FA NUMBER: 10165310 | CASPR NUMBER: 3601465580

NS0622
CAMINO RUIZ PARK
LTE OPTIMAL
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126

CONFORMS

ENGINEERING

2013 CALIFORNIA BUILDING CODE
2013 CALIFORNIA RESIDENTIAL CODE
2013 CALIFORNIA TITLE 24
2013 CALIFORNIA FIRE CODE
2013 CALIFORNIA ENERGY CODE
2013 CALIFORNIA PLUMBING CODE
2013 CALIFORNIA MECHANICAL CODE
2013 CALIFORNIA ELECTRICAL CODE
TIA-222-G 2005

IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

PROJECT DESCRIPTION

AT&T WIRELESS PROPOSES TO MODIFY AN EXISTING WIRELESS INSTALLATION. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- REMOVE (9) (3) 6'-0" ANTENNAS
- INSTALL (12) (4) 6'-0" ANTENNAS
- INSTALL (6) (N) RRUS-12
- INSTALL (1) (N) DC SURGE SUPPRESSOR
- INSTALL (1) (N) PURCELL CABINET

SITE INFORMATION

PROPERTY OWNER: ADDRESS:	CITY OF SAN DIEGO REAL ESTATE ASSETS DEPT SAN DIEGO, CA 92127
SITE NAME: SITE ADDRESS:	CAMINO RUIZ PARK CAMINO RUIZ & CALLE CRISTOBAL SAN DIEGO, CA 92126
SITE CONTACT:	ELIZA CHARLES CITY OF SAN DIEGO 1200 THIRD AVE, STE 1700
COUNTY	SAN DIEGO
LATITUDE (NAD 83):	32° 55' 48.0" N 32.93000
LONGITUDE (NAD 83):	117° 5' 2.983" W -117.15053
GROUND ELEVATION:	447'-0" AMSL
ANTENNA RAD CENTER:	25'-6" AGL
ZONING JURISDICTION:	CITY OF SAN DIEGO
ZONING DISTRICT:	AR-1-1
EXISTING PERMITS:	(CUP) No. 021482
PARCEL #:	309-040-001, 309-040-03 & 307-020-21
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
OTHER WIRELESS FACILITIES:	ONE OTHER UNKNOWN NOT OPERATING AT THIS SITE
POWER COMPANY:	SDG&E
TELEPHONE COMPANY:	AT&T
RF ENGINEER:	MAHMOUD HABHAB (858) 337-5561
LEASING AGENT:	JEFF GOLDMAN (619) 806-0858
ZONING AGENT:	JOSEPH TAJLANE (858) 774-6885
CONSTRUCTION MANAGER:	JESSE ROBICOUX (913) 458-4264

LEGAL DESCRIPTION

A PORTION OF RANCHO LOS PEÑASQUITOS, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP ACCOMPANYING THE PATENT OF SAID RANCHO RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY IN BOOK 1, PAGE 355 OF PATENTS, AS DESCRIBED IN DEED TO THE CITY OF SAN DIEGO RECORDED FEBRUARY 19, 1980 AS FILE/PAGE NO. 80-055209 OF OFFICIAL RECORDS, AND PORTIONS OF PARCEL 1 AND PARCEL 3 OF PARCEL MAP NO. 14428, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY JANUARY 15, 1987.

CONTACT INFORMATION

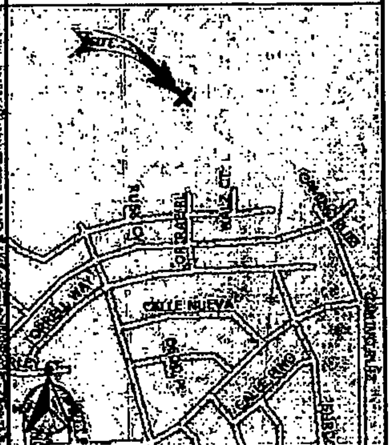
ENGINEER:	BLACK & VEATCH CORPORATION 10060 WILLOW CREEK RD, SUITE 350 SAN DIEGO, CA 92131
CONTACT:	JOSEPH PALMA (619) 341-9479

LOCATION MAPS

VICINITY MAP



LOCAL MAP



NO SCALE

DRIVING DIRECTIONS

DIRECTIONS FROM AT&T OFFICE:

HEAD SOUTHWEST ON PACIFIC CENTER BLVD TOWARD MCKELLAR CT; GO 404 FT. MAKE A U-TURN AT MCKELLAR CT; GO 0.3 MI. TAKE THE 2ND RIGHT ONTO PACIFIC HEIGHTS BLVD; GO 0.5 MI. TURN LEFT AT MIRA MESA BLVD; GO 2.9 MI. TURN LEFT AT CAMINO RUIZ; GO 1.6 MI. SITE WILL BE ON THE LEFT.

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS & AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.

LEASING VENDOR: ____ DATE: ____
ZONING VENDOR: ____ DATE: ____
AT&T RF ENGINEER: ____ DATE: ____
CONSTRUCTION MANAGER: ____ DATE: ____
AT&T OPERATIONS: ____ DATE: ____
SITE ACQUISITION MANAGER: ____ DATE: ____
A/E MANAGER: ____ DATE: ____
PROJECT MANAGER: ____ DATE: ____
PROPERTY OWNER: ____ DATE: ____

RF INFORMATION

	LTE	GSM	UMTS
Tx	704.0 – 716.0 MHz 1900 MHz	869 – 874.6 MHz 890 – 891.4 MHz 1950 – 1952.8 MHz 1970 – 1980 MHz	874.6 – 879.8 MHz 1945 – 1950 MHz
Rx	704.0 – 716.0 MHz 1900 MHz	824 – 829.6 MHz 845 – 846.4 MHz 1870 – 1872.8 MHz 1890 – 1900 MHz	829.6 – 834.4 MHz 1865 – 1870.8 MHz
MAX ERP:	500.0 WATTS	MAX ERP:	850 MHz: 54 WATTS 1900 MHz: 54.5 WATTS

DRAWING INDEX

SHEET NO:	SHEET TITLE	REV
T-1	TITLE SHEET	6
T-2	APPROVAL LETTER & RECORDED MAP	6
T-3	APPROVAL LETTER & RECORDED MAP	6
C-1	SITE PLAN	5
C-2	ENLARGED SITE PLAN	5
C-3	EQUIPMENT LAYOUT	6
C-4	ANTENNA LAYOUT	6
C-4.1	BRANCH LAYOUT (EXISTING)	6
C-4.2	BRANCH LAYOUT (NEW)	6
C-5	ELEVATIONS	5
C-6	ELEVATIONS	5
C-7	DETAILS	5
C-8	DETAILS	5
E-1	ELECTRICAL DC ONE-LINE DIAGRAM	6
G-1	GROUNDING ONE-LINE DIAGRAM	5
G-2	GROUNDING DETAILS	6
GN-1	GENERAL NOTES, LEGENDS & ABBREVIATIONS	5
GN-2	GENERAL ELECTRICAL NOTES	5

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

SUBCONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

UNDERGROUND SERVICE ALERT
UTILITIES PROTECTION CENTER, INC.
811
48 HOURS BEFORE YOU DIG

at&t
7230 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

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

PROJECT NO:	122027
DRAWN BY:	DJ
CHECKED BY:	JC

REV	DATE	DESCRIPTION
6	04/22/16	CITY COMMENTS
5	11/05/14	CITY COMMENTS
4	09/30/14	CITY COMMENTS
3	09/11/14	CITY COMMENTS
2	08/28/14	RF REVISION
1	04/04/13	CITY COMMENTS
0	02/22/13	ISSUED FOR CONSTRUCTION

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.

NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

ORIGINAL

ORIGINAL

ORIGINAL

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

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

PROJECT NO:	[illegible]
DRAWN BY:	DJ
CHECKED BY:	JB

REV	DATE	DESCRIPTION
4	[illegible]	CITY COMMENTS
3	[illegible]	SITE CHANGES
2	[illegible]	ZP SUBMITTAL
1	[illegible]	SITE CHANGES
0	[illegible]	ISSUED FOR CONSTRUCTION

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.

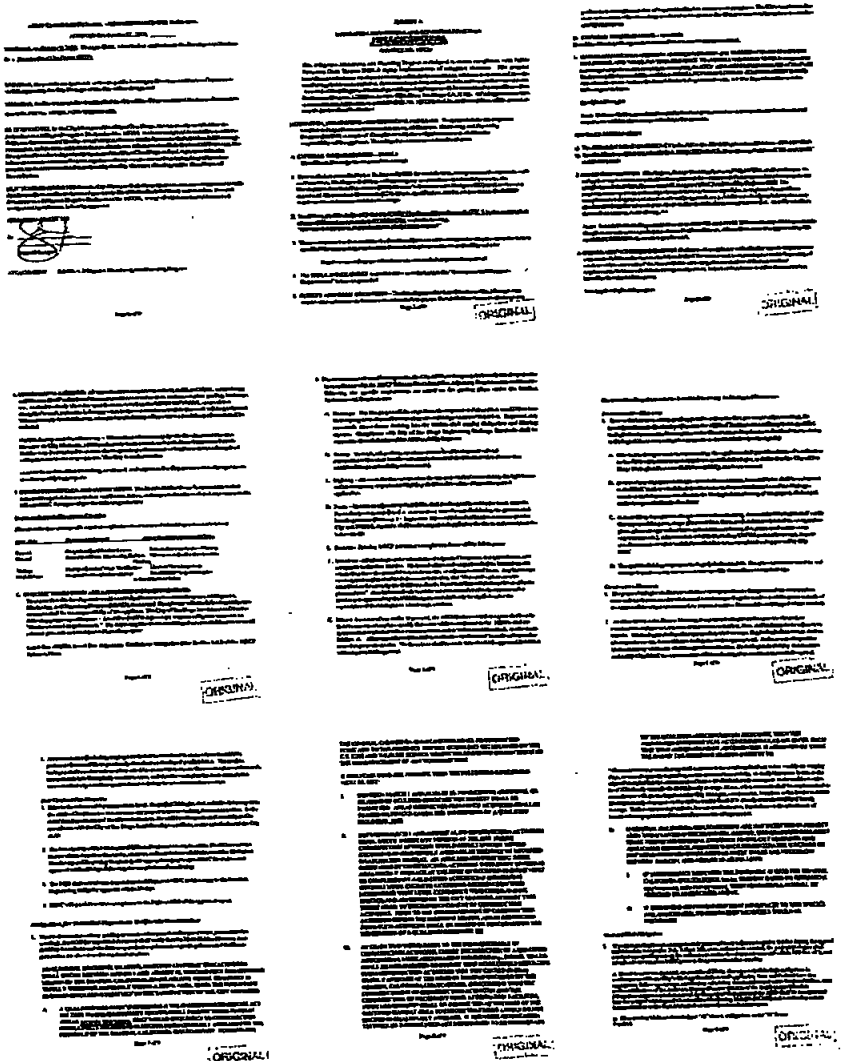
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE

APPROVAL LETTER
& RECORDED NUP

SHEET NUMBER

T-2



CONFORMS

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

12900 COMMERCE DRIVE
OVERLAND PARK, KANSAS 66213
(913) 458-2000

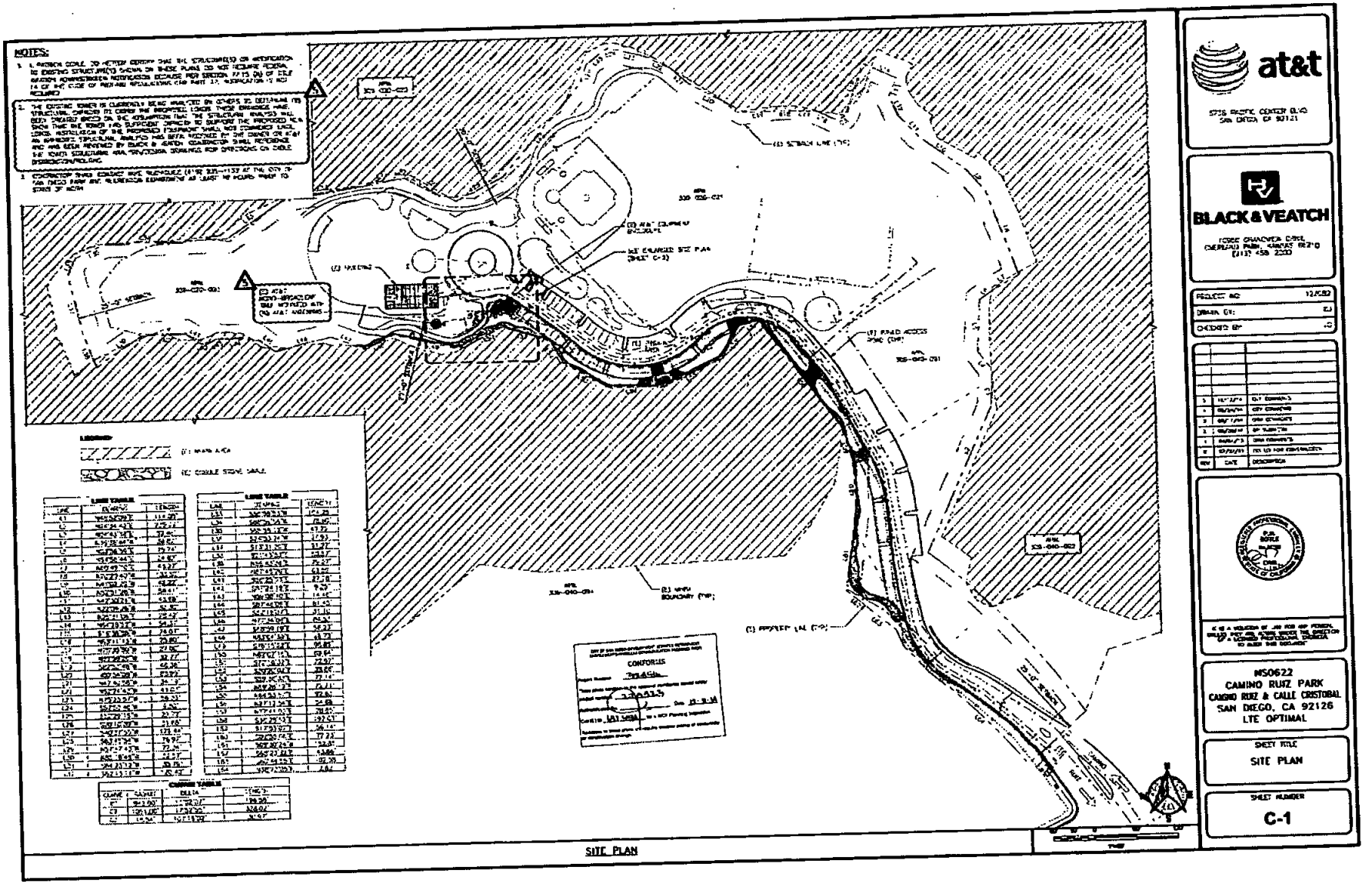
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DRAWN BY:	DK
CHECKED BY:	JC

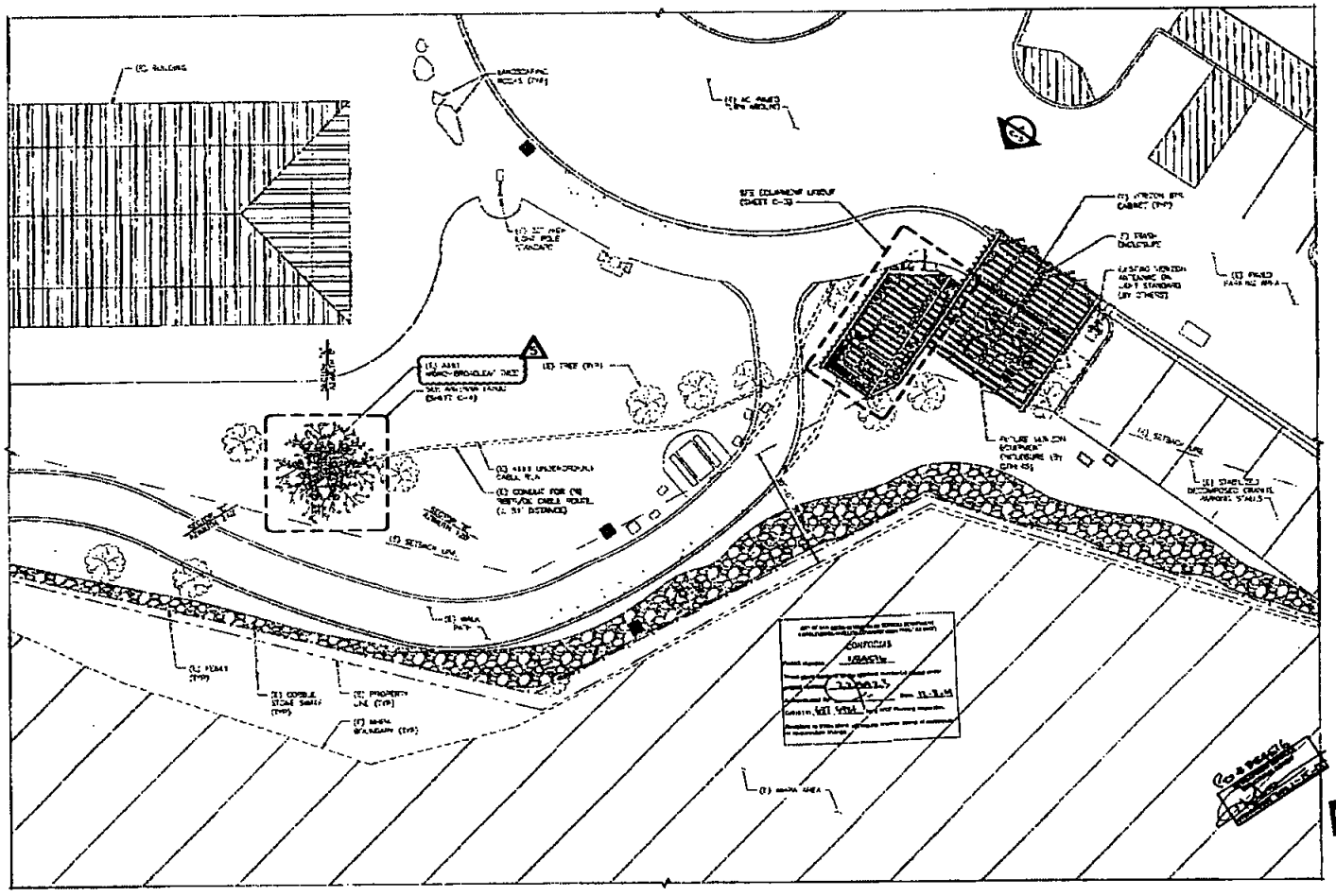
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2	05/30/14	90% SUBMITTAL
1	04/04/13	90% SUBMITTAL
0	07/27/11	ISSUED FOR CONSTRUCTION

NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
APPROVAL LETTER
& RECORDED NUP

SHEET NUMBER
T-3


NOTES:
CONFORMS
SITE PLAN
at&t
BLACK & VEATCH
WS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL
SHEET TITLE
SITE PLAN
SHEET NUMBER
C-1



ENLARGED SITE PLAN

at&t

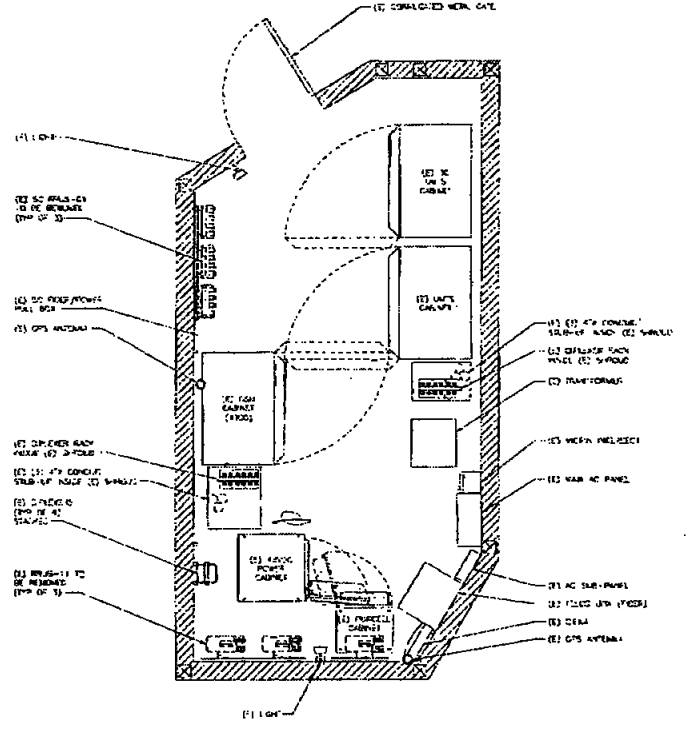
BLACK & VEATCH

NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
C-2

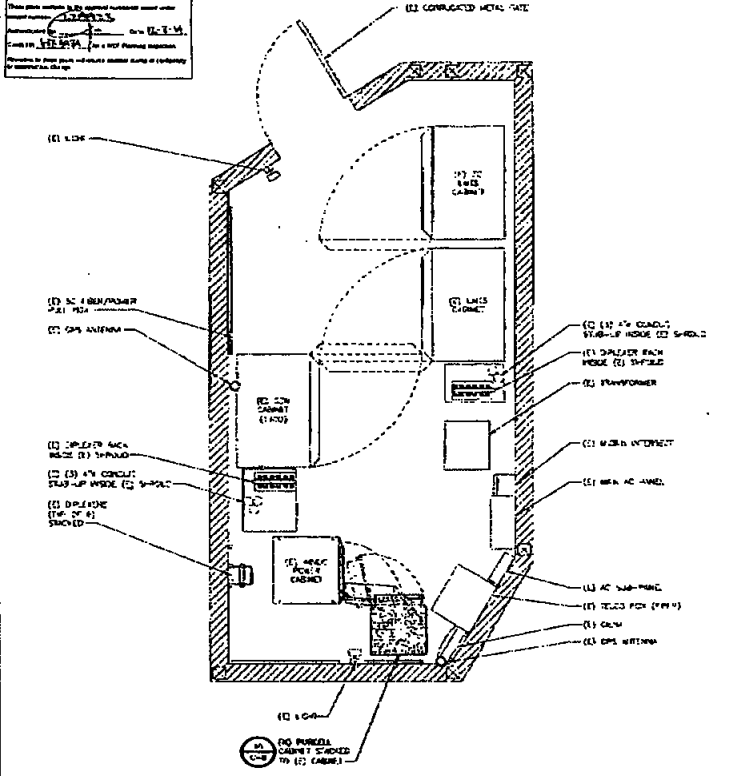
NOTE:



(E) EQUIPMENT LAYOUT

NOTE:

CONFORMS



(N) EQUIPMENT LAYOUT

at&t

BLACK & VEATCH

PROJECT NO	
DRAWN BY	
CHECKED BY	

REV	DATE	DESCRIPTION
3		
2		
1		
0		

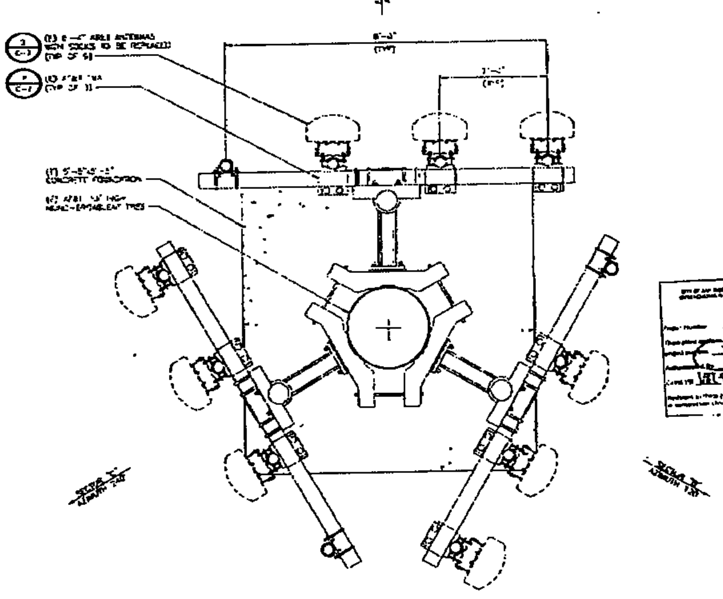
NSO622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
EQUIPMENT LAYOUT

SHEET NUMBER
C-3

EXISTING ANTENNA SCHEDULE

SECTOR	POS	STATUS	MODEL NO.	SIZE	AZIMUTH	TIP HT	TMA #	TMA MODEL NO.	SURGE SUPPRESSOR #	SURGE SUPPRESSOR MODEL NO.	RRU #	RRU MODEL NO.	**DC	*FIBER	COAX	LENGTH +/-
A	1	REMOVE	800 10765 K	6'-4"	0	25'-6"	1	[illegible]							20	7/8"	140'
	2	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	3	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	4																
B	1	REMOVE	800 10765 K	6'-4"	120	25'-6"	1	[illegible]									
	2	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	3	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	4																
C	1	REMOVE	800 10765 K	6'-4"	240	25'-6"	1	[illegible]									
	2	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	3	REMOVE	800 10765 K	6'-4"			1	[illegible]									
	4																
TOTALS	9 ANTENNAS						9 TMA'S		0 SURGE SUPPRESSORS		0 RRU'S		0 DC POWER / 0 FIBER / 20 COAX			



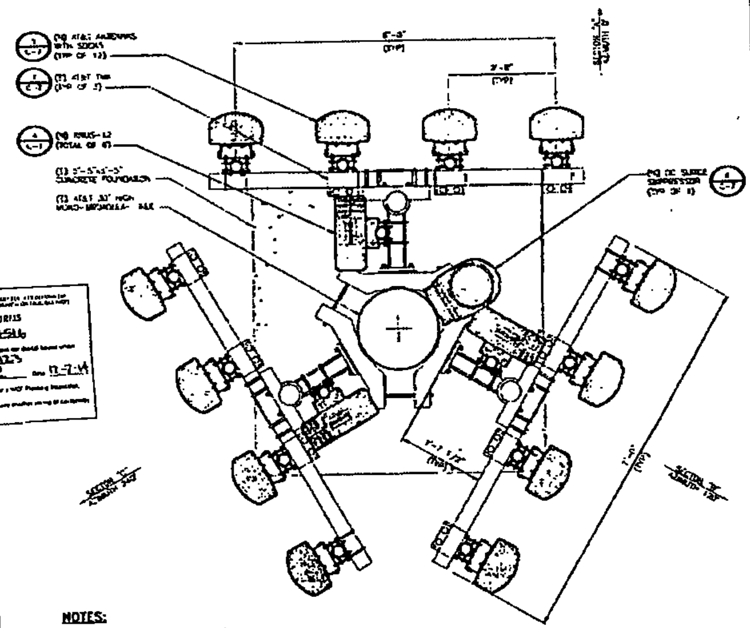
NOTE:

1. BRANCHES NOT SHOWN FOR CLARITY.

(E) ANTENNA LAYOUT

FINAL ANTENNA SCHEDULE

SECTOR	POS	STATUS	MODEL NO.	SIZE	AZIMUTH	TIP HT	TMA #	TMA MODEL NO.	SURGE SUPPRESSOR #	SURGE SUPPRESSOR MODEL NO.	RRU #	RRU MODEL NO.	**DC	*FIBER	COAX	LENGTH +/-
A	1	NEW	[illegible]	8'-0"?	0	25'-6"	1	[illegible]	1	[illegible]	2	RRUS-12	2	1	20	7/8"	140'
	2	NEW	[illegible]	6'-0"?			1	[illegible]									
	3	NEW	[illegible]	6'-0"?			1	[illegible]									
	4	NEW	[illegible]	6'-0"?													
B	1	NEW	[illegible]	6'-0"?	120	25'-6"	1	[illegible]			2	RRUS-12					
	2	NEW	[illegible]	6'-0"?			1	[illegible]									
	3	NEW	[illegible]	6'-0"?			1	[illegible]									
	4	NEW	[illegible]	6'-0"?													
C	1	NEW	[illegible]	6'-0"?	240	25'-6"	1	[illegible]			2	RRUS-12					
	2	NEW	[illegible]	6'-0"?			1	[illegible]									
	3	NEW	[illegible]	6'-0"?			1	[illegible]									
	4	NEW	[illegible]	6'-0"?													
TOTALS	12 ANTENNAS						9 TMA'S		1 SURGE SUPPRESSORS		6 RRU'S		2 DC POWER / 1 FIBER / 20 COAX			



NOTES:

1. BRANCHES NOT SHOWN FOR CLARITY.
2. EACH PANEL ANTENNA TO RECEIVE FAUX FOLIAGE "SOCKS" UTILIZING SAME LEAF TYPE AS FAUX TREE. THE COLOR TO BE USED WILL BE GUIDON, SAFARI GREEN (OR EQUIVALENT).
3. BRANCHES MIN. 24" BEYOND (P) ANTENNAS.
4. EXISTING TREE HAS (43) BRANCHES. 6
5. TREE SHALL BE RE-BRANCHED AS NEEDED TO COMPLY WITH ORIGINAL PERMIT AND CONDITIONS.

(N) ANTENNA LAYOUT

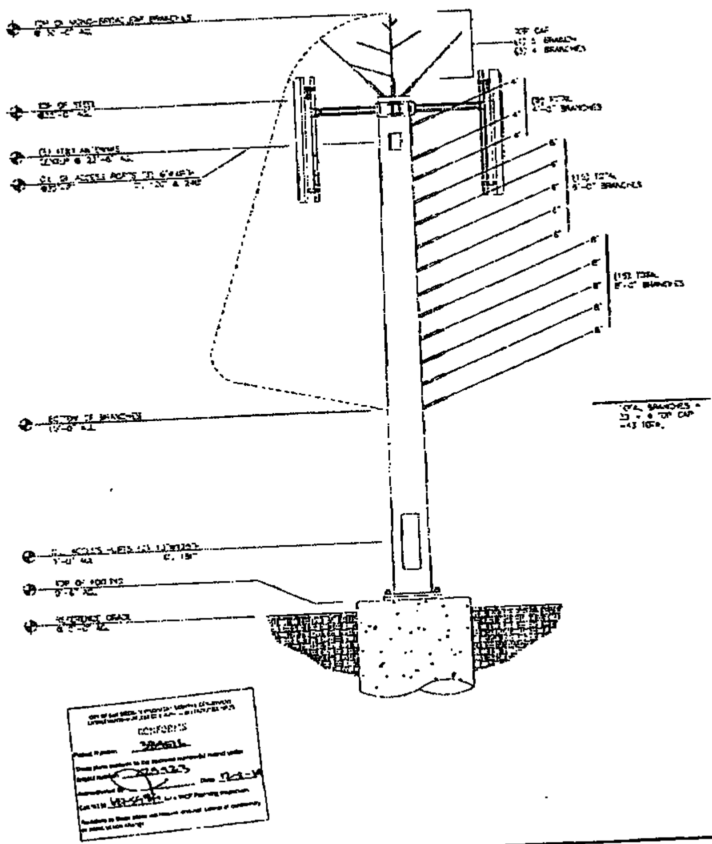
at&t

PROJECT NO. 12/202 · DRAWN BY: BJ · CHECKED BY: JG

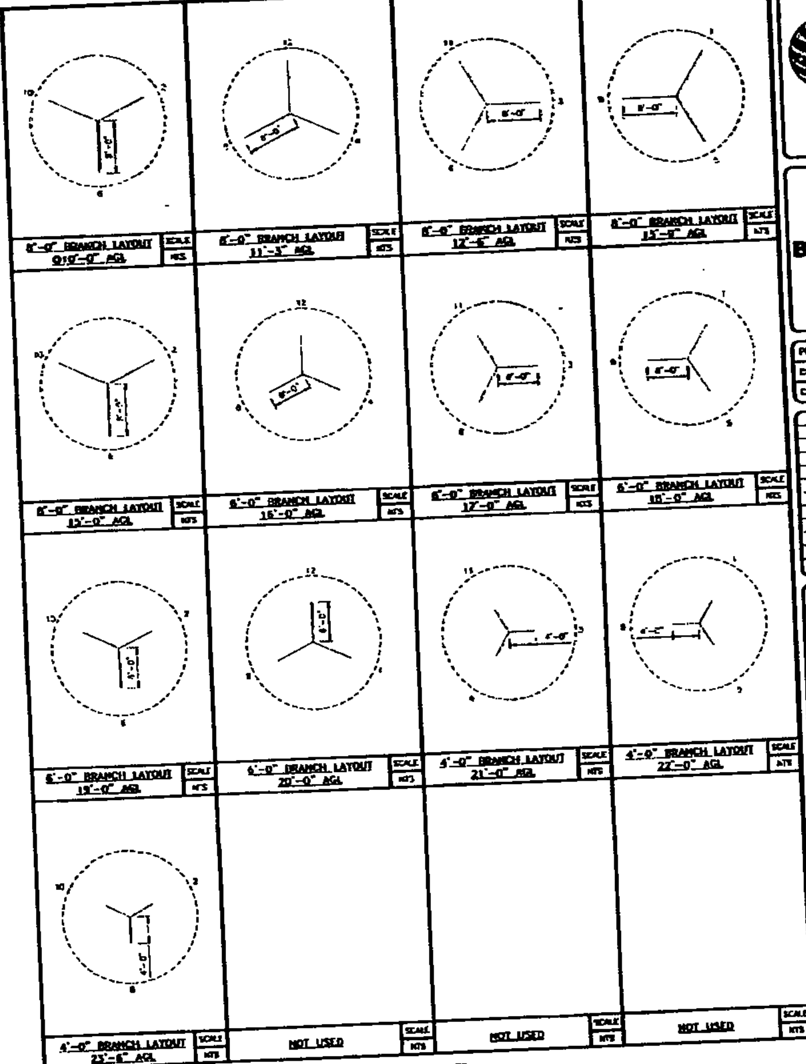
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
ANTENNA LAYOUT

SHEET NUMBER
C-4



STRUCTURAL ELEVATION



RECEPTACLES

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

10000 CRANBROOK DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	17C002
DRAWN BY:	DL
CHECKED BY:	JC

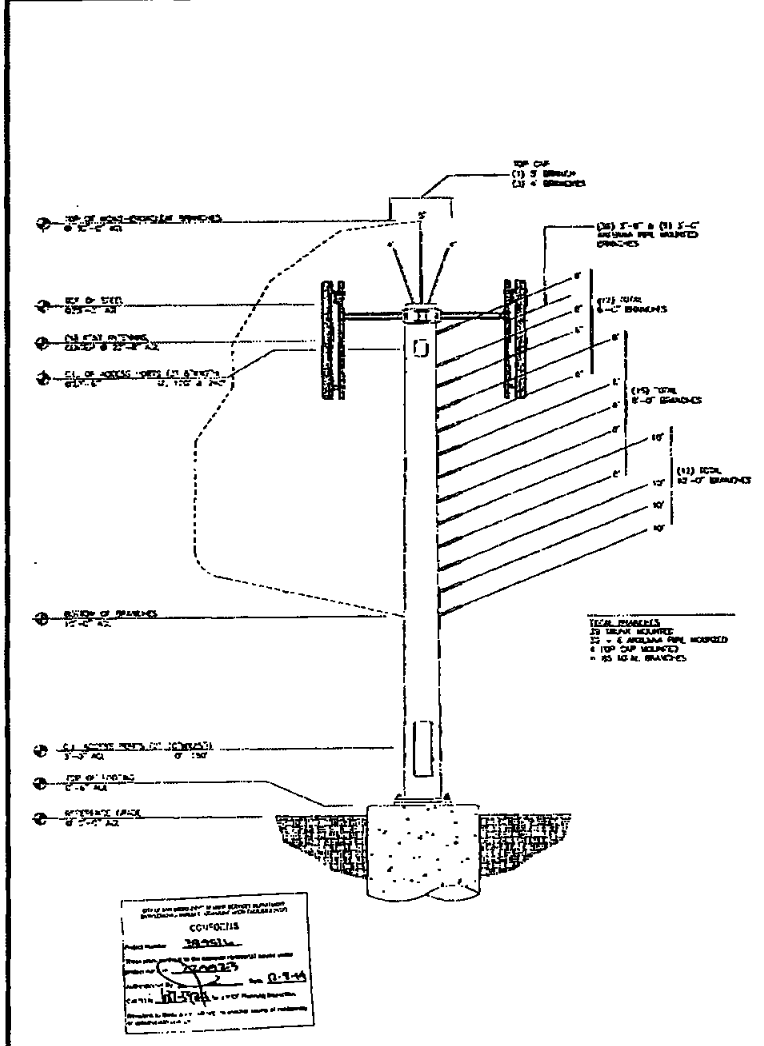
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE

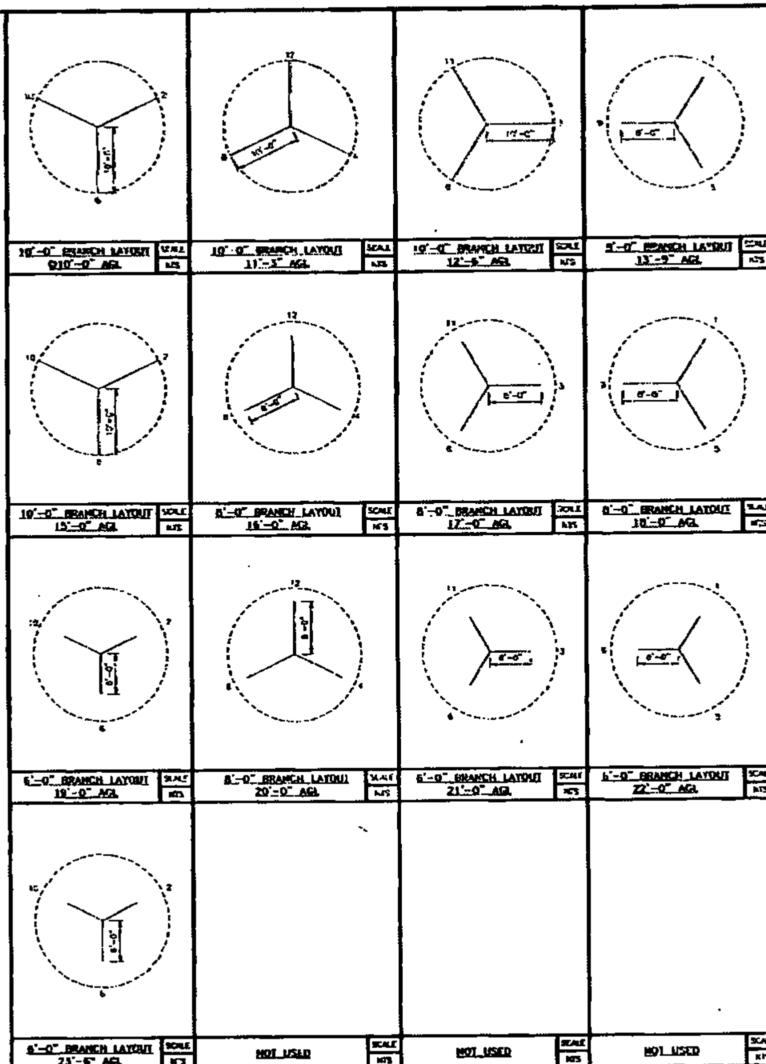
BRANCH LAYOUT
(EXISTING)

SHEET NUMBER

C-4.1



STRUCTURAL ELEVATION



RECEPTACLES

at&t

BLACK & VEATCH

PROJECT NO.	172082
DRAWN BY:	DJ
CHECKED BY:	JC

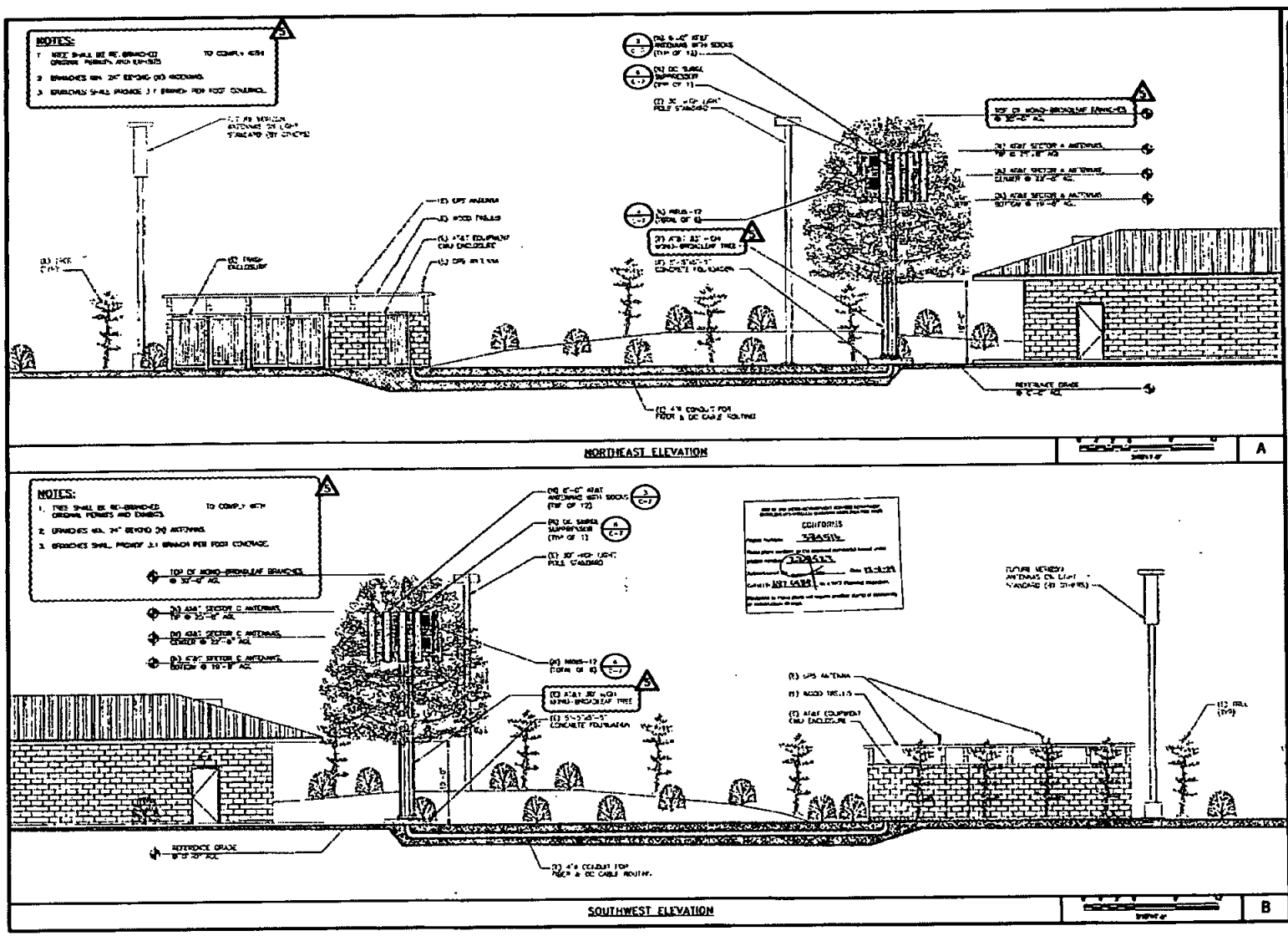
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE

BRANCH LAYOUT
(NEW)

SHEET NUMBER

C-4.2



at&t

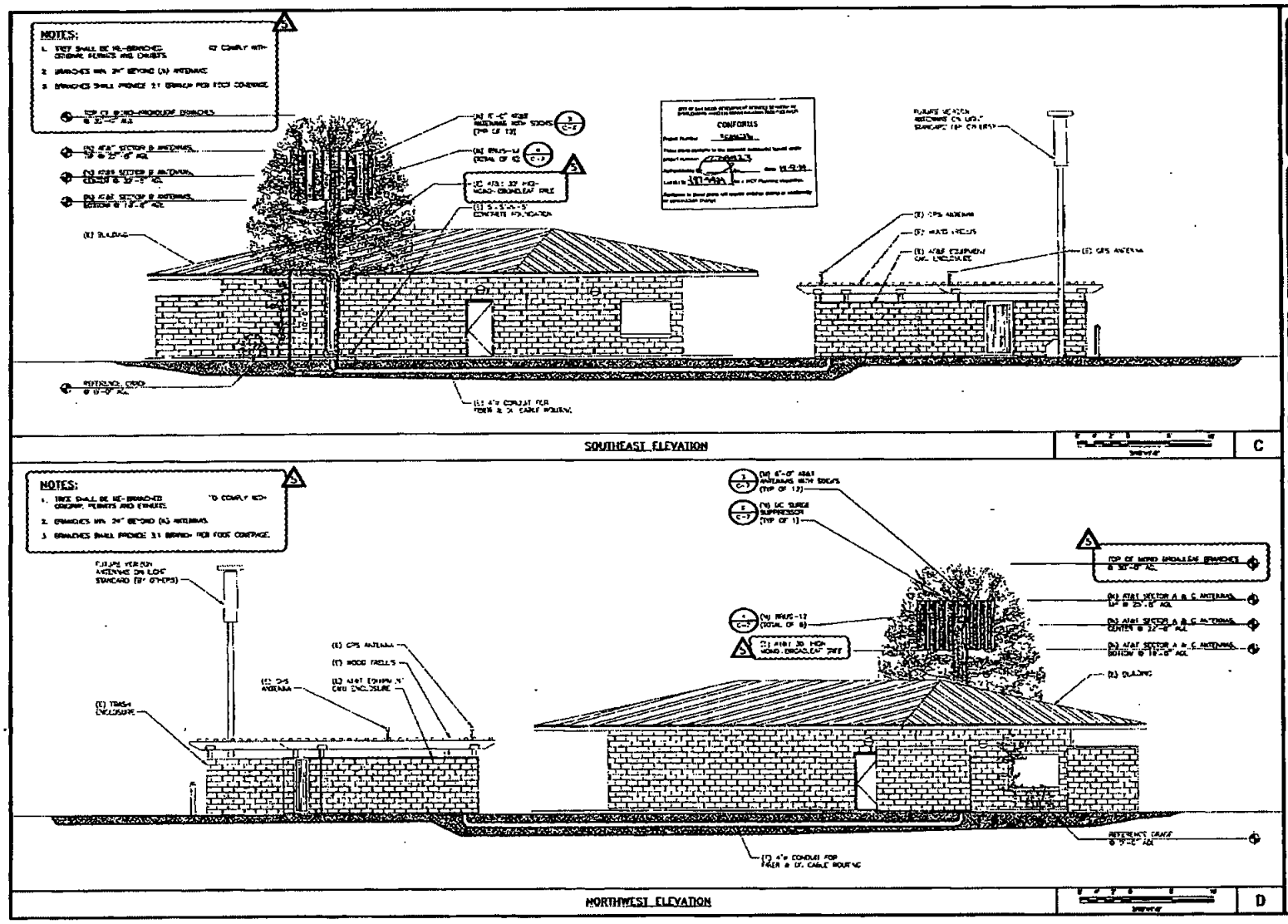
BLACK & VEATCH

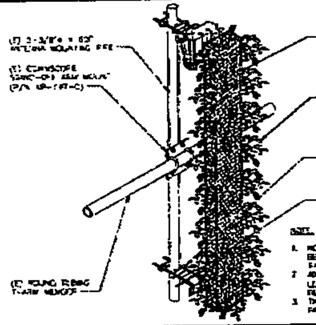
PROJECT NO:	122082
DRAWN BY:	DZ
CHECKED BY:	JG

MS0822
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
ELEVATIONS

SHEET NUMBER
C-5


NOTES:
1. TREE SHALL BE RE-BRANCHED TO COMPLY WITH CRITERIA, PERMITS AND CHARTS.
2. BRANCHES MIN. 24" BEYOND (N) ANTENNAS.
3. BRANCHES SHALL PROVIDE 3:1 BRANCH FOR FOOT COVERAGE.
CONFORMS
(E) BUILDING
(E) GPS ANTENNA
(E) WOOD TRELLIS
(E) AT&T EQUIPMENT CMU ENCLOSURE
(E) GPS ANTENNA
(E) 4"ø CONDUIT FOR FIBER & DC CABLE ROUTING
SOUTHEAST ELEVATION
C
NOTES:
1. TREE SHALL BE RE-BRANCHED TO COMPLY WITH CRITERIA, PERMITS AND STANDARDS.
2. BRANCHES MIN. 24" BEYOND (N) ANTENNAS.
3. BRANCHES SHALL PROVIDE 3:1 BRANCH FOR FOOT COVERAGE.
(E) GPS ANTENNA
(E) WOOD TRELLIS
(E) AT&T EQUIPMENT CMU ENCLOSURE
(E) TRASH ENCLOSURE
(E) BUILDING
(E) 4"ø CONDUIT FOR FIBER & DC CABLE ROUTING
NORTHWEST ELEVATION
D
at&t
BLACK & VEATCH
PROJECT NO 122082
DRAWN BY DJ
CHECKED BY JC
NS0677
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL
SHEET TITLE
ELEVATIONS
SHEET NUMBER
C-6



NOTE:

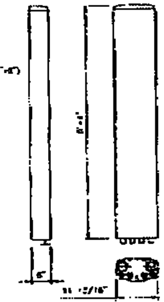
1. NO EXPOSED PIPES WITHOUT ANTENNAS TO BE INSTALLED ON MONO-BROADLEAF AT ANY TIME.
2. ANTENNA SOCK SHALL COVER THE FULL LENGTH OF THE ANTENNAS AND RRU'S, FRONT, BACK AND SIDES.
3. THE PROPOSED MOUNTING PIPES SHALL BE PAINTED TO MATCH THE PROPOSED BARK.

ANTENNA MOUNTING WITH LEAF SOCKS	NO SCALE	1

KATHREIN ANTENNA 800 10765 K

RADOME MATERIAL	GRP
RADOME COLOR	LIGHT GREY
DIMENSIONS, HxWxD	[illegible]
WEIGHT, WITH PRE-MOUNTED BRACKETS	31.8 lbs
WIND SURVIVAL RATING	150 mph
CONNECTOR	7/16 DIN FEMALE

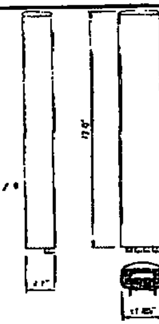
CONFORMS



(E) ANTENNA PANEL	NO SCALE	2

COMMSCOPE SBNHH-1D65B

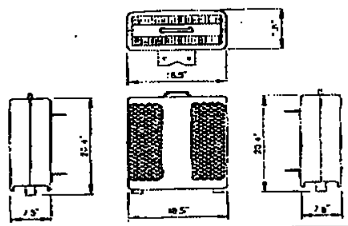
RADOME MATERIAL	FIBERGLASS, UV RESISTANT
RADOME COLOR	LIGHT GREY
DIMENSIONS, HxWxD	1828x301x181mm (72.0"x11.85"x7.1")
WEIGHT, WITHOUT CLAMP	50.71 lbs
WIND LOADING, MAXIMUM	612.2 N @ 150 km/h 135.8 LBF @ 150 km/h
WIND SPEED, MAXIMUM	241.4 km/h 150.0 mph
CONNECTOR	7/16 DIN FEMALE / BOTTOM / 6



(N) ANTENNA PANEL	NO SCALE	3

ERICSSON RRUS-12

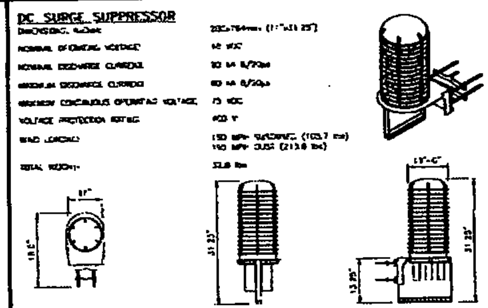
DIMENSIONS, HxWxD	518.16x190.5x469.9mm (20.4"x7.5"x18.5")
POWER CONSUMPTION	170 WATTS
TOTAL WEIGHT:	50 lbs (58 lbs. W/CLAMPS)
TEMPERATURE:	-40° TO 55° C



RRU DETAILS	NO SCALE	4

DC SURGE SUPPRESSOR

DIMENSIONS, HxDIA	285x794mm (11"x31.25")
NOMINAL OPERATING VOLTAGE	48 VDC
NOMINAL DISCHARGE CURRENT	20 kA 8/20µs
MAXIMUM DISCHARGE CURRENT	60 kA 8/20µs
MAXIMUM CONTINUOUS OPERATING VOLTAGE	75 VDC
VOLTAGE PROTECTION RATING	400 V
WIND LOADING	150 MPH SUSTAINED (103.7 lbs) 150 MPH GUST (213.8 lbs)
TOTAL WEIGHT	32.8 lbs



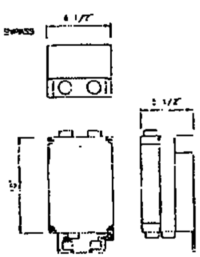
CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION

DC SURGE SUPPRESSOR DETAIL	NO SCALE	6

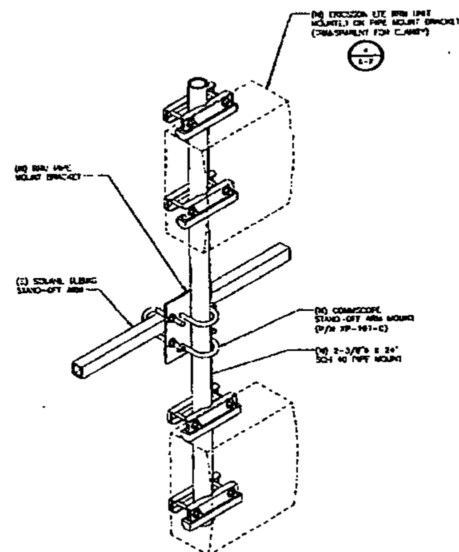
DOUBLE TMA

BANDWIDTH:	1710-1770 MHz WITH 698-746 BYPASS
WEIGHT:	8kg (18lbs)
RF CONNECTORS:	DIN 7/16 FEMALE
GAIN	12 dB

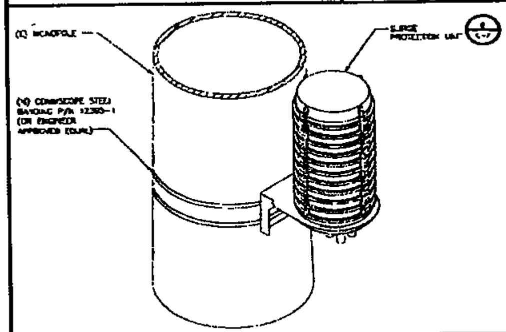
MOUNTING KIT FOR POLE AND WALL IS INCLUDED



(E) TMA	NO SCALE	7



RRU MOUNTING DETAIL	NO SCALE	8



DC SURGE SUPPRESSOR MOUNTING DETAIL	NO SCALE	9

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

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

PROJECT NO.	172082
DRAWN BY:	DJ
CHECKED BY:	JG

REV	DATE	DESCRIPTION
5	11/17/14	CITY COMMENTS
4	[illegible]	CITY COMMENTS
3	[illegible]	[illegible] COMMENTS
2	[illegible]	[illegible] SUBMITTAL
1	[illegible]	[illegible] COMMENTS
0	[illegible]	ISSUED FOR CONSTRUCTION



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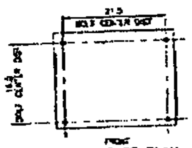
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE:
DETAILS

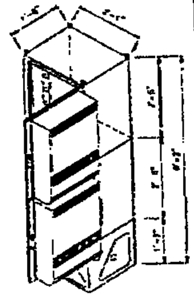
SHEET NUMBER
C-7

PURCELL_LTE_ERICSSON_CABINET_FLX16PS

DIMENSIONS, HxDxW	[illegible]
COLOR	GRAY
MOUNTING OPTIONS	[illegible]
MAXIMUM TEMPERATURE	[illegible]
SOLAR LOAD	[illegible]
WEIGHT (FULLY LOADED)	207 LBS EA

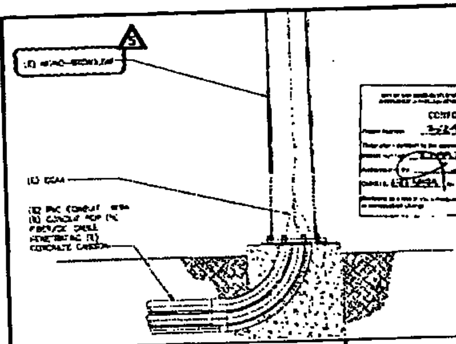


ANCHORAGE PLAN



NOTE:
[illegible]

PURCELL LTE ERICSSON DETAIL	NO SCALE	10



CONFORMS

CONDUIT ROUTING DETAIL	NO SCALE	11

NOT USED	NO SCALE	12

NOT USED	NO SCALE	13

NOT USED	NO SCALE	14

NOT USED	NO SCALE	15

NOT USED	NO SCALE	16

NOT USED	NO SCALE	17

NOT USED	NO SCALE	18

at&t
5735 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

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

PROJECT NO.	172082
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REV	DATE	DESCRIPTION
5	[illegible]	CITY COMMENTS
4	[illegible]	CITY COMMENTS
3	[illegible]	[illegible] COMMENTS
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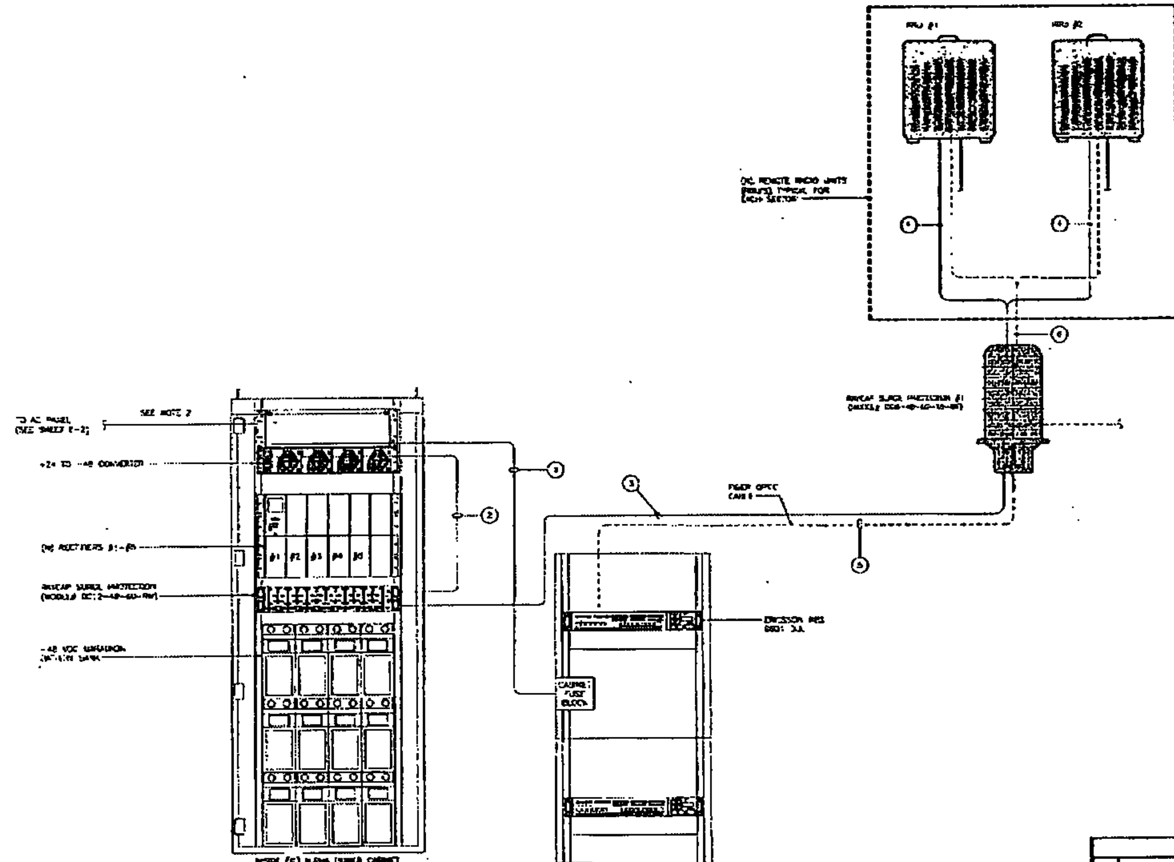


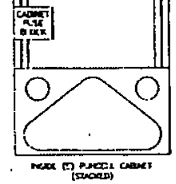
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NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
DETAILS

SHEET NUMBER
C-8





NOTES:

1. THESE ELECTRICAL PLANS ARE SUPPLEMENTARY TO CIVIL ENGINEERING ACTIVITIES, AS DEFINED BY CAL. BUS. & PROF. CODE §6731. THEREFORE, IN ACCORDANCE WITH CAL. BUS. & PROF. CODE §6737.2, THESE PLANS HAVE BEEN PREPARED UNDER THE RESPONSIBLE CHARGE OF THE CAL. LICENSED AND REGISTERED ARCHITECT OR ENGINEER WHOSE SEAL AND SIGNATURE APPEAR ON PLANS.
2. CIRCUITS MAY BE GROUPED TOGETHER IN THE SAME RACEWAY. DERATE AMPACITY OF CONDUCTORS AND SIZE RACEWAYS IN ACCORDANCE WITH CEC 2010.
3. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTOR WIRING. RED MARKINGS SHALL IDENTIFY +24V, BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701
4. DC POWER WIRING SIZE 14 AWG TO 10 AWG SHALL BE TELCOFLEX II. DC POWER WIRING 8 AWG AND LARGER SHALL BE TELCOFLEX IV. REFER TO ATT-002-290-701
5. LTE POWER WIRING SHALL BE ACCORDANCE WITH ATT-002-290-521

DC CIRCUIT SCHEDULE

	FROM	TO	CONFIGURATION
1	ALPHA 48VDC POWER PLANT	CABINET FUSE BLOCK	(2) #10 TELCOFLEX II-ER DC CABLE
2	ALPHA 48VDC POWER PLANT	RAYCAP SURGE PROTECTION DC12-48-60-RM	(12) #10 TELCOFLEX II-ER DC CABLE
3	RAYCAP SURGE PROTECTION DC12-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	(2) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
4	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRUS-11 REMOTE RADIO UNIT	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
5	RBS 6601	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	FIBER-OPTIC CABLE
6	RAYCAP SURGE PROTECTION DC6-48-60-18-8F	RRUS-11 REMOTE RADIO UNIT	FIBER-OPTIC CABLE

ELECTRICAL DC ONE-LINE DIAGRAM

NO SCALE

at&t
5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

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

PROJECT NO:	172082
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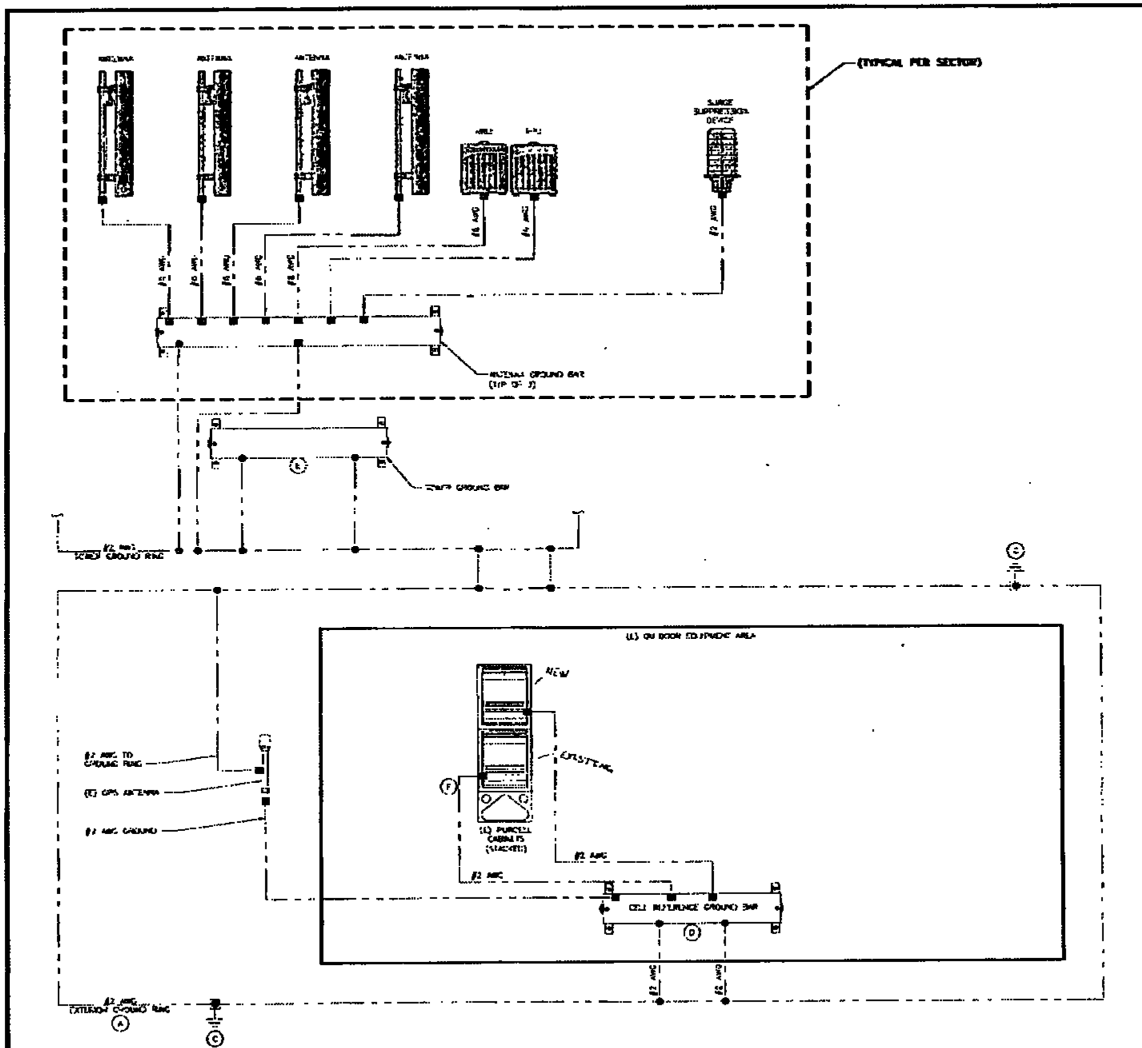
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0	[illegible]	ISSUED FOR CONSTRUCTION

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NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
ELECTRICAL DC ONE-LINE DIAGRAM

SHEET NUMBER
E-1



GROUNDING ONE-LINE DIAGRAM (TOWER – OUTDOOR EQUIPMENT)

● EXOTHERMIC CONNECTION

■ MECHANICAL CONNECTION

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND AT&T'S GROUNDING AND BONDING REQUIREMENTS (ATT-TP-76416) AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING. (ATT-TP-76416 2.2.3.5/7.6.1)

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS. (ATT-TP-76416 7.5.1)

(C) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. ALL GROUND RODS MAY BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR. (ATT-TP-76416 3.4 / 2.2.3.4)

(D) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS. (ATT-TP-76416 7.6.7)

(E) TOWER EXIT GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO THE TOWER GROUND RING. (ATT-TP-76416 7.5.5)

(F) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK. BOND THE FRAME GROUND BUS TO THE "I" SECTION OF THE CELL REFERENCE GROUND BAR. (ATT-TP-76416 7.6)

(G) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS. (ATT-TP-76416 7.12.2.2)

(H) EXTERIOR UNIT BONDS: METALLIC OBJECTS SHALL BE BONDED TO THE EXTERIOR GROUND RING. (ATT-TP-76416 7.12.6)

(I) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING. (ATT-TP-76416 7.4.2.8)

GROUNDING KEY NOTES

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

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

PROJECT NO.	[illegible]
DRAWN BY:	DJ
CHECKED BY:	JG

REV	DATE	DESCRIPTION
3	[illegible]	[illegible] COMMENTS
2	[illegible]	[illegible]
1	[illegible]	[illegible] COMMENTS
0	[illegible]	ISSUED FOR CONSTRUCTION

P.N. DOYLE — CIVIL — STATE OF CALIFORNIA

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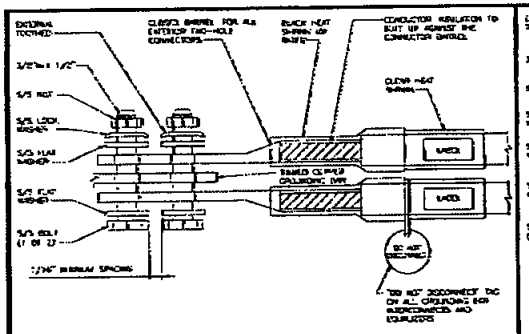
NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE

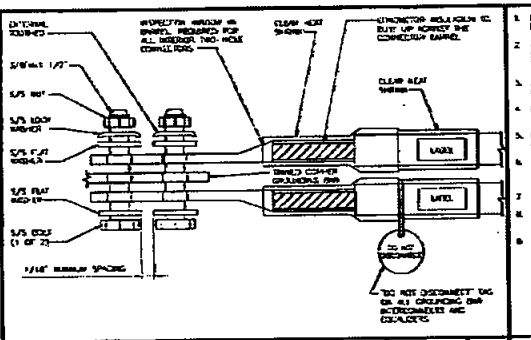
GROUNDING
ONE–LINE DIAGRAM

SHEET NUMBER

G-1



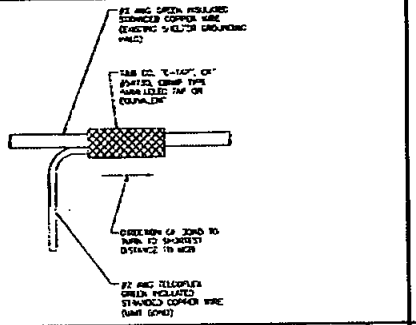
EXTERIOR TWO HOLE LUG DETAIL | NO SCALE | A



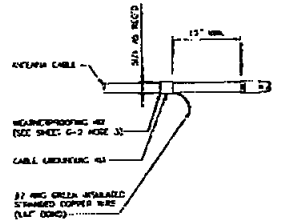
INTERIOR TWO HOLE LUG DETAIL | NO SCALE | B

NOTES | NO SCALE | C

1. EXOTHERMIC WELD #2 AWG SOLID TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. REUSE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD
2. ALL GROUND BARS SHALL BE STAMPED W TO THE WEST "IF STOLEN DO NOT RECYCLE." THE CONSTRUCTION SHALL USE PERMANENT MARKER TO STAMP THE LARGE BETWEEN EACH SECTION AND LABEL EACH SECTION ("A", "B") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. FOR GROUND BOND TO STEEL ONLY, INSERT A CADMIUM PLAT WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
6. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKABLE TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS THAT INTACT IS TO BEAM-UNPROOF THE COMPRESSION CONNECTIONS.
7. SURFACES AND INSTALLED BY CONTRACTOR
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BARS AS REQUIRED, PROVIDING SIZE, SPARE CONNECTOR POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/16" OF THE BARREL (NO SHRINK).



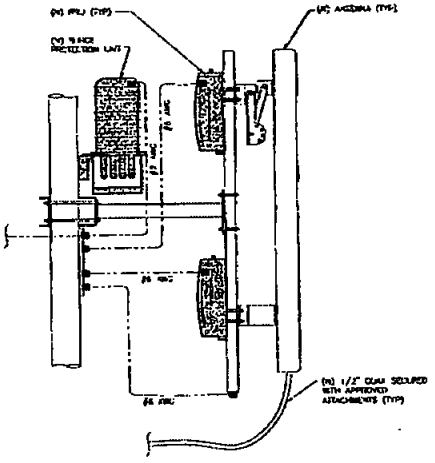
GROUNDING WIRE CONNECTION | NO SCALE | D



CABLE GROUNDING KIT TO ANTENNA CABLE | NO SCALE | E

NOT USED | NO SCALE | G

NOT USED | NO SCALE | H



ANTENNA GROUNDING | NO SCALE | I

at&t
5719 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

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

PROJECT NO	122082
DRAWN BY	DJ
CHECKED BY	JC

REV	DATE	DESCRIPTION
2	05/31/01	ZONING COMMENTS
1	04/30/01	AT SUBMITTAL
1	04/09/01	ZONING COMMENTS
0	03/09/01	ISSUED FOR CONSTRUCTION

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NSU622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   GENERAL CONTRACTOR – OVERLAND CONTRACTING INC. (OCI)
   SUBCONTRACTOR – CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL VISIT THE SITE AND SHALL BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL ANY PENETRATION WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. SUBCONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. SUBCONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. SUBCONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE, AND MAINTAIN ACCESS FOR ALL TRADES AND SUBCONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OR 2-A:10-BC AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
40. ALL COAXIAL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

LEGEND

EXOTHERMIC CONNECTION	●
MECHANICAL CONNECTION	■
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	
EXOTHERMIC WITH INSPECTION SLEEVE	
GROUNDING BAR	
GROUND ROD	
TEST GROUND ROD WITH INSPECTION SLEEVE	
SINGLE POLE SWITCH	$
DUPLEX RECEPTACLE	
DUPLEX GFCI RECEPTACLE	
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8	
SMOKE DETECTION (DC)	SD
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD	
CHAINLINK FENCE	
WOOD/WROUGHT IRON FENCE	
WALL STRUCTURE	
LEASE AREA	
PROPERTY LINE (PL)	
SETBACKS	
ICE BRIDGE	
CABLE TRAY	
WATER LINE	— W —
UNDERGROUND POWER	— UGP —
UNDERGROUND TELCO	— UGT —
OVERHEAD POWER	— OHP —
OVERHEAD TELCO	— OHT —
UNDERGROUND TELCO/POWER	— UGT/P —
ABOVE GROUND POWER	— AGP —
ABOVE GROUND TELCO	— AGT —
ABOVE GROUND TELCO/POWER	— AGT/P —
ABOVE GROUND FIBER	— AGF —
ABOVE GROUND FIBER/POWER	— AGF/P —
UNDERGROUND FIBER	— UGF —
UNDERGROUND FIBER/POWER	— UGF/P —
UNDERGROUND DUCT	— UGD —
ABOVE GROUND POWER/AC	— AGP/AC —
ABOVE GROUND POWER/DC	— AGP/DC —
SECTION REFERENCE	X / X-X
DETAIL REFERENCE	X / X-X
ELEVATION REFERENCE	X / X-X
BREAKLINE	

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CEC	CALIFORNIA ELECTRIC CODE
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
(E)	EXISTING
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
NO.(#)	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING
(P)	PROPOSED
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SUPPRESSION SYSTEM
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
W.P.	WORK POINT
WP	WEATHERPROOF
WT	WEIGHT

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

11401 LAMAR AVENUE
OVERLAND PARK, KANSAS 66211
(913) 458-2000

PROJECT NO:	122330
DRAWN BY:	DJ
CHECKED BY:	JC

REV	DATE	DESCRIPTION
3	[illegible]	[illegible]
2	[illegible]	[illegible]
1	[illegible]	[illegible]
0	[illegible]	ISSUED FOR CONSTRUCTION

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.

NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE

GENERAL NOTES
LEGEND & ABBREVIATIONS

SHEET NUMBER

GN-1

PART 1 – GENERAL

1.1 GENERAL CONDITIONS

A. SUBCONTRACTOR 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 ESTABLISH DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2010 EDITION OF THE CALIFORNIA ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT SIZES SHALL BE THE NOMINAL SIZE FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE 2010 EDITION OF CEC.

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 REQUIREMENTS 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. ICEA (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.)
8. AT&T GROUNDING AND BONDING STANDARDS TP-76416

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

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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 ENGINEERED APPROVED EQUAL.

D. CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

1. INSTALL CHEMICAL GROUNDING AS REQUIRED. THE SYSTEM SHALL BE ELECTROLYTIC MAINTENANCE FREE ELECTRODE CONSISTING OF RODS WITH A MINIMUM #2 AWG CU EXOTHERMICALLY WELDED PIGTAIL, PROTECTIVE BOXES, AND BACKFILL MATERIAL. MANUFACTURER SHALL BE LYNCOLE XIT GROUNDING ROD TYPES K2-(*)CS OR K2L-(*)CS, (*) 10' OR 20' AS AVAILABLE FROM MANUFACTURER, BUT NOT LESS THAN 8' MIN (REQUIRED PER CEC 250.52 A (5)).
2. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREATHER" HOLES, AT MODEL XB-21. ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMINATED NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS IT INSTALLED, AND THE ELECTRICAL POWER SOURCE.
3. BACKFILL MATERIAL SHALL BE LYNCONITE AND LYNCOLE GROUNDING GRAVEL.

E. SYSTEM GROUNDING.

1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG MIN. SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE ONE TINNED ANNEALED COPPER BAR OF RECTANGULAR CROSS SECTION, STANDARD BUS BARS SHALL BE FURNISHED AND INSTALLED BY THE SUBCONTRACTOR. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY WAY OF STENCILING OR DESIGNATION PLATE.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INDOOR CONNECTORS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN AS FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 5/8"x10'-0". ALL GROUNDING RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES.
6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE AT&T SPECIFICATIONS AND CEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

F. 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 CEC.

G. PANELS AND LOAD CENTERS.

1. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

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 3/4 INCH TRADE SIZE.
2. PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS, RMC OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
3. THE INSTALLATION OF SCHEDULE 40 PVC AND RMC CONDUITS SHALL BE 24 INCHES MINIMUM DEPTH. 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 AS ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS 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 PENETRATION 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.

B. CONDUCTORS AND CABLE.

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

CONDUCTOR	208/240/120V WYE SYSTEMS
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 FLAT 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 IS 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.

D. GROUNDING.

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, AT&T GROUNDING AND BONDING STANDARDS TP-76416, ND-00135, AND THE CALIFORNIA ELECTRICAL CODE (2010 CEC EDITION).
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE SUBCONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM. THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE STANDARD 6.3.2.2.
5. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
6. SUBCONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
8. APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.
9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE 6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
11. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE. USE THE GREATER OF THE TWO DISTANCES.
12. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
13. THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
14. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 30" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
15. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT FROM THE GROUNDING BAR AT THE BASE OF THE TOWER, A SECOND GROUNDING BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS.
16. SUBCONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE SUBCONTRACTOR'S EXPENSE.

3.5 ACCEPTANCE TESTING

A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM 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 NON-COMPLYING 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 GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
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.

GENERAL ELECTRICAL NOTES

at&t

5738 PACIFIC CENTER BLVD
SAN DIEGO, CA 92121

BLACK & VEATCH

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

PROJECT NO:	172080
DRAWN BY:	JJ
CHECKED BY:	JG

REV	DATE	DESCRIPTION
3	08/11/14	BM COMMENTS
2	08/08/14	RF SUBMITTAL
1	06/04/13	BM COMMENTS
0	01/07/13	ISSUED FOR CONSTRUCTION

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.

NS0622
CAMINO RUIZ PARK
CAMINO RUIZ & CALLE CRISTOBAL
SAN DIEGO, CA 92126
LTE OPTIMAL

SHEET TITLE
GENERAL ELECTRICAL NOTES

SHEET NUMBER
GN-2