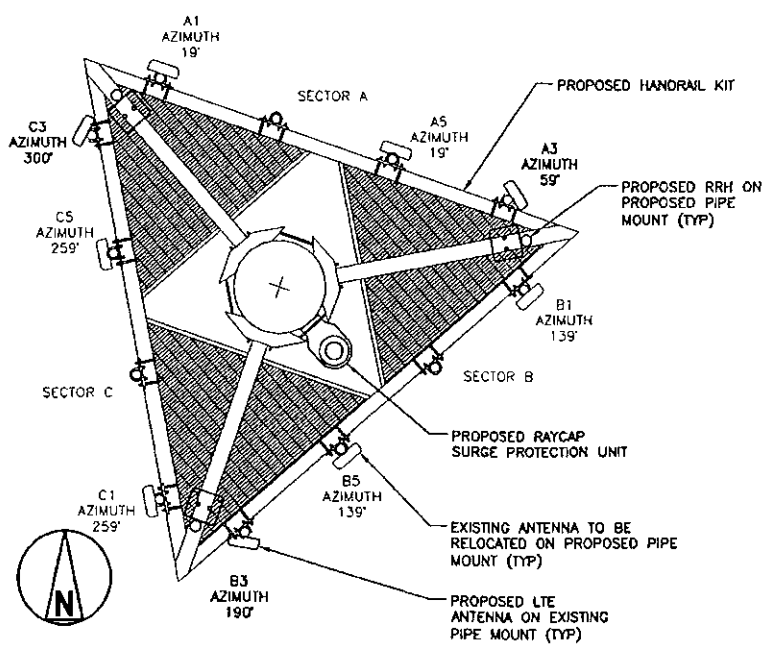
- DESIGN AND CONSTRUCTION OF ANTENNA/RRH SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 STANDARDS OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA/RRH MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS..
- SUBCONTRACTOR SHALL ENSURE ALL ANTENNA/RRH MOUNTING PIPES ARE PLUMB AND LEVEL.
- MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
- SUBCONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE DOCUMENTATION TO AT&T.
- LINES 1 & 2 TO HAVE TMA'S MOUNTED ON PIPE BELOW ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE PREFERABLY IN A VERTICAL POSITION.
- SUB CONTRACTOR SHALL INSTALL ANTENNA/RRH PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.

FIBER & POWER CABLE MOUNTING NOTES

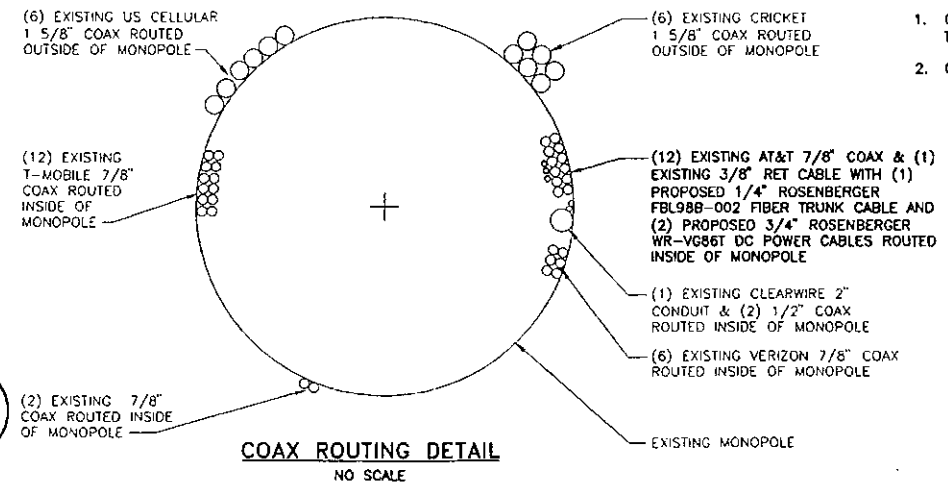
- CABLE TO BE SUPPORTED USING 7/8" SNAP INS (ROSENBERGER PART# CX603-HA0711, CX604-HA1117, TH413-U78 OR TH426-570) OR APPROVED EQUAL.
- CABLE TO BE SUPPORTED EVERY 3'.



EXISTING ANTENNA LAYOUT
NO SCALE

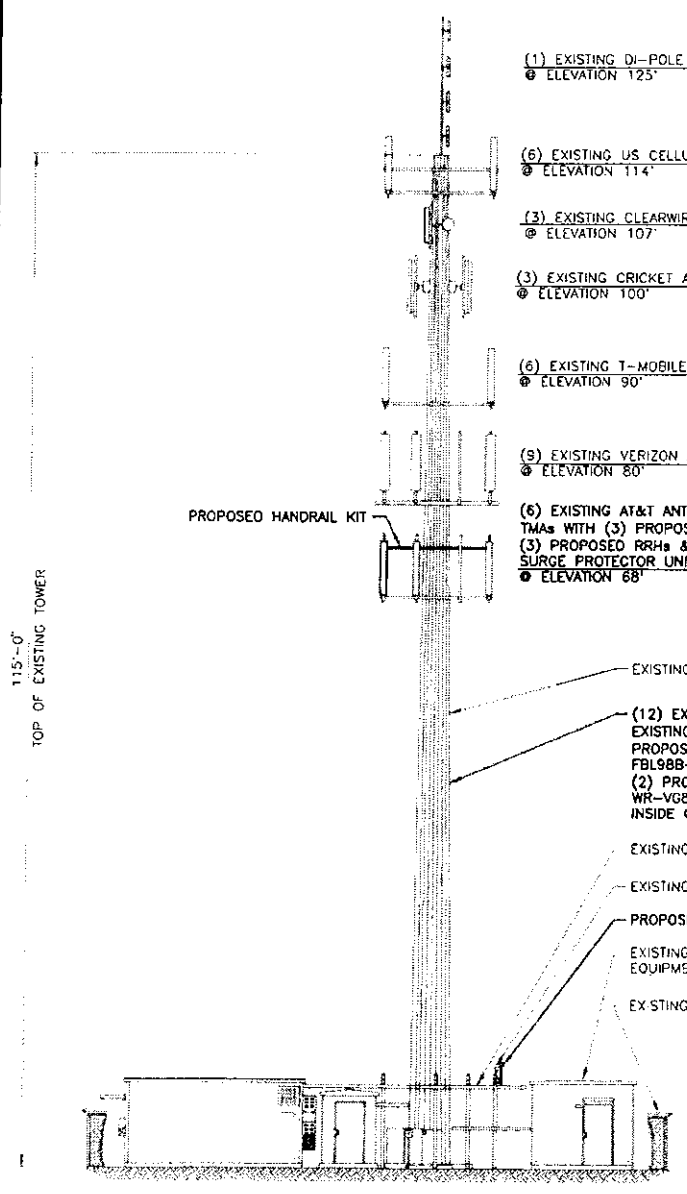


PROPOSED ANTENNA LAYOUT
NO SCALE



COAX ROUTING DETAIL
NO SCALE

- (1) EXISTING DI-POLE ANTENNA (PARKWAY SCHOOL DISTRICT)
@ ELEVATION 125'
- (6) EXISTING US CELLULAR ANTENNAS
@ ELEVATION 114'
- (3) EXISTING CLEARWIRE ANTENNAS & (3) DSH
@ ELEVATION 107'
- (3) EXISTING CRICKET ANTENNAS
@ ELEVATION 100'
- (6) EXISTING T-MOBILE ANTENNAS
@ ELEVATION 90'
- (9) EXISTING VERIZON ANTENNAS
@ ELEVATION 80'
- (6) EXISTING AT&T ANTENNAS & (6) EXISTING TMA'S WITH (3) PROPOSED AT&T LTE ANTENNAS, (3) PROPOSED RRHs & (1) PROPOSED RAYCAP SURGE PROTECTOR UNIT
@ ELEVATION 68'



SITE ELEVATION
NO SCALE



13075 MANCHESTER RD, SUITE 100
ST LOUIS, MO 63131



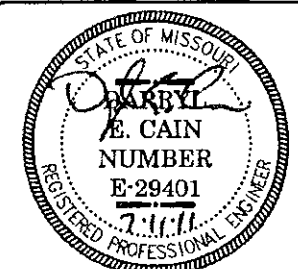
BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

BLACK & VEATCH PROFESSIONAL ENGINEERING CORPORATION
MISSOURI STATE CERTIFICATE OF AUTHORITY # 201446

PROJECT NO: 168986
DRAWN BY: RCC
CHECKED BY: GPX

REV	DATE	DESCRIPTION
0	07/11/11	ISSUED FOR ZONING



DARRYL E. CAIN E-29401
PROFESSIONAL ENGINEER

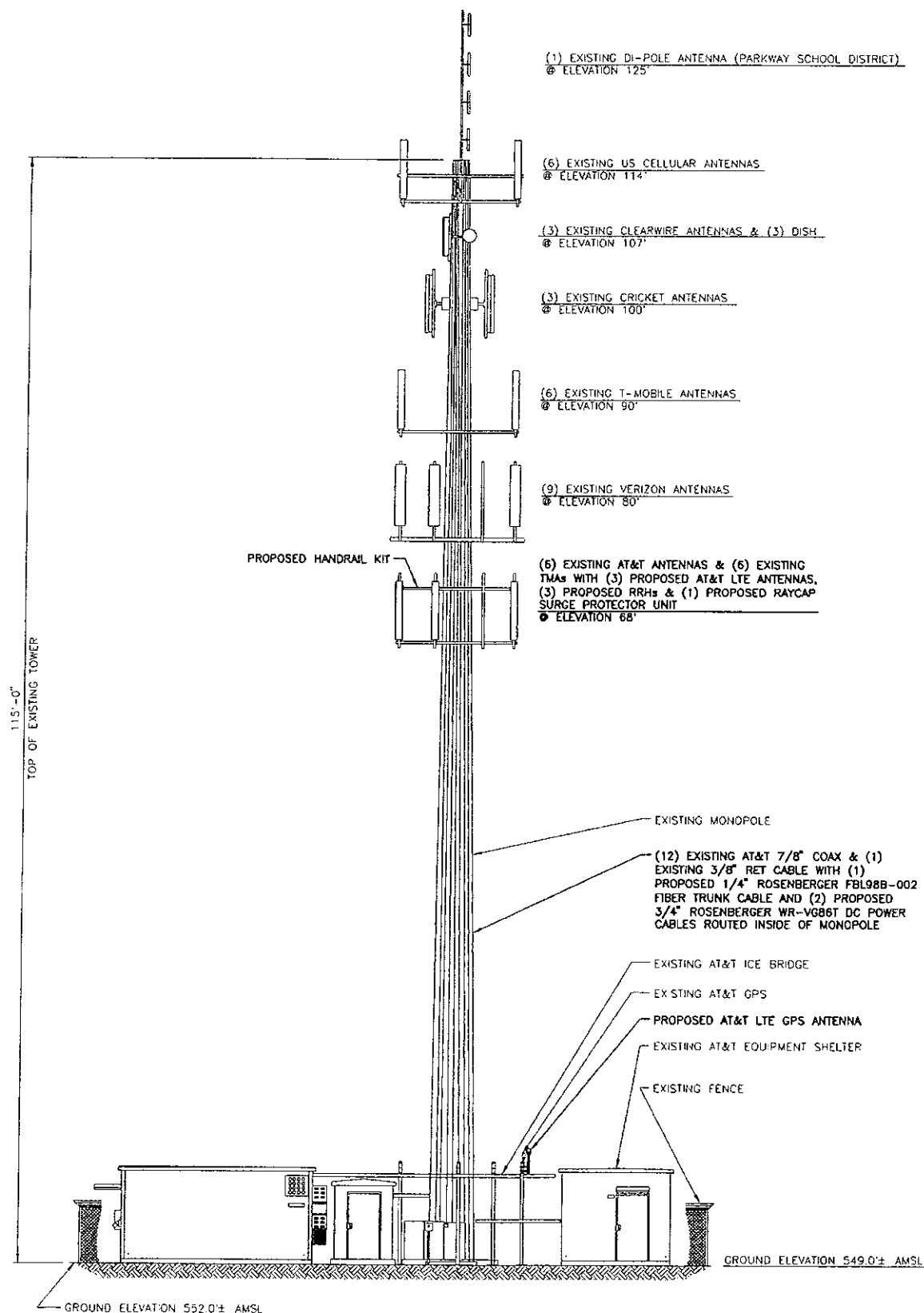
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MO3219
PARKWAY CENTRAL
471 N WOODSMILL RD
CHESTERFIELD, MO 63017
LTE - MONOPOLE

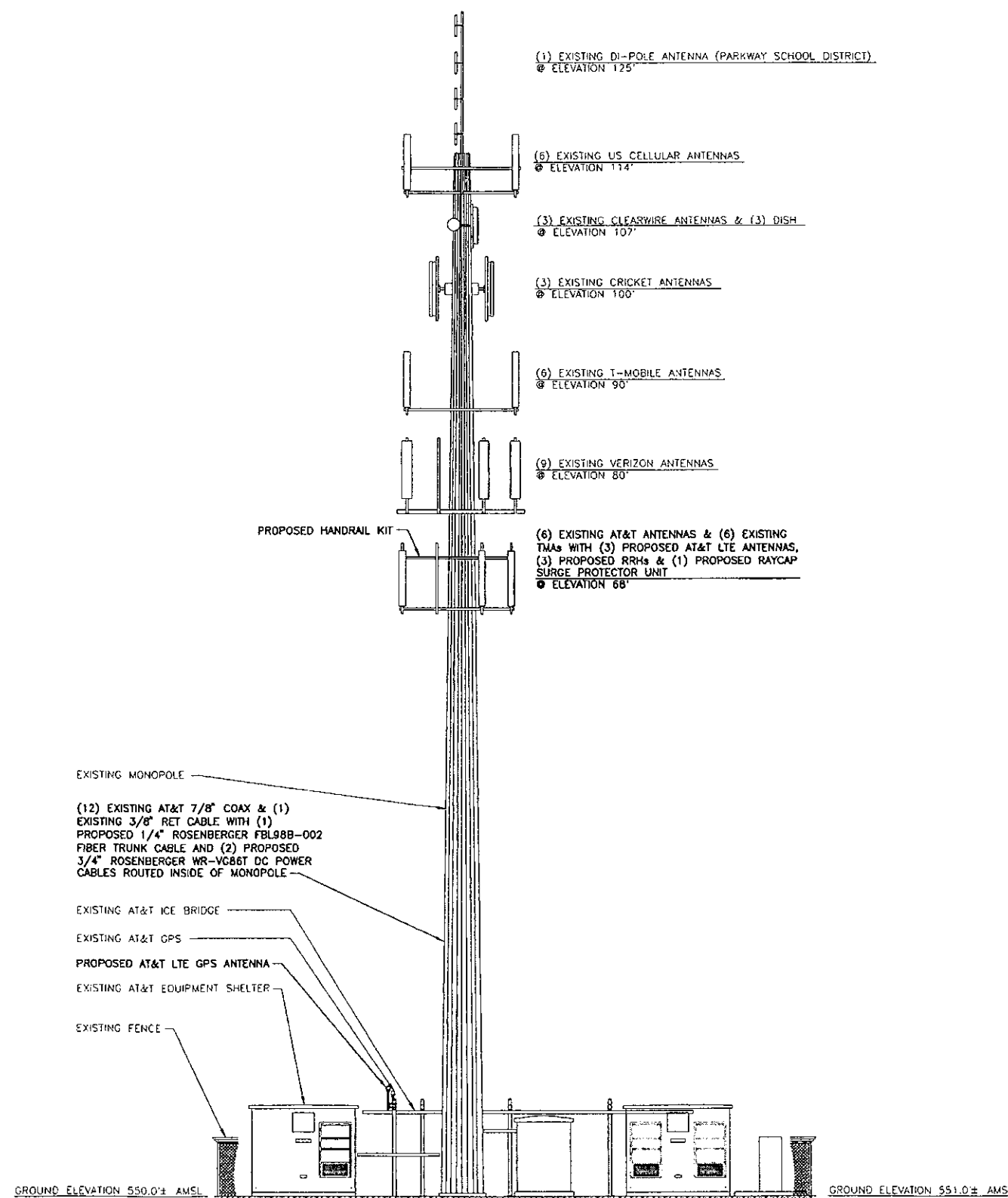
SHEET TITLE
SITE ELEVATION

SHEET NUMBER

Z-5



SOUTH ELEVATION
NO SCALE



NORTH ELEVATION
NO SCALE



13075 MANCHESTER RD, SUITE 100
ST LOUIS, MO 63131



BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

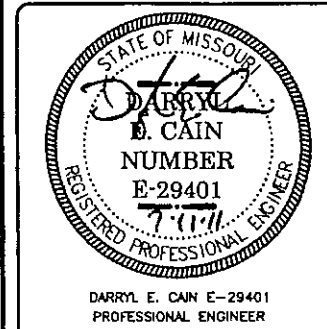
BLACK & VEATCH PROFESSIONAL ENGINEERING CORPORATION
MISSOURI STATE CERTIFICATE OF AUTHORITY # 90164

PROJECT NO: 168986

DRAWN BY: RCC

CHECKED BY: GPX

REV	DATE	DESCRIPTION
0	07/11/11	ISSUED FOR ZONING

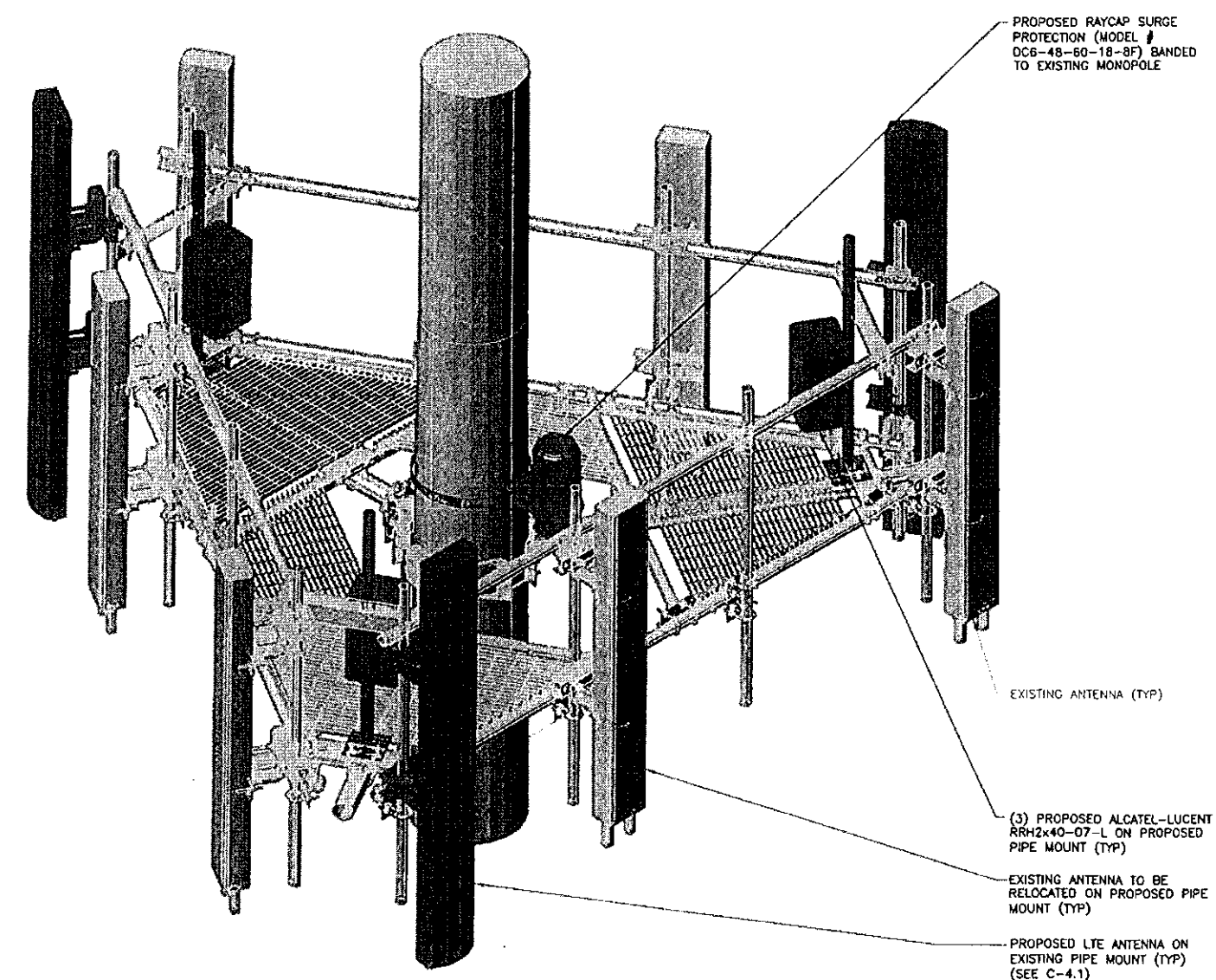


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M03219
PARKWAY CENTRAL
471 N WOODSMILL RD
CHESTERFIELD, MO 63017
LTE - MONOPOLE

SHEET TITLE
ANTENNA/RRH MOUNT
DETAIL

SHEET NUMBER
Z-6



TYPICAL PLATFORM MOUNT
NO SCALE

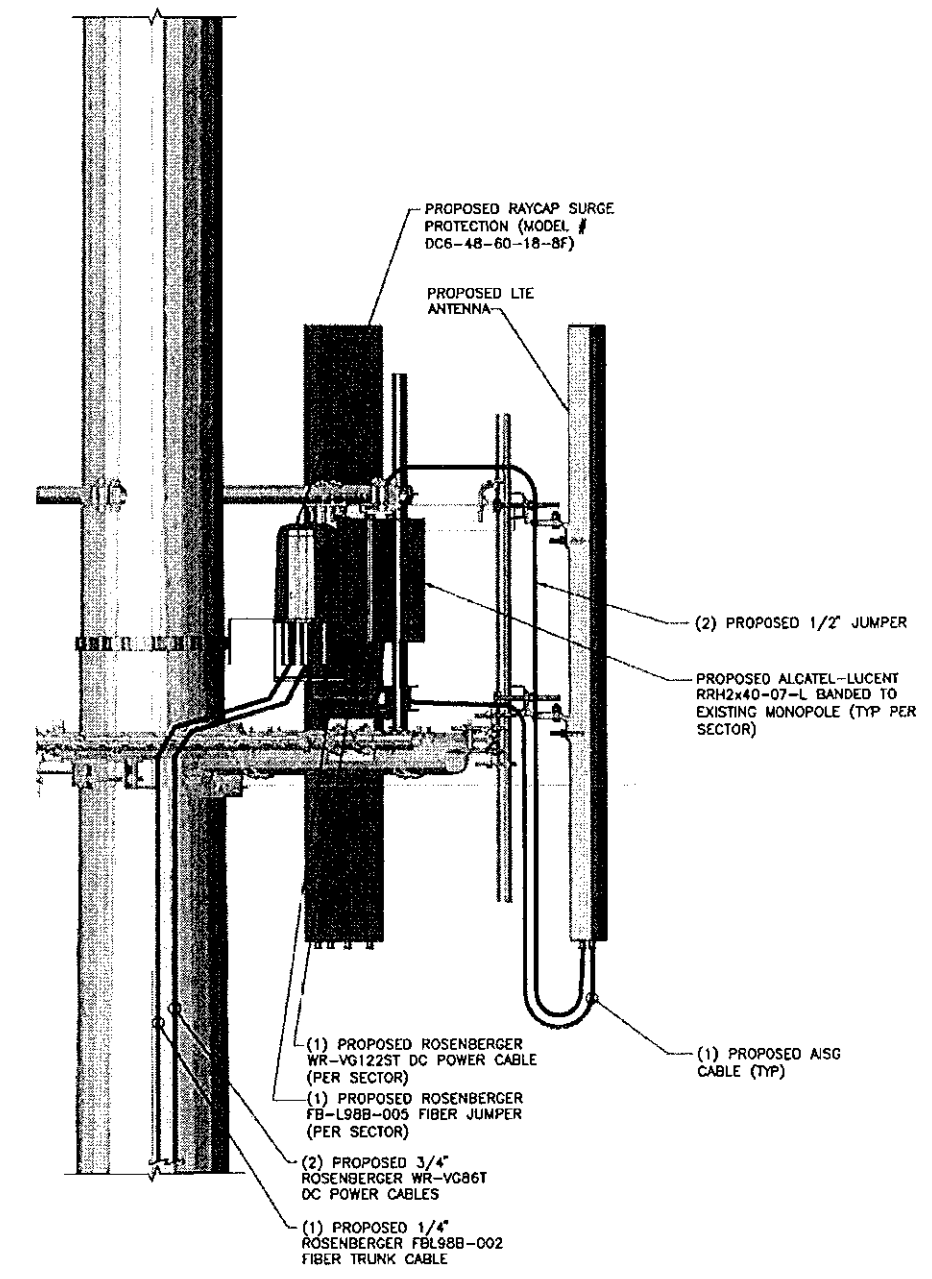
PROPOSED RAYCAP SURGE PROTECTION (MODEL # DC6-48-60-18-8F) BANDED TO EXISTING MONOPOLE

EXISTING ANTENNA (TYP)

(3) PROPOSED ALCATEL-LUCENT RRH2x40-07-L ON PROPOSED PIPE MOUNT (TYP)

EXISTING ANTENNA TO BE RELOCATED ON PROPOSED PIPE MOUNT (TYP)

PROPOSED LTE ANTENNA ON EXISTING PIPE MOUNT (TYP) (SEE C-4.1)



ANTENNA ELEVATION
NO SCALE

PROPOSED RAYCAP SURGE PROTECTION (MODEL # DC6-48-60-18-8F)

PROPOSED LTE ANTENNA

(2) PROPOSED 1/2" JUMPER

PROPOSED ALCATEL-LUCENT RRH2x40-07-L BANDED TO EXISTING MONOPOLE (TYP PER SECTOR)

(1) PROPOSED ROSENBERGER WR-VG122ST DC POWER CABLE (PER SECTOR)

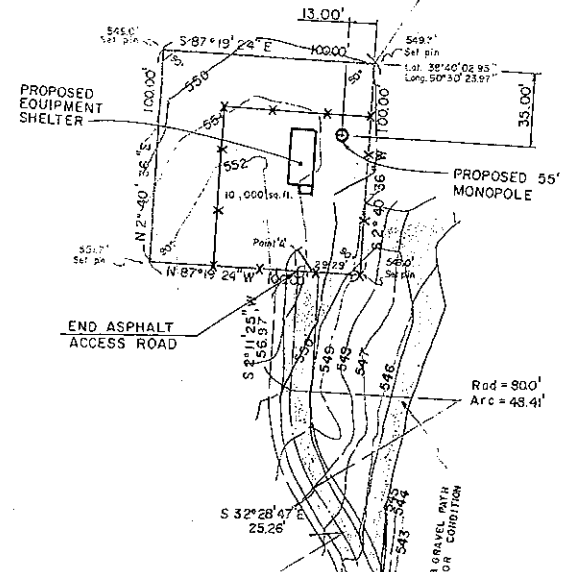
(1) PROPOSED ROSENBERGER FB-L98B-005 FIBER JUMPER (PER SECTOR)

(2) PROPOSED 3/4" ROSENBERGER WR-VG86T DC POWER CABLES

(1) PROPOSED 1/4" ROSENBERGER FBL98B-002 FIBER TRUNK CABLE

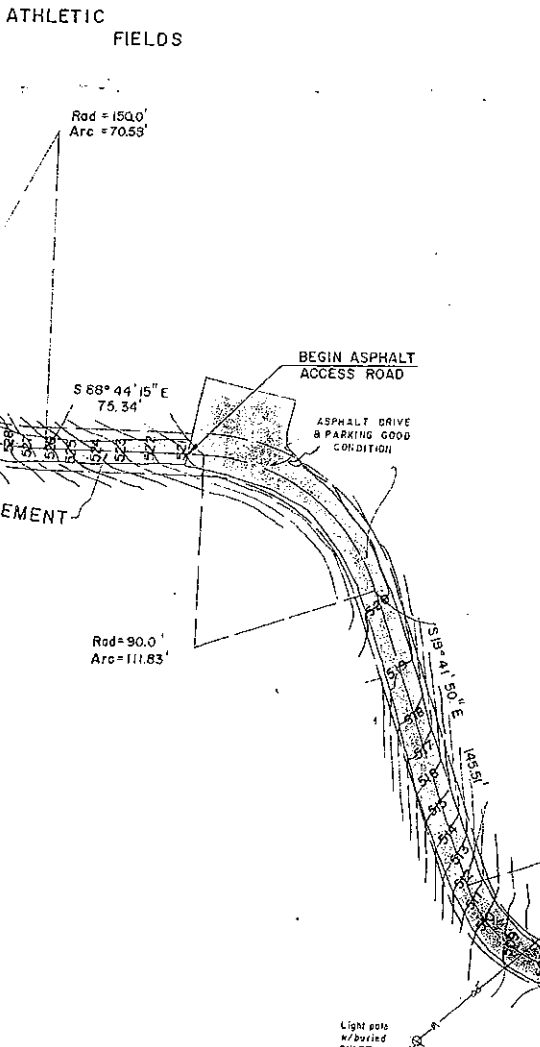
(1) PROPOSED AISG CABLE (TYP)

DETAIL SCALE
1" = 40'

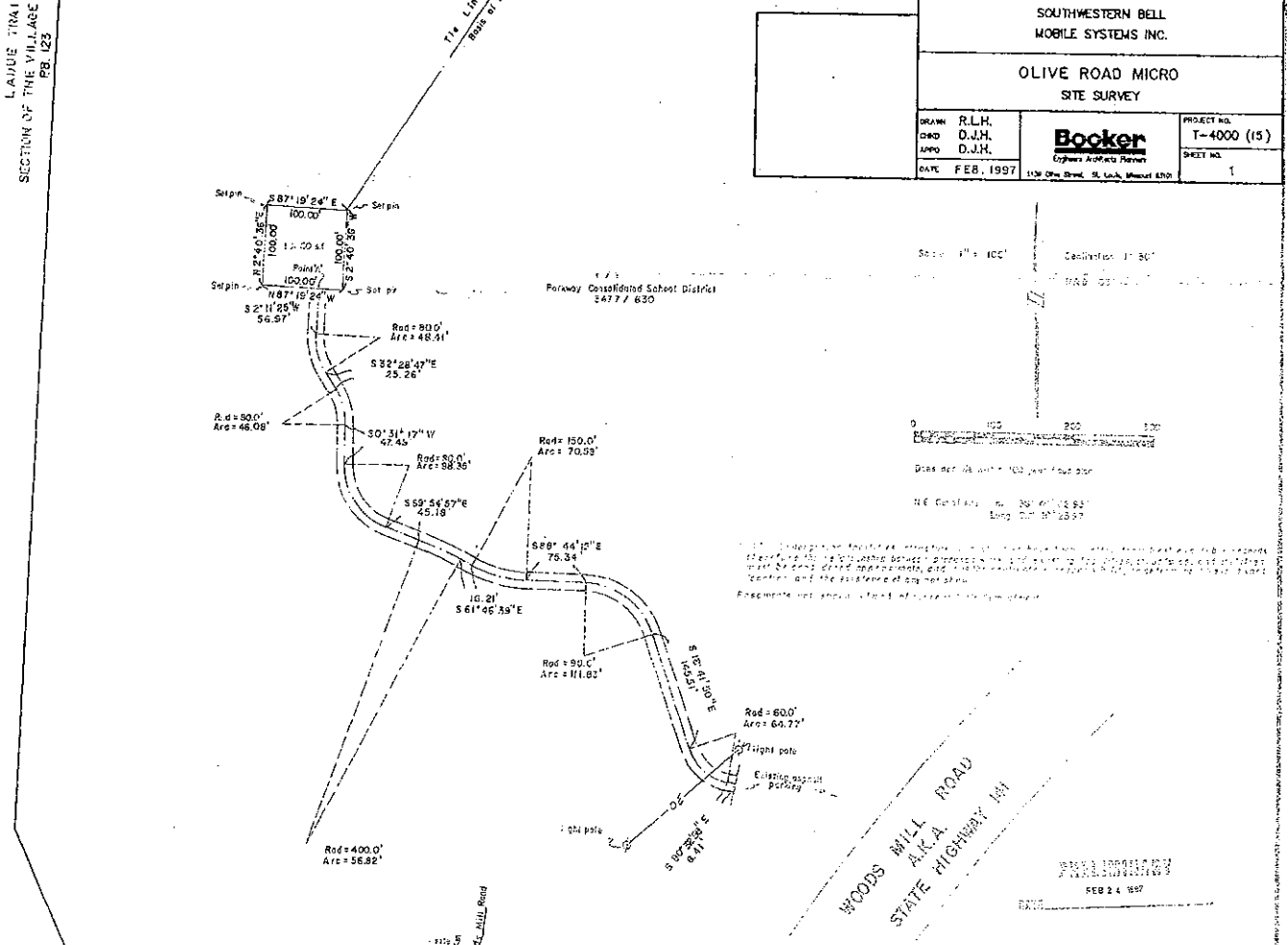
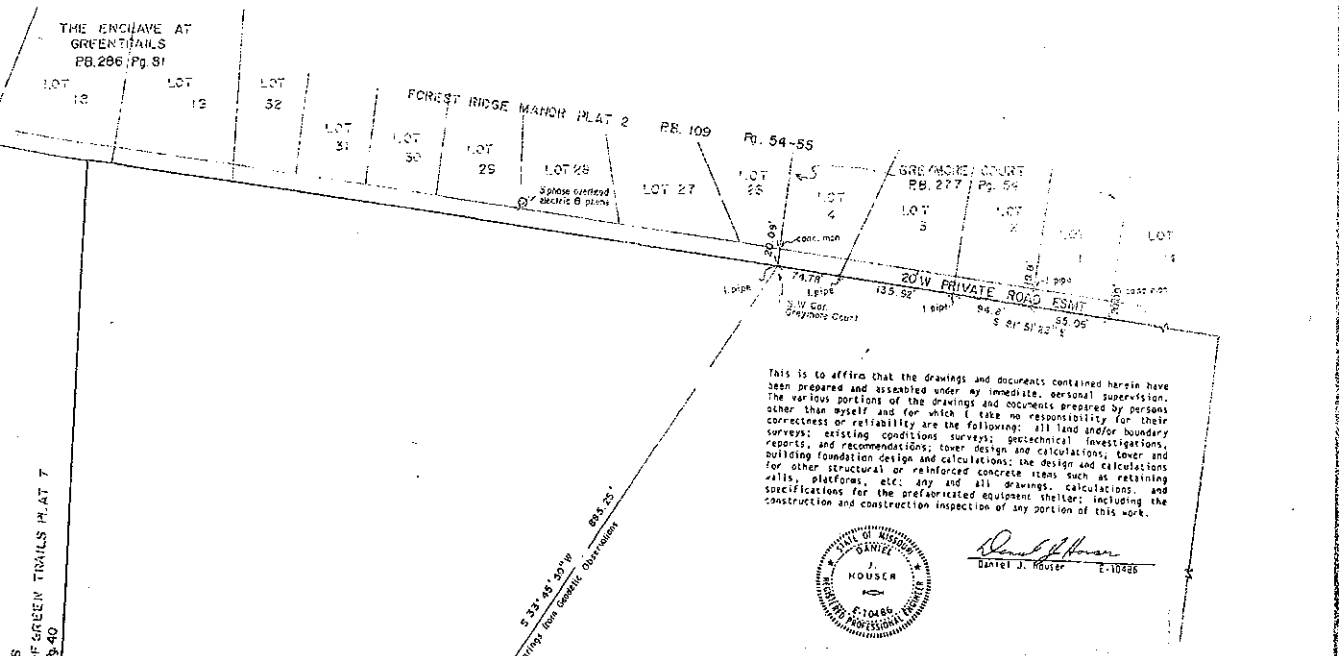


LEGAL DESCRIPTION
A parcel of land being part of U. S. Surveys 109 and 207, Township 45 North, Range 5 East, St. Louis County, Missouri and being part of a larger tract conveyed to Parkway Consolidated School District by deed recorded in Book 1477 at page 630 of the St. Louis County Records and being described as follows:
Beginning at a point located South 33 degrees 45 minutes 50 seconds West 895.25 feet from the southwest corner of said subdivision, said subdivision filed for record in Plat Book 277 at page 54 of said St. Louis County Records, thence South 2 degrees 40 minutes 36 seconds West 100.00 feet to a point, thence North 87 degrees 19 minutes 24 seconds West 29.29 to a point hereinafter designated as point "A", thence continuing North 07 degrees 19 minutes 24 seconds West 70.71 feet to a point, thence North 2 degrees 40 minutes 36 seconds East 100.00 feet to a point, thence South 07 degrees 19 minutes 24 seconds East 100.00 feet to the point of beginning and containing 10,000 square feet more or less.

ROAD EASEMENT
Also an easement 20 feet wide for ingress, egress and public utilities the centerline of which is described as beginning at point "A" as set forth above, thence along said centerline the following courses and distances South 2 degrees 11 minutes 25 seconds West 55.97 feet to a point of curve, thence along said curve to the left having a radius of 80.00 feet an arc distance of 48.41 feet to the point of tangency, thence South 32 degrees 28 minutes 47 seconds East 25.26 feet to a point of curve, thence along a curve to the right having a radius of 80.00 feet an arc distance of 46.08 feet to the point of tangency, thence South 17 minutes 17 seconds West 47.49 feet to a point of curve, thence along a curve to the left having a radius of 80.00 feet an arc distance of 98.35 feet to the point of tangency, thence South 69 degrees 54 minutes 57 seconds East 45.19 feet to a point of curve, thence South 0 degrees 31 minutes 17 seconds East 15.21 feet to a point of tangency, thence South 61 degrees 45 minutes 39 seconds East 15.21 feet to a point of curve, thence along a curve to the left having a radius of 150.00 feet an arc distance of 70.58 feet to the point of tangency, thence South 88 degrees 44 minutes 15 seconds East 75.34 feet to a point of curve, thence South 0 degrees 31 minutes 17 seconds East 111.03 feet to the point of tangency, thence South 18 degrees 41 minutes 50 seconds East 145.51 feet to a point of curve, thence along a curve to the left having a radius of 60.00 feet an arc distance of 64.77 minutes 59 seconds East 8.41 feet to an asphalt parking lot, thence across said parking lot to Woods Mill Road being the point of ending of the description contained herein.



SURVEYORS CERTIFICATE
We hereby certify that, at the request of Southwestern Bell Mobile Systems, Inc., we have executed a Boundary and Topographic survey of a tract of land that meets or exceeds the 1-A classification established by the Federal Aviation Administration. Said tract of land being part of United States Survey 109 and 207, Township 45 North, Range 5 East, and being part of a larger tract conveyed to Parkway Consolidated School District by deed recorded in Book 1477 at Page 630 of the St. Louis County Records.
I declare that to the best of my belief, knowledge, information and professional judgment, the results shown hereon are made in accordance with the current minimum standards for property boundary surveys as set forth by the Missouri Department of Natural Resources, Division of Geology and Land Survey. However this plat has been compiled without the aid of a current Certificate of Title and, therefore, may not contain all the easements, reservations, restrictions and covenants of record.
IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at our office in Hillsboro, Missouri, this 1st day of December, 1996.
ASSOCIATED LAND SURVEYORS, INC.
WAYNE WILBY, S.L.S. 1530
P. O. Box 137
Hillsboro, MO 63050
(314) 797-2283



This is to affirm that the drawings and documents contained herein have been prepared and assembled under my immediate, personal supervision. The various portions of the drawings and documents prepared by persons other than myself and for which I take no responsibility for their correctness or reliability are the following: all land and/or boundary reports; existing conditions surveys; geotechnical investigations; building foundation design; tower design and calculations; tower and other structural or reinforced concrete items; the design and calculations of utility platforms, etc.; any and all drawings, calculations and specifications for the prefabricated equipment shelter; including the construction and construction inspection of any portion of this work.



Daniel J. Moser
Daniel J. Moser
1-10486

SOUTHWESTERN BELL MOBILE SYSTEMS INC.		PROJECT NO. T-4000 (15)	
OLIVE ROAD MICRO SITE SURVEY		SHEET NO. 1	
DRAWN R.L.H.	APP'D D.J.M.	DATE FEB. 1997	PROJECT NO. T-4000 (15)
Booker Surveyors & Engineers		SHEET NO. 1	

SCALE HORIZONTAL 1" = 100' VERTICAL 1" = 100'		SURV. PK./NS.		DES. D.W.		CHKD. J.S.		REVISIONS		SHEET	
TITLE U.S. SURVEY 109 & 207, TOWNSHIP 45 NORTH, RANGE 5 EAST		PROJECT OLIVE ROAD MICRO		STL 3684		St. Louis County, Missouri		Southwestern Bell Mobile Systems		Associated Land Surveyors, Inc. P.O. Box 137, Hillsboro, MO 63050 (314) 797-2283	