



LUNA BONITA
SAN ONOFRE/SANTIAGO #2 M19-T3 220KV BUILT 1968
MTX 55/ BSC 18
NON-MCE
EAST OF EL CONEJO PARK
LAGUNA HILLS, CA 92653
NCD PROJECT

OVERALL HEIGHT:
143'-0" (PER 1A SURVEY)



ISSUE STATUS			
REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
C	02/26/16	REVISED 100% CD	ESQ
D	03/18/16	REVISED 100% CD	MM
E	04/21/16	REVISED 100% CD	ESQ

core
 DEVELOPMENT SERVICES
 A&E SERVICES
 3350 E. Birch Street #250
 Brea, California 92821
 (714)729-8404 (714)333-4441 fax
 www.core.us.com

PROPRIETARY INFORMATION
 THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS
 ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED

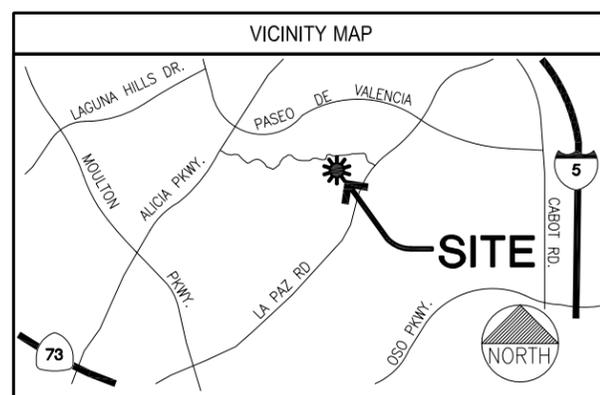
verizon
 15505 SAND CANYON AVENUE, D1
 IRVINE, CALIFORNIA 92618
 949.286.7000

PROJECT TEAM	
SITE ACQUISITION: CORE DEVELOPMENT SERVICES 3350 E. BIRCH STREET #250 BREA, CA 92821 CONTACT: ROXANA AMINI PHONE: 714.392.8034	PLANNING: CORE DEVELOPMENT SERVICES 3350 E. BIRCH STREET #250 BREA, CA 92821 CONTACT: MAREE HOEGER PHONE: 949.280.2531
ARCHITECT: CORE DEVELOPMENT SERVICES 3350 E. BIRCH STREET #250 BREA, CA 92821 CONTACT: STEVEN M. RAMON PHONE: 714.729.8404	SURVEYOR: CALVADA SURVEYING, INC. 411 JENKS CIR., SUITE 205 CORONA, CA 92880 CONTACT: RAMON GONZALEZ PHONE: 951.280.9960
UTILITY COORDINATOR: N/A	PROFESSIONAL ENGINEER: CORE DEVELOPMENT SERVICES 3350 E. BIRCH STREET #250 BREA, CA 92821 CONTACT: JOSHUA YJ KANG PHONE: 949.351.5020

PROJECT DESCRIPTION

VERIZON WIRELESS IS SUBMITTING AN APPLICATION FOR A BUILDING PERMIT AND ALL OTHER RELATED APPROVALS FOR THE INSTALLATION OF:

- (1) VEHICLE ACCESS GATE WITH PEDESTRIAN BYPASS.
- THE RE-GRADING AND CONSTRUCTION OF THE FIRST 40'-0" OF AN (E) AC PAVED ACCESS ROAD.
- A NEW 'VERIZON WIRELESS' EQUIPMENT LEASE AREA (512.5 SQ. FT.)
- (3) EQUIPMENT CABINETS.
- (2) BATTERY CABINETS.
- (1) FUTURE STAND-BY GENERATOR.
- (3) GPS ANTENNAS MOUNTED TO THE (N) EQUIPMENT CABINETS.
- (1) STEP-UP TRANSFORMER AND (1) STEP-DOWN TRANSFORMER.
- (1) METER PEDESTAL.
- CMU ENCLOSURE TOPPED WITH TUBE STEEL & WROUGHT IRON FENCING.
- (9) PANEL ANTENNAS ON THE (E) 136'-0" HIGH 'SCE' TOWER.
- (1) MICROWAVE DISH.
- (2) RAYCAP BOXES, (1) ON THE (E) 'SCE' TOWER AND (1) WITHIN (N) EQUIPMENT AREA.
- (6) RRRS UNITS W/ A2 MODULES.



DRIVING DIRECTIONS

FROM: VERIZON WIRELESS OFFICE TO: EAST OF EL CONEJO PARK LAGUNA HILLS, CA 92653

- HEAD SOUTHEAST ON WATERWORKS WAY TOWARD SAND CANYON TRAIL
- TURN LEFT ONTO SAND CANYON AVE.
- MERGE ONTO I-5 S.
- TAKE THE LA PAZ RD. EXIT
- TURN RIGHT ONTO LA PAZ RD.
- TURN RIGHT ON DIRT ACCESS RD.

PROJECT SUMMARY

APPLICANT/LESSEE:
verizon
 15505 SAND CANYON AVENUE, D1
 IRVINE, CA 92618
 OFFICE: 949.286.7000

APPLICANT REPRESENTATIVE:
 CORE DEVELOPMENT SERVICES
 3350 E. BIRCH STREET #250
 BREA, CA 92821
 CONTACT: MIKE WATSON
 PHONE: 714.323.2612

PROPERTY OWNER:
 SOUTHERN CALIFORNIA EDISON
 4900 RIVERGRADE ROAD, BLDG.
 #2, 1ST FLOOR
 IRVINDALE, CA 91706
 CONTACT: PHIL HICKERSON
 PHONE: 626.543.8106

PROPERTY INFORMATION:
 SITE NAME: LUNA BONITA
 SITE ADDRESS: EAST OF CONEJO PARK, LAGUNA HILLS, CA 92653
 JURISDICTION: CITY OF LAGUNA HILLS

ASSESSOR'S PARCEL NUMBERS:
 APN: 625-121-16, 625-065-19, 625-071-25, 625-081-02

CONSTRUCTION INFORMATION:
 AREA OF CONSTRUCTION: NEW LEASE AREA (512.5 SQ. FT.)
 OCCUPANCY: N/A
 TYPE OF CONSTRUCTION: N/A
 CURRENT ZONING: OS-3 (LANDSCAPE CORRIDOR DISTRICT)
 ADA COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. MACHINERY SPACES ARE EXEMPT FROM ACCESSIBILITY REQUIREMENTS PER THE CBC SECTION 11B-203.5.

GENERAL CONTRACTOR NOTES

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT AND/OR ENGINEERS IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CODE COMPLIANCE

- 2013 CALIF. ADMINISTRATIVE CODE (INCL. TITLES 24 & 25)
- 2013 CALIFORNIA BUILDING CODES
- 2013 CALIFORNIA ELECTRICAL CODES
- 2013 CALIFORNIA MECHANICAL CODES
- 2013 CALIFORNIA PLUMBING CODES
- 2013 CALIFORNIA FIRE CODES
- 2013 CALIFORNIA ENERGY CODES
- TIA-222-G STANDARD
- LOCAL BUILDING CODES
- CITY/COUNTY ORDINANCES

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	E
T-2	GENERAL NOTES AND SPECIFICATIONS	B
T-3	CONDITIONS OF APPROVAL	B
C-1	TOPOGRAPHIC SURVEY	B
C-2	TOPOGRAPHIC SURVEY	B
C-3	TOPOGRAPHIC SURVEY	B
GP-1	GRADING NOTES	C
GP-2	GRADING PLAN	C
A-1	PLOT PLAN	B
A-2	SITE PLAN	C
A-3	ENLARGED SITE PLAN AND ANTENNA PLAN	E
A-4	EQUIPMENT PLAN AND DIMENSION PLAN	E
A-5	NORTH ELEVATIONS	E
A-6	SOUTH ELEVATIONS	E
A-7	WEST ELEVATIONS	E
A-8	EAST ELEVATIONS	E
A-9	SITE CROSS SECTION	E
A-10	DETAILS	B
A-11	DETAILS	C
E-1	ELECTRICAL NOTES AND SPECIFICATIONS	B
E-2	ELECTRICAL SITE PLAN	B
E-3	SINGLE LINE DIAGRAM AND PANEL SCHEDULE	B
E-4	GROUNDING PLANS	B
E-5	ELECTRICAL DETAILS	B
E-6	GPR ANALYSIS	B
E-7	POWER DESIGN	B

CONSTRUCTION DRAWINGS

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES

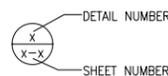
LUNA BONITA
 SAN ONOFRE/SANTIAGO #2
 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE:
TITLE SHEET
T-1

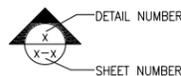
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ABBREVIATIONS & SYMBOLS

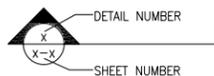
AB ANCHOR BOLT	LAM LAMINATED	⊕ AT
AC ASPHALTIC CONCRETE	LBS POUNDS	[C CHANNEL
A/C AIR CONDITIONING	LT LIGHT	[L CENTER LINE
A.F.F. ADJUSTABLE ABOVE FINISH FLOOR	LA LIGHTNING ARRESTER	[L ANGLE
ARCH ARCHITECTURAL	LNA LOW NOISE AMPLIFIER	[L PROPERTY LINE
APPROX. APPROXIMATELY ABOVE		
A.G.L. GRADE LEVEL ABOVE MEAN	MFR MANUFACTURER	(X) KEY NOTE REFERENCE
A.M.S.L. SEA LEVEL	MAT MATERIAL	(X) DOOR NUMBER
	MAX MAXIMUM	(XX) AREA AND/OR ROOM NUMBER
BD BOARD	MECH MECHANICAL	(X) MECHANICAL UNIT
BLDG BUILDING	MIN MINIMUM	
BLKG BLOCKING	MISC MISCELLANEOUS	--- -- --- PROPERTY LINE
BOT BOTTOM	ML METAL LATH	—X—X—X— FENCING
BOT BASEMENT	MØ MASONRY OPENING	—E—E—E— ELECTRICAL SERVICE
BSTM BASEMENT	MS MACHINE SCREW	—T—T—T— TELCO SERVICE
BTS BASE TRANSCIEVER STATION	MTD MOUNTED	
	MTL METAL	
C COURSE(S)	(N) NEW	
CEM CEMENT	NIC NOT IN CONTRACT	
CL CHAIN LINK	NO NUMBER	
CLG CEILING	NTS NOT TO SCALE	
CLR CLEAR		
COL COLUMN		
CONC CONCRETE		
CONST CONSTRUCTION	OVERALL	
CONT CORR CONTINUOUS CORRIDOR	O.C. ON CENTER	
CO CONDUIT ONLY	OPNG OPENING	
	OPNG OPPOSITE	
DIA DIAMETER	PARTN PARTITION	
DBL DOUBLE	PL PLATE	
DEPT DEPARTMENT	PLAS PLASTER	
DEMO DEMOLITION	PLYWD PLYWOOD	
DIM DIMENSION	POC POINT OF CONNECTION	
DN DOWN	PROP PROPERTY	
DR DOOR	PT PRESSURE TREATED	
DTL DETAIL		
DWG DRAWING		
	R RISER	
(E) EXISTING	REQD REQUIRED	
EA EACH	RD ROOF DRAIN	
ELEC ELECTRIC	RM ROOM	
ELEV ELEVATION	RMS ROOMS	
EQUIP EQUIPMENT	RO ROUGH OPENING	
EXP EXPANSION		
EXT EXTERIOR	SC SOLID CORE	
	SCH SCHEDULE	
FA FIRE ALARM	SECT SECTION	
FB FLAT BAR	SHT SHEET	
FF FINISH FLOOR	SIM SIMILAR	
FH FLAT HEAD	SPECS SPECIFICATIONS	
FIN FINISH(ED)	SS STAINLESS STEEL	
FOS FACE OF STUDS	STL STEEL	
FS FINISH SURFACE	STOR STORAGE	
FRP FIBER REINFORCED PLASTIC	STRUCT STRUCTURAL	
FT FOOT, FEET	SUSP SUSPENDED	
FTG FOOTING	SW SWITCH	
FW FINISH WALL	SWBD SWITCHBOARD	
F.G. FINISH GRADE		
FUT FUTURE		
	THK THICK	
GA GAUGE	TI TENANT IMPROVEMENT	
GALV GALVANIZED	TMA TOWER MOUNTED AMPLIFIER	
GL GLASS	TOS TOP OF SURFACE	
GR GRADE	TS TUBE STEEL	
GRYP GYPSUM	TYP TYPICAL	
GFCI GROUND FAULT CIRCUIT INTERRUPTER		
GND GROUND	UNO UNLESS NOTED OTHERWISE	
	VCT VINYL COMPOSITION TILE	
HC HOLLOW CORE	VERT VERTICAL	
HDW HARDWARE	V.I.F. VERIFY IN FIELD	
HTR HEATER	VG VERTICAL GRAIN	
HM HOLLOW METAL		
HORIZ HORIZONTAL	W/ WITH	
HR HOUR	WD WOOD	
HT HEIGHT	WR WATER RESISTANT	
HV HIGH VOLTAGE	WT WEIGHT	
ID INSIDE DIMENSION	XFMR TRANSFORMER	
INS INSULATION		
INT INTERIOR		
JT JOINT		



DETAIL REFERENCE



EXTERIOR ELEVATION REFERENCE



DETAIL SECTION REFERENCE

GENERAL NOTES:

- THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES AS THEY MAY BE DISCOVERED IN THE PLANS, SPECIFICATIONS, & NOTES PRIOR TO STARTING CONSTRUCTION. INCLUDING BUT NOT LIMITED BY DEMOLITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ERRORS, OMISSION, OR INCONSISTENCY AFTER THE START OF CONSTRUCTION WHICH HAS NOT BEEN BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND SHALL INCUR ANY EXPENSES TO RECTIFY THE SITUATION. THE METHOD OF CORRECTION SHALL BE APPROVED BY THE ARCHITECT/ENGINEER.
- PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE ALL EXISTING UTILITIES, WHETHER OR NOT SHOWN ON THE PLANS, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR OR SUBCONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGE TO THE UTILITIES CAUSED DURING THE EXECUTION OF THE WORK.
- A COPY OF THE APPROVED PLANS SHALL BE KEPT IN A PLACE SPECIFIED BY THE GOVERNING AGENCY, AND BY LAW SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE ALL CONSTRUCTION SETS REFLECT THE SAME INFORMATION AS THE APPROVED PLANS. THE CONTRACTOR SHALL ALSO MAINTAIN ONE SET OF PLANS AT THE SITE FOR THE PURPOSE OF DOCUMENTING ALL AS-BUILT CHANGES, REVISIONS, ADDENDUM'S, OR CHANGE ORDERS. THE CONTRACTOR SHALL FORWARD THE AS-BUILT/HIRED DRAWINGS TO THE ARCHITECT/ENGINEER AT THE CONCLUSION OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE WORK IS IN PROGRESS UNTIL THE JOB IS COMPLETE.
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY POWER, WATER, AND TOILET FACILITIES AS REQUIRED BY THE PROPERTY OWNER OR GOVERNING AGENCY.
- ALL CONSTRUCTION THROUGH THE PROJECT SHALL CONFORM TO THE LATEST CALIFORNIA BUILDING CODE AND ALL OTHER GOVERNING CODES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON NOR PROVIDE DIRECTION AS TO SAFETY PRECAUTIONS AND PROGRAMS.
- THE CONTRACTOR SHALL SUPERVISE AND COORDINATE ALL WORK, USING CONTRACTOR PROFESSIONAL KNOWLEDGE AND SKILLS. THEY ARE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCING AND COORDINATING ALL PORTIONS OF THE WORK UNDER THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS WITH RESPECT TO THE WORK TO COMPLETE THE PROJECT. BUILDING PERMIT APPLICATIONS SHALL BE FILED BY THE OWNER OR THEIR REPRESENTATIVE. CONTRACTOR SHALL OBTAIN THE PERMIT AND MAKE FINAL PAYMENT OF SAID DOCUMENT.
- ALL DIMENSIONS TAKE PRECEDENCE OVER SCALE UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING, HANGERS OR SUPPORTS FOR INSTALLATION OF ITEMS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL PROVIDE THE FIRE MARSHALL APPROVED MATERIALS TO FILL/SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
- NEW CONSTRUCTION ADDED TO EXISTING CONSTRUCTION SHALL BE MATCHED IN FORM, TEXTURE, MATERIAL AND PAINT COLOR EXCEPT AS NOTED IN THE PLANS.
- WHERE SPECIFIED, MATERIALS TESTING SHALL BE TO THE LATEST STANDARDS AVAILABLE AS REQUIRED BY THE LOCAL GOVERNING AGENCY RESPONSIBLE FOR RECORDING THE RESULTS.
- ALL GENERAL NOTES AND STANDARD DETAILS ARE THE MINIMUM REQUIREMENTS TO BE USED IN CONDITIONS WHICH ARE NOT SPECIFICALLY SHOWN OTHERWISE.
- ALL DEBRIS AND REFUGE IS TO BE REMOVED FROM THE PROJECT. PREMISES SHALL BE LEFT IN A CLEAN BROOM FINISHED CONDITION AT ALL TIMES.
- ALL SYMBOLS AND ABBREVIATIONS ARE CONSIDERED CONSTRUCTION INDUSTRY STANDARDS. IF A CONTRACTOR HAS A QUESTION REGARDING THEIR EXACT MEANING THE ARCHITECT/ENGINEER SHALL BE NOTIFIED FOR CLARIFICATIONS.
- THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES AND SEQUENCES OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.
- THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSION, ELEVATION, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTION OF THE WORK TO THE EXISTING WORK. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS, AND DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND SHALL BE CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE ENGINEER.
- NO CHANGES ARE TO BE MADE TO THESE PLANS WITHOUT THE KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT/ENGINEER. UNAUTHORIZED CHANGES RENDER THESE DRAWINGS VOID.
- ANY REFERENCE TO THE WORDS APPROVED, OR APPROVAL, IN THESE DOCUMENTS SHALL BE HERE DEFINED TO MEAN GENERAL ACCEPTANCE OR REVIEW AND SHALL NOT RELIEVE THE CONTRACTOR AND/OR THEIR SUB-CONTRACTORS OF ANY LIABILITY IN FURNISHING THE REQUIRED MATERIALS OR LABOR SPECIFIED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT IN CONJUNCTION WITH THE EXECUTION OF THIS WORK.
- GENERAL CONTRACTOR SHALL NOTIFY THE ENGINEER AND ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES FOUND WITHIN THE CONTRACT DOCUMENTS, PRIOR TO STARTING WORK.

SUBMITTALS:

- SUBMITTALS FOR SHOP DRAWINGS, MILL TESTS, PRODUCT DATA, ETC. FOR ITEMS DESIGNED BY THE ARCHITECT/ENGINEER OF RECORD SHALL BE MADE TO THE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW THE SUBMITTAL BEFORE FORWARDING TO THE ENGINEER. SUBMITTALS SHALL BE MADE IN TIME TO PROVIDE A TWO-WEEK REVIEW PERIOD FOR THE ARCHITECT/ENGINEER. SUBMITTALS REQUIRED FOR EACH SECTION OF THESE NOTES ARE SPECIFIED IN THAT SECTION.

SITE PREPARATION NOTES:

- THE PREPARATION OF THE SITE FOR CONSTRUCTION SHALL INCLUDE THE REMOVAL OF ALL BROKEN CONCRETE, TREE TRUNKS AND ANY OTHER DEBRIS THAT WOULD BE DAMAGING TO THE FOOTINGS OF THE NEW STRUCTURE.
- BACK FILLING AT TRENCHES SHALL BE OF CLEAN, STERILE SOIL HAVING A SAND EQUIVALENT OF 30 OR GREATER. BACK FILLING SHALL BE DONE IN 8 INCH LAYERS, MOISTURE CONDITIONED AND PROPERLY COMPACTED. ADEQUATE DRAINAGE SHALL BE PROVIDED SUCH THAT NO PONDING OCCURS AFTER THESE RECOMMENDATIONS ARE APPROVED BY THE ARCHITECT/ENGINEER.
- ALL FOUNDATION FOOTINGS SHALL EXTEND INTO AND BEAR AGAINST NATURAL UNDISTURBED SOIL OR APPROVED COMPACTED FILL. FOOTINGS SHALL EXTEND INTO SOIL DEPTH INDICATED ON DETAILS.
- SHOULD ANY LOOSE FILL, EXPANSIVE SOIL, GROUND WATER OR ANY OTHER DANGEROUS CONDITIONS BE ENCOUNTERED DURING THE EXCAVATION FOR THE NEW FOUNDATION, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED AND ALL FOUNDATION WORK SHALL CEASE IMMEDIATELY.
- WITHIN AN AREA A MINIMUM OF 5 FEET BEYOND THE BUILDING LIMITS, EXCAVATE A MINIMUM OF 4" OF EXISTING SOIL. REMOVE ALL ORGANICS, PAVEMENT, ROOTS, DEBRIS AND OTHERWISE UNSUITABLE MATERIAL.
- THE SURFACE OF THE EXPOSED SUBGRADE SHALL BE INSPECTED BY PROBING OR TESTING TO CHECK FOR POCKETS OF SOFT OR UNSUITABLE MATERIAL. EXCAVATE UNSUITABLE SOIL AS DIRECTED BY THE GEOTECHNICAL ENGINEER/TESTING AGENCY.
- PROOFROLL THE SURFACE OF THE EXPOSED SUBGRADE WITH A LOADED TANDEM AXLE DUMP TRUCK. REMOVE ALL SOILS WHICH PUMP OR DO NOT COMPACT PROPERLY AS DIRECTED BY THE GEOTECHNICAL ENGINEER/TESTING AGENCY.
- FILL ALL EXCAVATED AREAS WITH APPROVED CONTROLLED FILL. PLACE IN 8" LOOSE LIFTS AND THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698. COMPACT TO A MINIMUM OF 90% RELATIVE COMPACTION.
- THE STRUCTURAL DRAWINGS HERE IN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW OR EXISTING SURFACES, STRUCTURES OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE PROPERTY OWNER. THE CONTRACTOR SHALL BEAR THE EXPENSE OF REPAIRING OR REPLACING ANY DAMAGED AREAS.
- WHEN REQUIRED STORAGE OF MATERIALS OCCURS, THEY SHALL BE EVENLY DISTRIBUTED OVER THE FLOOR OR ROOF SO AS NOT TO EXCEED THE DESIGNED LIVE LOADS FOR THE STRUCTURE. TEMPORARY SHORING OR BRACING SHALL BE PROVIDED WHERE THE STRUCTURE OR SOIL HAS NOT ATTAINED THE DESIGN STRENGTH FOR THE CONDITIONS PRESENT.
- BEFORE PROCEEDING WITH ANY WORK WITHIN THE EXISTING FACILITY, THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH EXISTING STRUCTURAL AND OTHER CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY BRACING, SHORING AND OTHER SAFEGUARDS TO MAINTAIN ALL PARTS OF THE EXISTING WORK IN A SAFE CONDITION DURING THE PROCESS OF DEMOLITION AND CONSTRUCTION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING WORK WHICH ARE TO REMAIN.

SHOP DRAWING REVIEW:

- REVIEW BY THE ARCHITECT/ENGINEER IS FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT AND THE CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, NOR DEPARTURES THERE FROM. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS. WHEN SHOP DRAWINGS DIFFER FROM OR ADD TO THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS THEY SHALL BE DESIGNED AND STAMPED BY AN ENGINEER OF RECORD.

ACCESSIBILITY NOTE:

- THE TELECOMMUNICATIONS EQUIPMENT SPACE SHOWN HEREON THESE PLANS IS NOT CUSTOMARILY OCCUPIED. WORK TO BE PERFORMED IN THIS FACILITY CANNOT REASONABLY BE PERFORMED BY PERSONS WITH A SEVERE IMPAIRMENT: MOBILITY, SIGHT, AND/OR HEARING. THEREFORE, PER CALIFORNIA BUILDING CODE THIS FACILITY SHALL BE EXEMPTED FROM ALL TITLE 24 ACCESS REQUIREMENTS.

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
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verizon
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IRVINE, CALIFORNIA 92618
949.286.7000

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SAN ONOFRE/SANTIAGO #2
M19-T3 220KV BUILT 1968
EAST OF CONEJO PARK
LAGUNA HILLS, CA 92653
ORANGE COUNTY

**SHEET TITLE:
GENERAL NOTES AND SPECIFICATIONS**

T-2

CITY OF LAGUNA HILLS



MEMORANDUM

DATE: February 11, 2016
 TO: David Chantarangsu, Community Development Director
 FROM: Kenneth H. Rosenfield, Director of Public Services *KHR*
 SUBJECT: Proposed Conditions of Approval CUP-7-14-2917 Verizon Wireless

The following are proposed Public Services Conditions of Approval for the subject project:

1. Work may not occur within the public right-of-way without issuance of an encroachment permit from the Public Services department.
2. Verizon Wireless shall prepare plans and implement the removal and replacement of the driveway access at La Paz Road to meet ADA access requirements.
3. Verizon Wireless shall install a City approved vehicle access gate with pedestrian bypass at approximately 20 feet northerly of the La Paz Road northerly right-of-way.
4. Verizon Wireless shall prepare a grading plan for the access roadway providing for acceptable grades as approved by the City Engineer, and install an approved impervious surface (AC or PCC) for a 40' length of the roadway northerly of the La Paz Road northerly right-of-way for drainage control and access.

5. The proposed work on Aliso Hills Drive for the telephone connection and the work on La Paz Road require separate encroachment permits.
6. A grant of easement for the proposed telephone line through the City open space will be subject to a separate approval by the City Council. The proposed easement document and supporting documents (if any) will need to be prepared to the satisfaction of the City Engineer and City Attorney.
7. The facility shall not be accessed through El Conejo Park for any purpose at any time.

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
C	02/26/16	REVISED 100% CD	ESQ
D	03/18/16	REVISED 100% CD	MM
E	04/21/16	REVISED 100% CD	ESQ

core
 DEVELOPMENT SERVICES
 A&E SERVICES
 3350 E. Birch Street #250
 Brea, California 92821
 (714)729-8404 (714)333-4441 fax
 www.core.us.com

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY & CONFIDENTIAL TO VERIZON WIRELESS. ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON WIRELESS IS STRICTLY PROHIBITED.

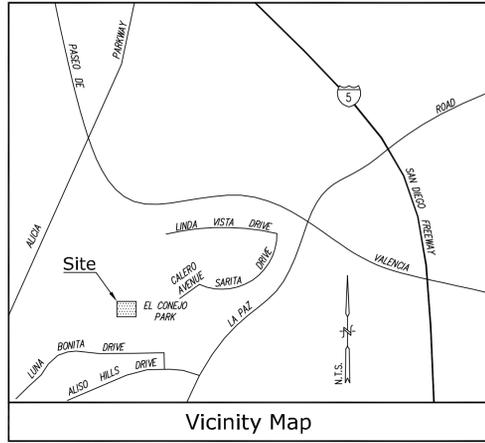
verizon
 15505 SAND CANYON AVENUE, D1
 IRVINE, CALIFORNIA 92618
 949.286.7000

LUNA BONITA
 SAN ONOFRE/SANTIAGO #2
 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE:
CONDITIONS OF APPROVAL

T-3

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



Title Report

PREPARED BY: COMMONWEALTH LAND TITLE COMPANY
 ORDER NO.: 08021950
 DATED: MARCH 17, 2014

Legal Description

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:
 LOT C OF TRACT NO. 9035, IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 398, PAGES 3 TO 8 INCLUSIVE OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPTING THEREFROM THAT PORTION OF THE LAND CONVEYED IN THE DOCUMENTS RECORDED MAY 10, 1982 AS INSTRUMENT NOS. 82-160397, 82-160398, 82-160399 AND 82-160400 ALL OF OFFICIAL RECORDS.

PARCEL 2:
 LOT B OF TRACT NO. 9044, AS SHOWN ON A MAP RECORDED IN BOOK 417, PAGES 1 TO 9 INCLUSIVE OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA.

EXCEPT THAT PORTION OF LOT B OF TRACT NO. 9044 LYING EASTERLY OF THE NORTHERLY PROLONGATION OF THE WEST LINE OF LOT 51 AND WESTERLY OF THE NORTHERLY PROLONGATION OF THE WEST LINE OF LOT 66 OF TRACT NO. 9044, AS SHOWN ON MAP RECORDED IN BOOK 417, PAGES 1 TO 9 INCLUSIVE OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA, A CERTIFICATE OF CORRECTION RECORDED MARCH 6, 1980 IN BOOK 13525 PAGE 1718 OF OFFICIAL RECORDS.

Assessor's Parcel Nos.

625-121-16, 625-065-19, 625-081-02, 625-071-25

Easements

- ③ EASEMENT TO SO. CAL. EDISON CO. FOR STEEL TOWERS AND RIGHTS OF INGRESS AND EGRESS RECORDED NOVEMBER 2, 1966 IN BOOK 8094, PAGE 308, O.R. (PLOTTED HEREON)
- ④ EASEMENT FOR SLOPES RECORDED SEPTEMBER 23, 1968 IN BOOK 8729, PAGE 610, O.R. (DOES NOT AFFECT)
- ⑤ EASEMENT FOR SANITARY SEWERS AS SHOWN OR DEDICATED ON SAID TRACT NO. 9035. (PLOTTED HEREON)
- ⑥ EASEMENT FOR WATER LINES AS SHOWN OR DEDICATED ON SAID TRACT NO. 9035. (PLOTTED HEREON)
- ⑦ RECITAL ON SAID TRACT NO. 9035 WHICH STATES "WE HEREBY GRANT TO THE COUNTY OF ORANGE LOTS A, B AND C IN FEE SIMPLE FOR OPEN SPACE AND LANDSCAPE EASEMENTS". (BLANKET IN NATURE)
- ⑧ RECITAL ON SAID TRACT NO. 9044 WHICH STATES "LOT B IS OPEN SPACE AND IS NOT A SEPARATE BUILDING SITE" (BLANKET IN NATURE)
- ⑨ VEHICULAR ACCESS RIGHTS TO LA PAZ ROAD AS RELEASED AND RELINQUISHED ON SAID TRACT NO. 9044. (PLOTTED HEREON)
- ⑩ EASEMENT FOR WATER LINES AND SEWER AS SHOWN OR DEDICATED ON SAID TRACT NO. 9044. (PLOTTED HEREON)
11. RECITALS ON SAID TRACT NO. 9044 WHICH STATES AMONG OTHER THINGS "WE HEREBY DEDICATE WITHOUT RESERVATION TO THE COUNTY OF ORANGE LOTS A, B AND C IN FEE SIMPLE FOR OPEN SPACE, RECREATION TRAIL AND LANDSCAPING PURPOSES. TOGETHER WITH THE RIGHT TO GRANT EASEMENTS FOR PUBLIC UTILITIES OR OTHER ESSENTIAL PURPOSES" (BLANKET IN NATURE)
12. EASEMENT FOR RECREATION AND TRAIL USES TO CITY OF LAGUNA RECORDED OCTOBER 18, 1996 AS INST. NO. 19960529568, O.R. (BLANKET IN NATURE)

Access Route/Lease Area/Utility Route

AS SHOWN.

Basis of Bearings

THE STATE PLANE COORDINATE SYSTEM OF 1983 (NAD 83), CALIFORNIA ZONE 6.

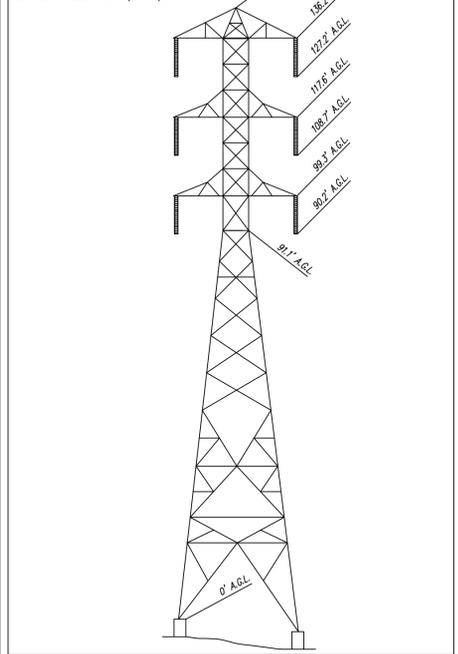
Bench Mark

THE CALIFORNIA SPATIAL REFERENCE CENTER C.O.R.S. "SB00", ELEVATION = 406.19 FEET (NAVD 88).

Dates of Survey

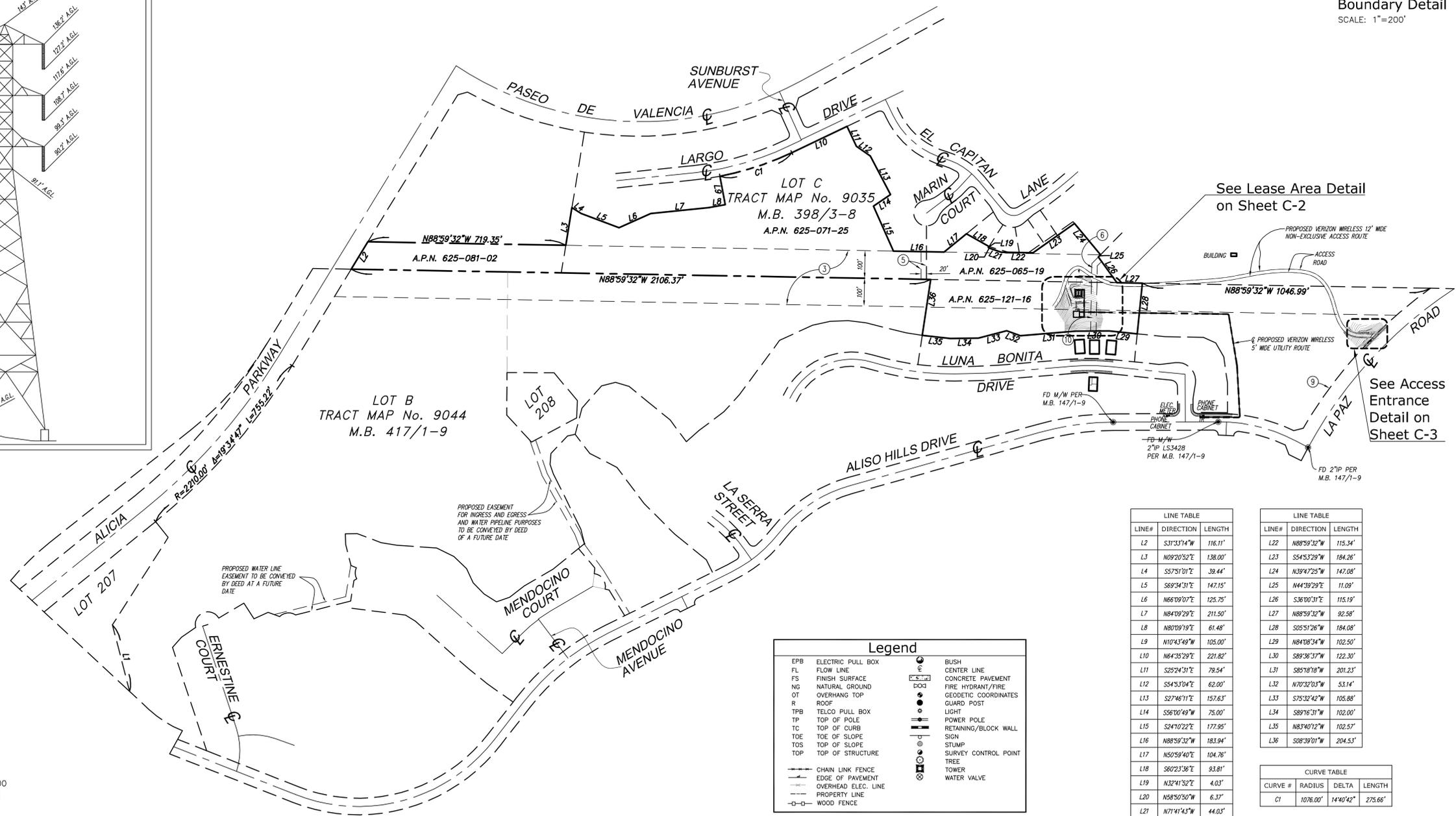
MARCH 10, 2014
 JANUARY 14, 2015
 JUNE 15, 2015
 DECEMBER 28, 2015

Tower Profile



Boundary Detail

SCALE: 1"=200'

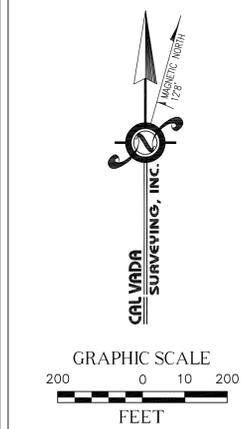


LINE#	DIRECTION	LENGTH
L2	S31°31'14"W	116.11'
L3	N09°20'52"E	138.00'
L4	S57°51'01"E	39.44'
L5	S89°34'31"E	147.15'
L6	N66°09'07"E	125.75'
L7	N84°09'29"E	211.50'
L8	N80°09'19"E	61.48'
L9	N10°43'49"W	105.00'
L10	N64°35'29"E	221.82'
L11	S25°24'31"E	79.54'
L12	S54°53'04"E	62.00'
L13	S27°46'11"E	157.63'
L14	S56°00'49"W	75.00'
L15	S24°02'22"E	177.85'
L16	N88°59'32"W	183.94'
L17	N50°59'40"E	104.76'
L18	S60°23'36"E	93.81'
L19	N32°41'52"E	4.03'
L20	N58°50'50"W	6.37'
L21	N71°41'43"W	44.03'

LINE#	DIRECTION	LENGTH
L22	N88°59'32"W	115.34'
L23	S54°53'29"W	184.26'
L24	N39°47'25"W	147.08'
L25	N44°39'29"E	11.09'
L26	S36°00'31"E	115.19'
L27	N88°59'32"W	92.58'
L28	S05°51'26"W	184.08'
L29	N84°08'34"W	102.50'
L30	S89°36'37"W	122.30'
L31	S85°18'18"W	201.23'
L32	N70°32'03"W	53.14'
L33	S75°32'42"W	105.88'
L34	S89°16'31"W	102.00'
L35	N83°40'12"W	102.57'
L36	S08°39'01"W	204.53'

CURVE #	RADIUS	DELTA	LENGTH
C1	1076.00'	14°40'42"	275.66'

Legend	
EPB	ELECTRIC PULL BOX
FL	FLOW LINE
FS	FINISH SURFACE
NG	NATURAL GROUND
OT	OVERHANG TOP
R	ROOF
TBP	TELCO PULL BOX
TP	TOP OF POLE
TC	TOP OF CURB
TOE	TOE OF SLOPE
TOS	TOP OF SLOPE
TOP	TOP OF STRUCTURE
--- ---	CHAIN LINK FENCE
---	EDGE OF PAVEMENT
---	OVERHEAD ELEC. LINE
---	PROPERTY LINE
-o-o-	WOOD FENCE
⊕	BUSH
⊙	CENTER LINE
▣	CONCRETE PAVEMENT
⊕	FIRE HYDRANT/FIRE
⊕	GEODETIC COORDINATES
⊕	GUARD POST
⊕	LIGHT
⊕	POWER POLE
⊕	RETAINING/BLOCK WALL
⊕	SIGN
⊕	STUMP
⊕	SURVEY CONTROL POINT
⊕	TREE
⊕	TOWER
⊕	WATER VALVE



REV	DATE/BY	DESCRIPTION
1	04/28/14	TITLE REPORT / FINAL
2	1/16/15	ADDITIONAL TOPO
3	6/15/15	ADDITIONAL TOPO
4	6/30/15	CLIENT COMMENTS
5	7/29/15	NEW ZD'S / FINAL
6	8/21/15	CLIENT COMMENTS
7	12/29/15	ADDITIONAL TOPOGRAPHY

ENGINEER / CONSULTANT

CALVADA SURVEYING, INC.
 411 Jenks Cir., Suite 205, Corona, CA 92880
 Phone: 951-280-9960 Fax: 951-280-9746
 Email: info@calvada.com Website: www.calvada.com
 L.S. 7780 Exp. 12-31-15
 LICENSED LAND SURVEYOR
 STATE OF CALIFORNIA
 SITE BUILDER

verizon wireless

15505 SAND CANYON AVENUE
 BLDG. D, FIRST FLR.
 IRVINE, CALIFORNIA 92618
 949.286.7000

A&E DEVELOPMENT

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 COMMUNICATIONS GROUP
 A&E SERVICES

2903-H Saturn Street
 Brea, California 92821
 (714)729-8404 (714)333-4441 fax
 www.corecomgroupinc.com

APPROVALS

APPROVED BY	INITIALS	DATE
LANDLORD		
VZW SITE ACQ.		
ZONING		
VZW RF		
VZW INTERCONNECT		
VZW UTILITY		
VZW CONST.		
VZW PROJ. MGR.		

SITE INFORMATION

SITE NAME:
 LUNA BONITA

SITE ADDRESS:
 EAST OF EL CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE

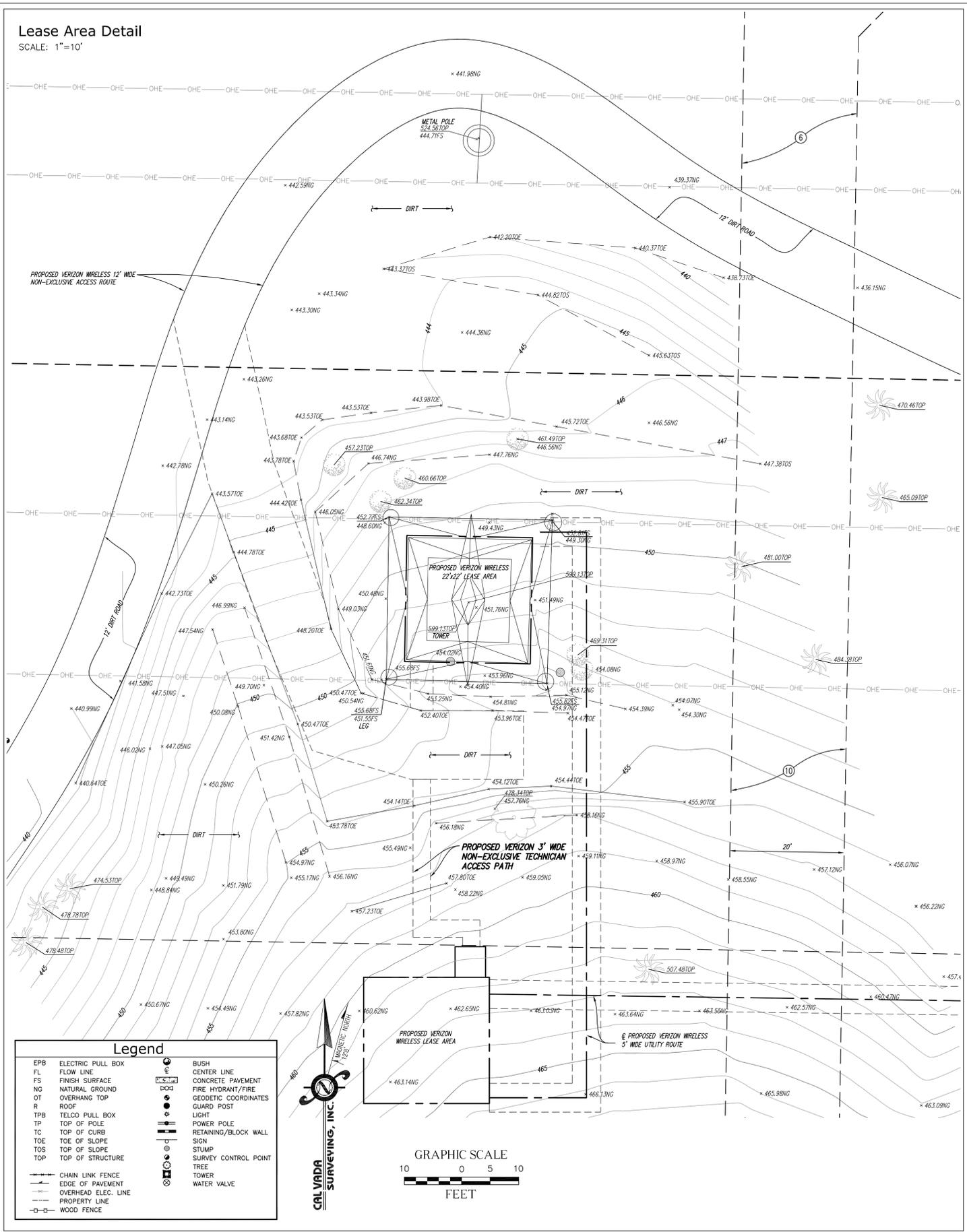
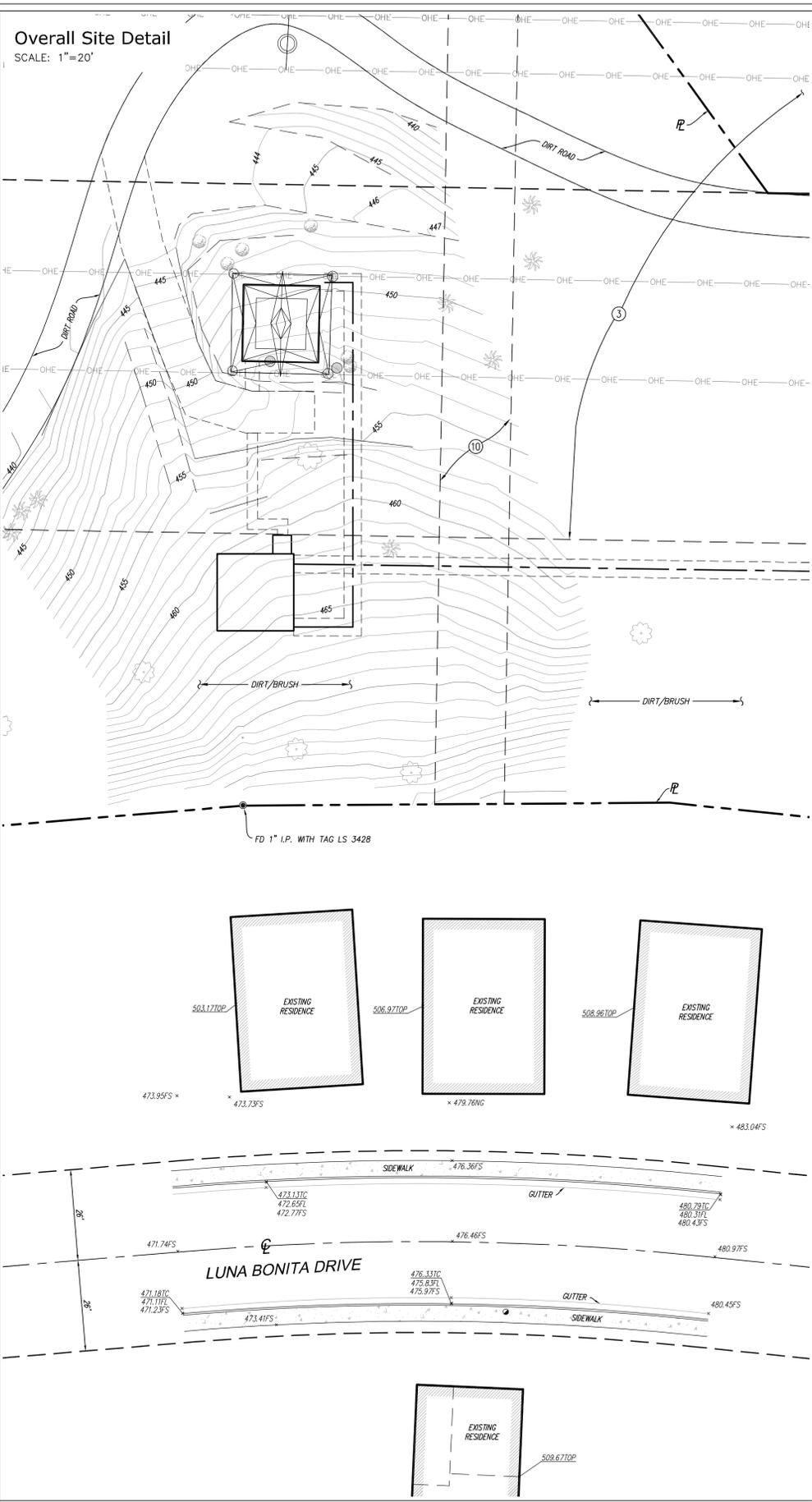
TOPOGRAPHIC SURVEY

DRAWING INFORMATION

DRAWN BY	CHECKED BY	ISSUE DATE
HP	RG	03/14/14

SHEET NUMBER

C-1
 SHEET 1 OF 3



Legend

EPB	ELECTRIC PULL BOX	⊙	BUSH
FL	FLOW LINE	⊕	CENTER LINE
FS	FINISH SURFACE	▬	CONCRETE PAVEMENT
NG	NATURAL GROUND	▬	FIRE HYDRANT/FIRE
OT	OVERHANG TOP	⊙	GEODETIC COORDINATES
R	ROOF	⊙	GUARD POST
TPB	TELCO PULL BOX	⊙	LIGHT
TP	TOP OF POLE	⊙	POWER POLE
TC	TOP OF CURB	⊙	RETAINING/BLOCK WALL
TOE	TOE OF SLOPE	⊙	SIGN
TOS	TOP OF SLOPE	⊙	STUMP
TOP	TOP OF STRUCTURE	⊙	SURVEY CONTROL POINT
⊙	CHAIN LINK FENCE	⊙	TREE
⊙	EDGE OF PAVEMENT	⊙	TOWER
⊙	OVERHEAD ELEC. LINE	⊙	WATER VALVE
⊙	PROPERTY LINE	⊙	
⊙	WOOD FENCE	⊙	

REV	DATE/BY	DESCRIPTION
1	04/28/14	RAS
2	1/16/15	AV
3	6/15/15	JS
4	6/30/15	RG
5	7/29/15	GBM
6	8/21/15	RG
7	12/29/15	AV

ENGINEER / CONSULTANT

CALVADA SURVEYING, INC.

411 Jenks Cir., Suite 205, Corona, CA 92880
 Phone: 951-280-9960 Fax: 951-280-9746
 Email: 951-280-9746 www.calvada.com
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 State of California License No. 14209

SITE BUILDER

15505 SAND CANYON AVENUE
 BLDG. D, FIRST FLR.
 IRVINE, CALIFORNIA 92618
 949.286.7000

A&E DEVELOPMENT

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COMMUNICATIONS GROUP
 A&E SERVICES

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 Brea, California 92821
 (714)729-8404 (714)333-4441 fax
 www.corecomgroupinc.com

APPROVALS

APPROVED BY	INITIALS	DATE
LANDLORD		
VZW SITE ACQ.		
ZONING		
VZW RF		
VZW INTERCONNECT		
VZW UTILITY		
VZW CONST.		
VZW PROJ. MGR.		

SITE NAME:
LUNA BONITA

SITE ADDRESS:
 EAST OF EL CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE
TOPOGRAPHIC SURVEY

DRAWING INFORMATION

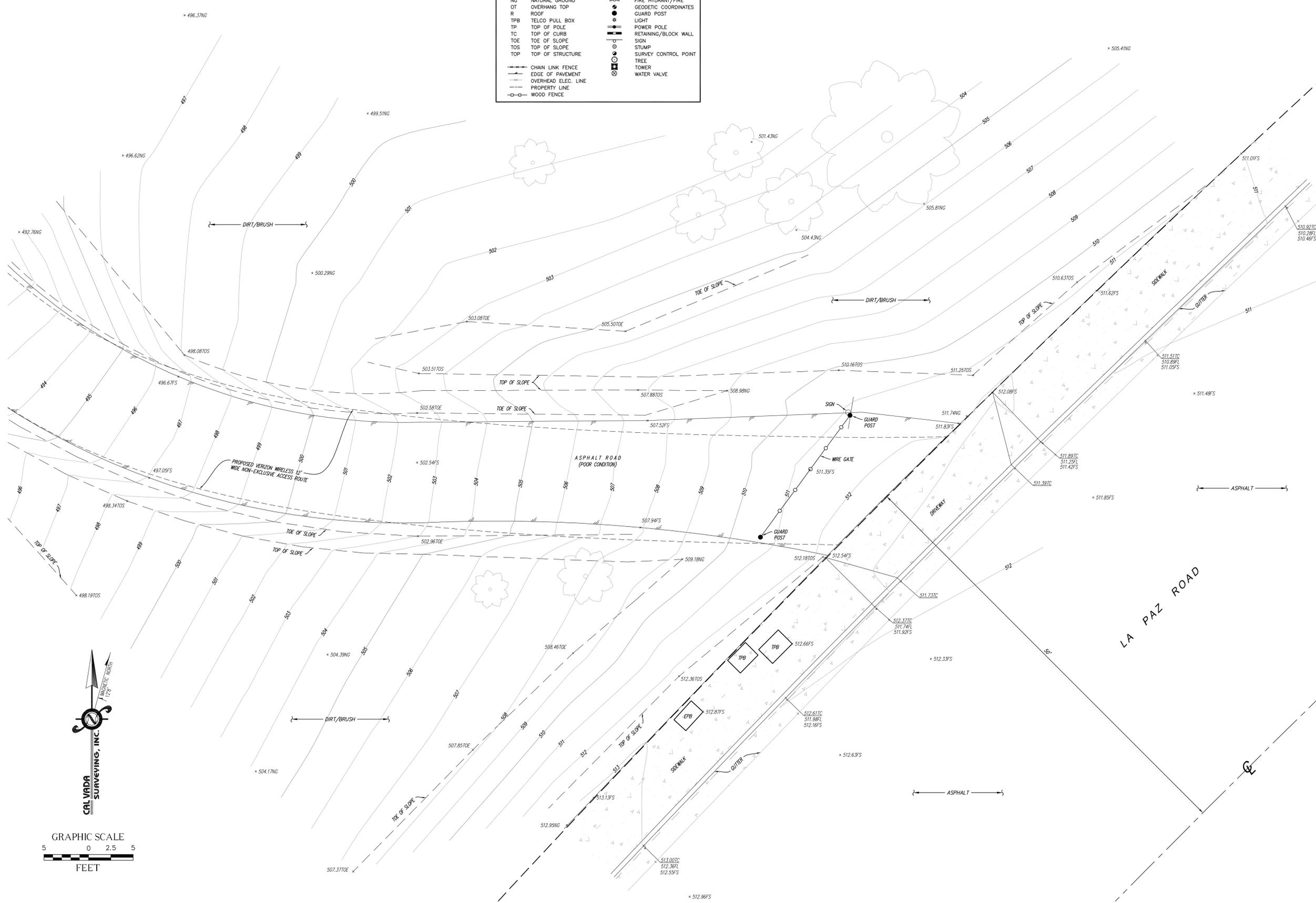
DRAWN BY	CHECKED BY	ISSUE DATE
HP	RG	03/14/14

SHEET NUMBER
C-2
 SHEET 2 OF 3

Access Entrance Detail

SCALE: 1"=5'

Legend			
EPB	ELECTRIC PULL BOX	●	BUSH
FL	FLOW LINE	—○—	CENTER LINE
FS	FINISH SURFACE	—	CONCRETE PAVEMENT
NG	NATURAL GROUND	—	FIRE HYDRANT/FIRE
OT	OVERHANG TOP	○	GEODETIC COORDINATES
R	ROOF	●	GUARD POST
TPB	TELCO PULL BOX	○	LIGHT
TP	TOP OF POLE	○	POWER POLE
TC	TOP OF CURB	—	RETAINING/BLOCK WALL
TOE	TOE OF SLOPE	—	SIGN
TOS	TOP OF SLOPE	—	STUMP
TOP	TOP OF STRUCTURE	—	SURVEY CONTROL POINT
—	CHAIN LINK FENCE	—	TREE
—	EDGE OF PAVEMENT	—	TOWER
—	OVERHEAD ELEC. LINE	—	WATER VALVE
—	PROPERTY LINE	—	
—	WOOD FENCE	—	



REV	DATE/BY	DESCRIPTION
1	04/28/14 RAS	TITLE REPORT / FINAL
2	1/16/15 AV	ADDITIONAL TOPO
3	6/15/15 JS	ADDITIONAL TOPO
4	6/30/15 RG	CLIENT COMMENTS
5	7/29/15 GBM	NEW ZD'S / FINAL
6	8/21/15 RG	CLIENT COMMENTS
7	12/29/15 AV	ADDITIONAL TOPOGRAPHY

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verizon wireless
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 949.286.7000

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APPROVALS

APPROVED BY	INITIALS	DATE
LANDLORD		
VZW SITE ACQ.		
ZONING		
VZW RF		
VZW INTERCONNECT		
VZW UTILITY		
VZW CONST.		
VZW PROJ. MGR.		

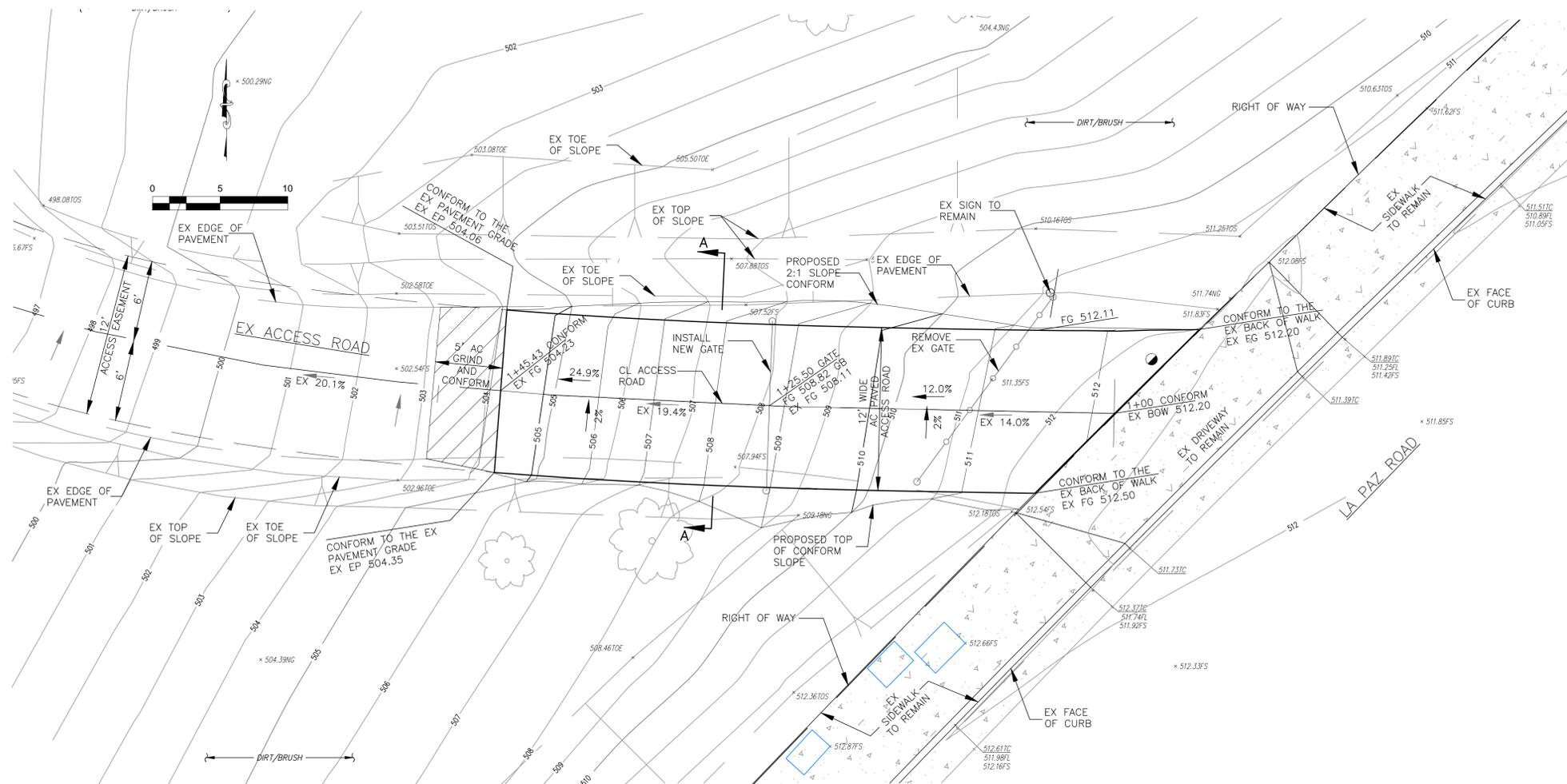
SITE INFORMATION
 SITE NAME:
LUNA BONITA
 SITE ADDRESS:
 EAST OF EL CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE
TOPOGRAPHIC SURVEY

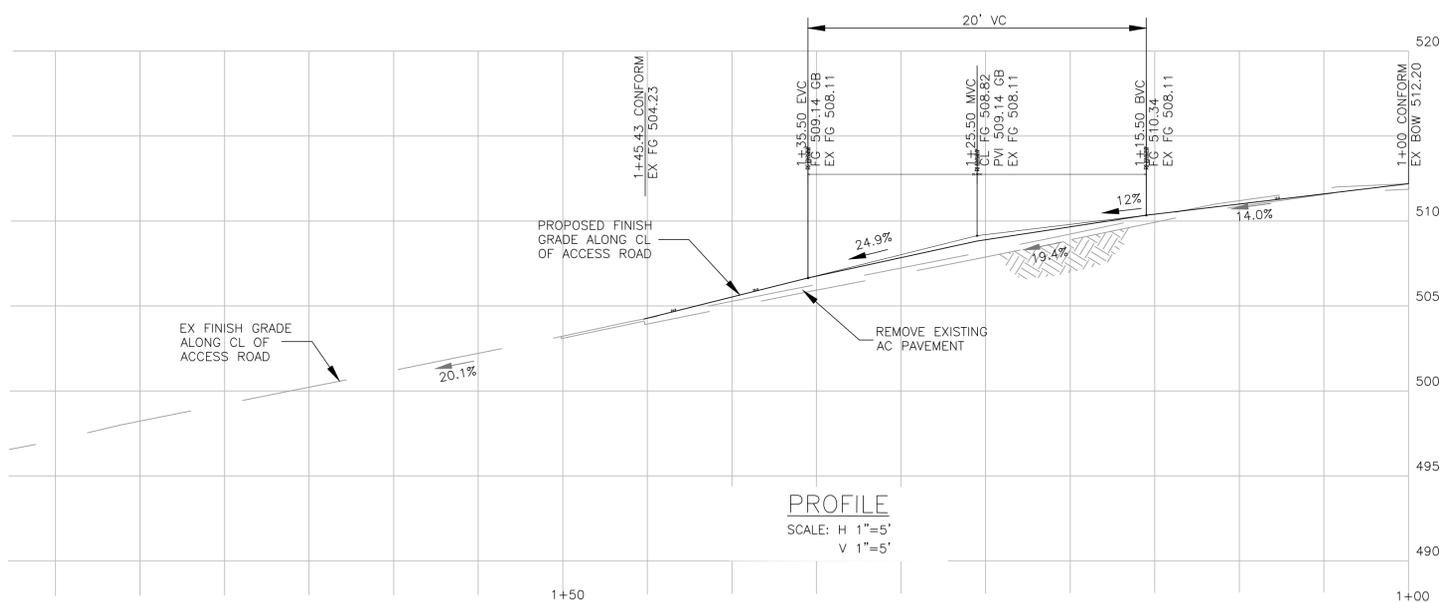
DRAWING INFORMATION

DRAWN BY	CHECKED BY	ISSUE DATE
HP	RG	03/14/14

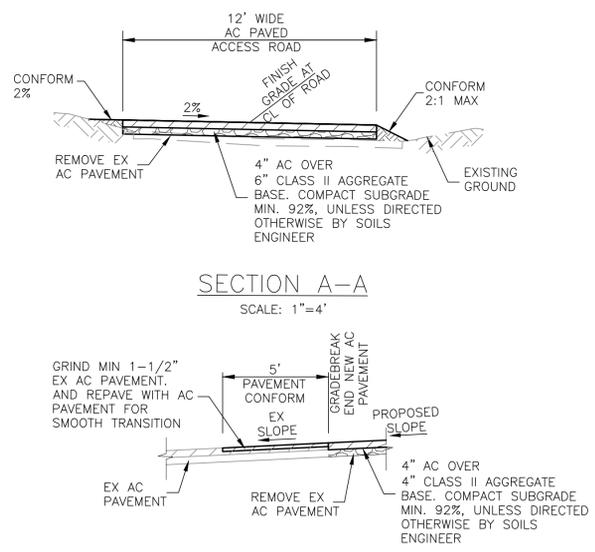
SHEET NUMBER
C-3
 SHEET 3 OF 3



PLAN
SCALE: H 1"=5'
V 1"=5'



PROFILE
SCALE: H 1"=5'
V 1"=5'



SECTION A-A
SCALE: 1"=4'

AC CONFORM
SCALE: 1"=4'

EARTHWORK	
AREA	SITE
CUT	7 CY
FILL	7 CY
IMPORT	0 CY

NOTE:
EARTHWORK QUANTITY BASED ON GRADE AFTER REMOVAL OF EXISTING AC PAVEMENT. ASSUMED 4" EXISTING AC PAVEMENT TO BE REMOVED.
EARTHWORK QUANTITY PROVIDED FOR INFORMATION ONLY. CONTRACTOR SHALL BASE THEIR BID ON THEIR OWN EARTHWORK QUANTITY TAKEOFF.



NO.	DATE	DESCRIPTION	BY

LUNA BONITA
EAST OF EL CONEJO PARK
LAGUNA HILLS, CA 92653
ORANGE COUNTY
GRADING PLAN

DRAWN BY: CL
DATE: 2/24/2016
JOB NO: 16005
SCALE: 1"=5'
SHEET GP-2

ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
C	02/26/16	REVISED 100% CD	ESQ
D	03/18/16	REVISED 100% CD	MM
E	04/21/16	REVISED 100% CD	ESQ

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15505 SAND CANYON AVENUE, D1
 IRVINE, CALIFORNIA 92618
 949.286.7000

LUNA BONITA

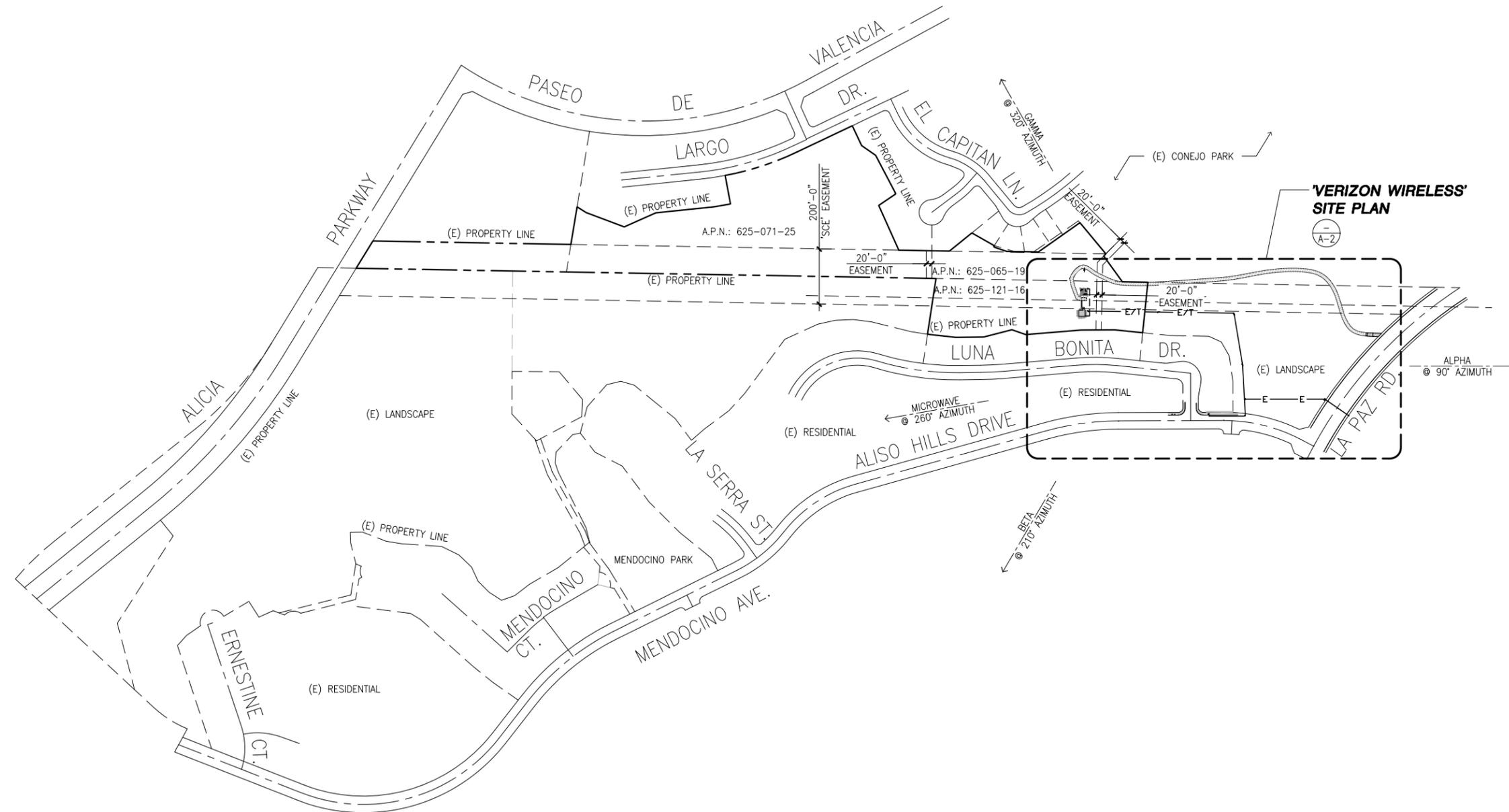
SAN ONOFRE/SANTIAGO #2
 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653

ORANGE COUNTY

SHEET TITLE:

PLOT PLAN

A-1



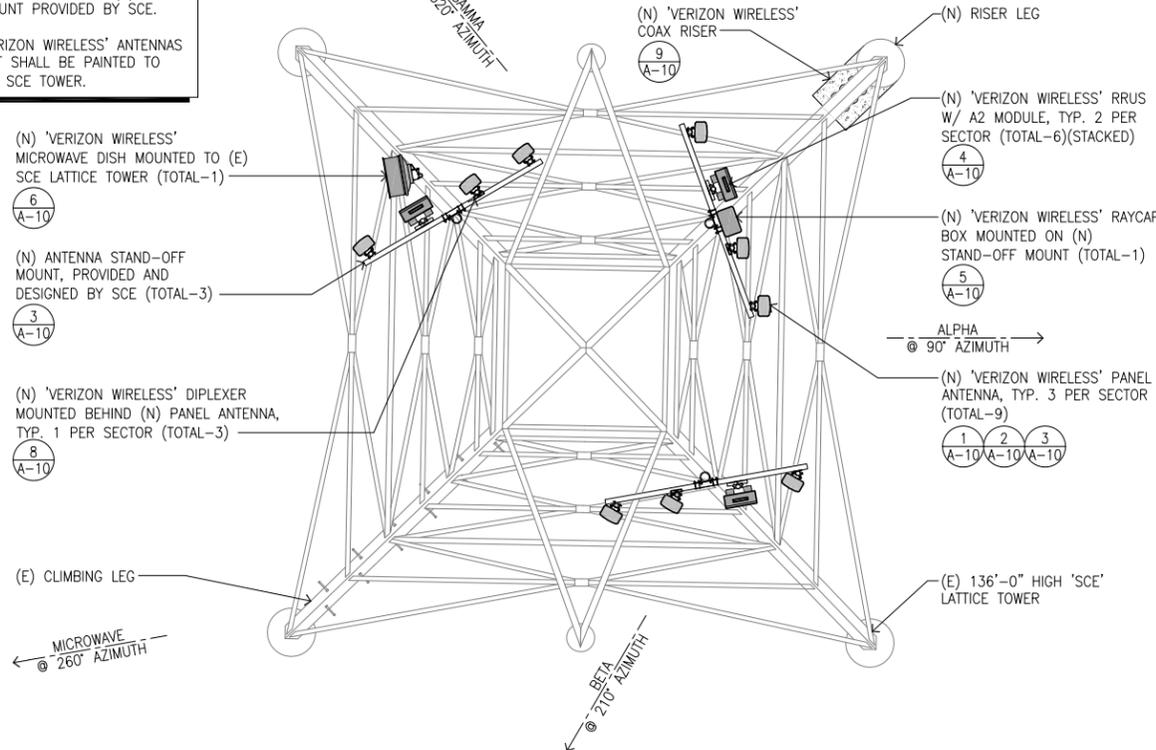
NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES

PLOT PLAN

SCALE
 1"=200'-0"
 0 100' 200' 400'

1

NOTES:
 1. ALL (N) 'VERIZON WIRELESS' ANTENNAS AND EQUIPMENT MOUNTED TO THE (E) SCE TOWER SHALL BE MOUNTED TO (N) STAND-OFF MOUNT PROVIDED BY SCE.
 2. ALL (N) 'VERIZON WIRELESS' ANTENNAS AND EQUIPMENT SHALL BE PAINTED TO MATCH THE (E) SCE TOWER.



ANTENNA PLAN

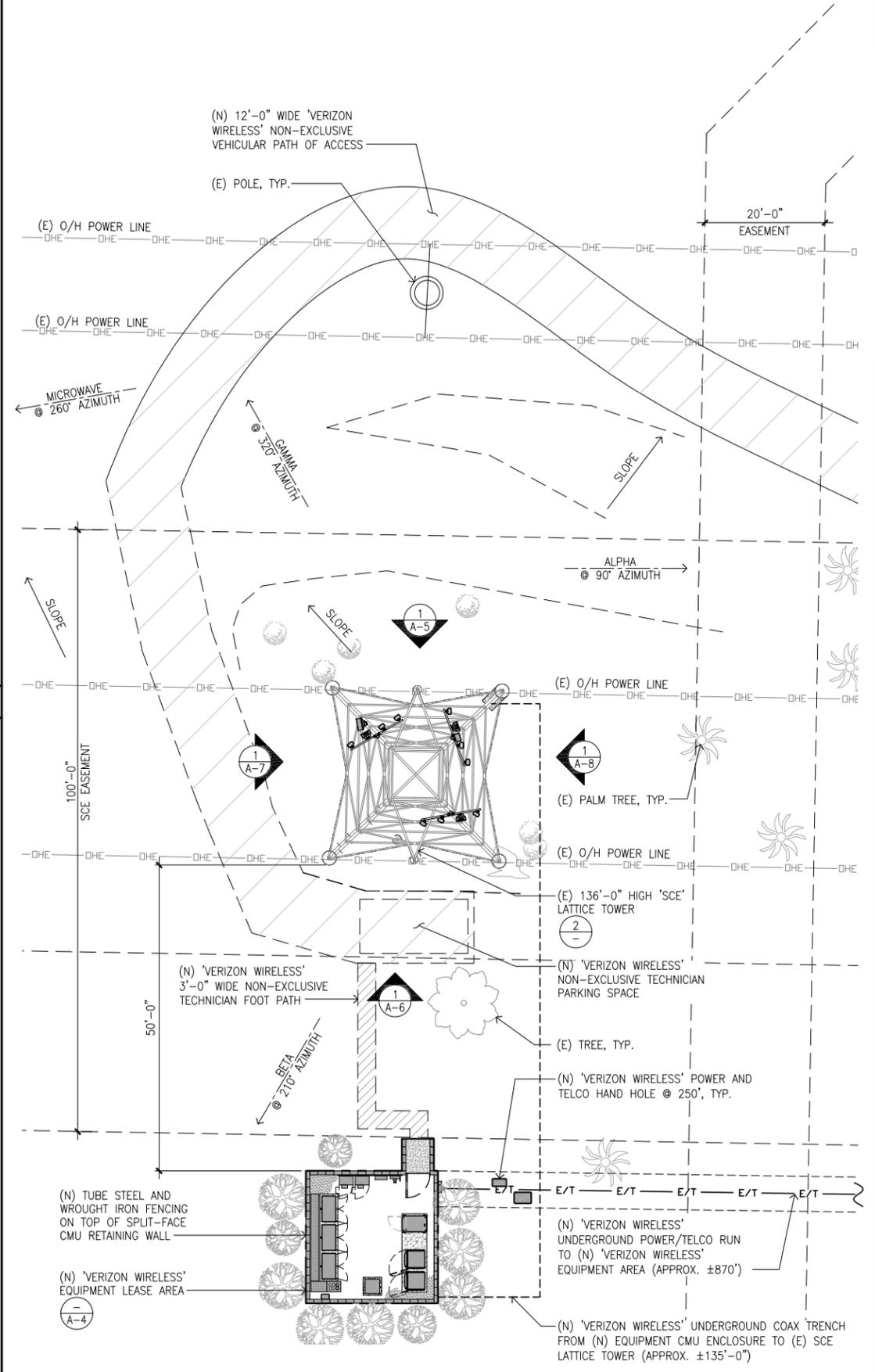


TOTALS:
 TOTAL 1-5/8" HYBRIFLEX: 1
 TOTAL COAX: 13
 TOTAL COUNT: 17

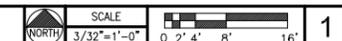
	AZIMUTH	RAD CENTER	ANTENNA MDL NO.	# PER SEC.	# OF HYBRIFLEX	HYBRIFLEX SIZE	HYBRIFLEX LENGTH	RAYCAP MODEL NO.	# OF RAYCAP	DIPLEXER MODEL NO.	# OF DIPLEXER	RRUS MODEL NO.	# OF RRUS	# OF COAX	COAX SIZE	COAX LENGTH
ALPHA	90°	66'-0"	SBNHH-1D65B	3	1	1-5/8"	±230'	RCMDC-3315-PF-48	1	FD9R6004	1	RRUS 12	2	4	7/8"	±230'
BETA	210°	66'-0"	SBNHH-1D65B	3	1	-	-	-	0	FD9R6004	1	RRUS 12	2	4	7/8"	±230'
	260°	56'-0"	2' SUX MICROWAVE	1	-	-	-	-	-	-	-	-	1	1.28" X .76"	±220'	
GAMMA	320°	66'-0"	SBNHH-1D65B	3	-	-	-	-	-	FD9R6004	1	RRUS 12	2	4	7/8"	±230'

RF CONFIGURATION INFORMATION

3



ENLARGED SITE PLAN



ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
C	02/26/16	REVISED 100% CD	ESQ
D	03/18/16	REVISED 100% CD	MM
E	04/21/16	REVISED 100% CD	ESQ

core
 DEVELOPMENT SERVICES
 A&E SERVICES
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verizon
 15505 SAND CANYON AVENUE, D1
 IRVINE, CALIFORNIA 92618
 949.286.7000

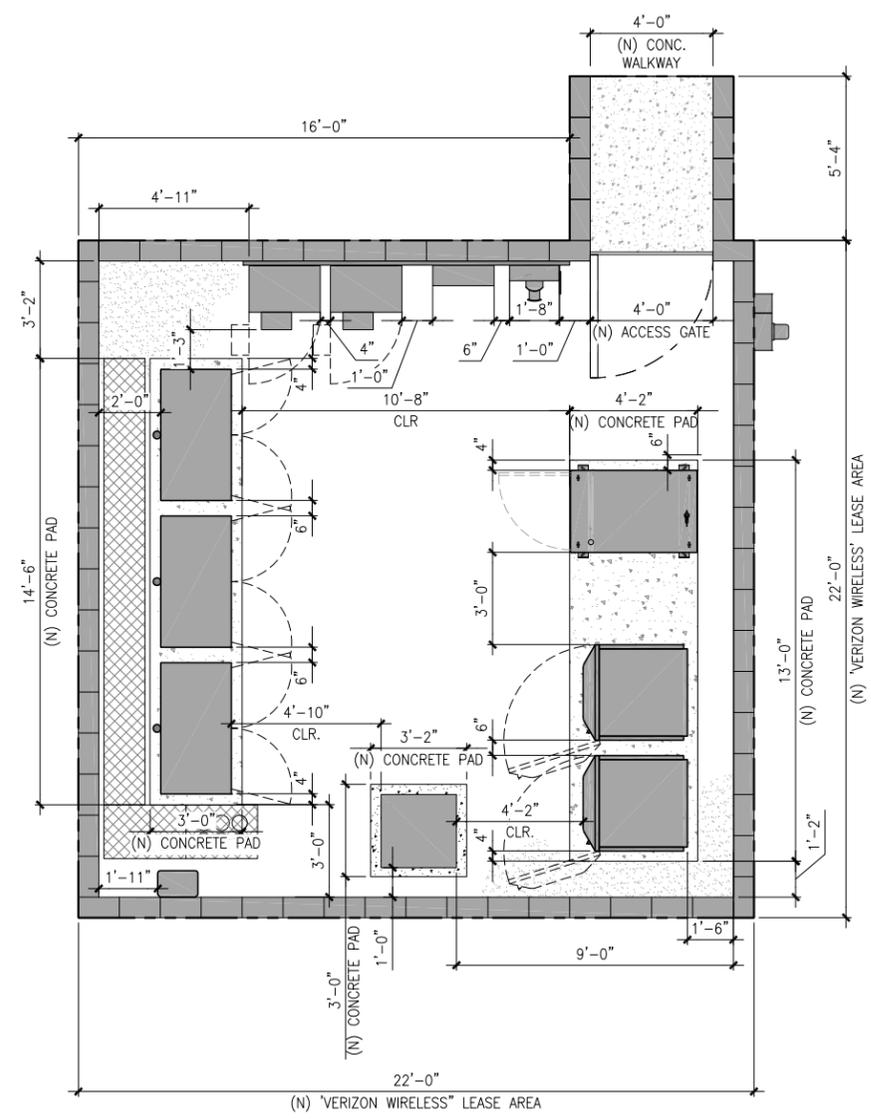
LUNA BONITA
 SAN ONOFRE/SANTIAGO #2
 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE:
ENLARGED SITE PLAN AND ANTENNA PLAN

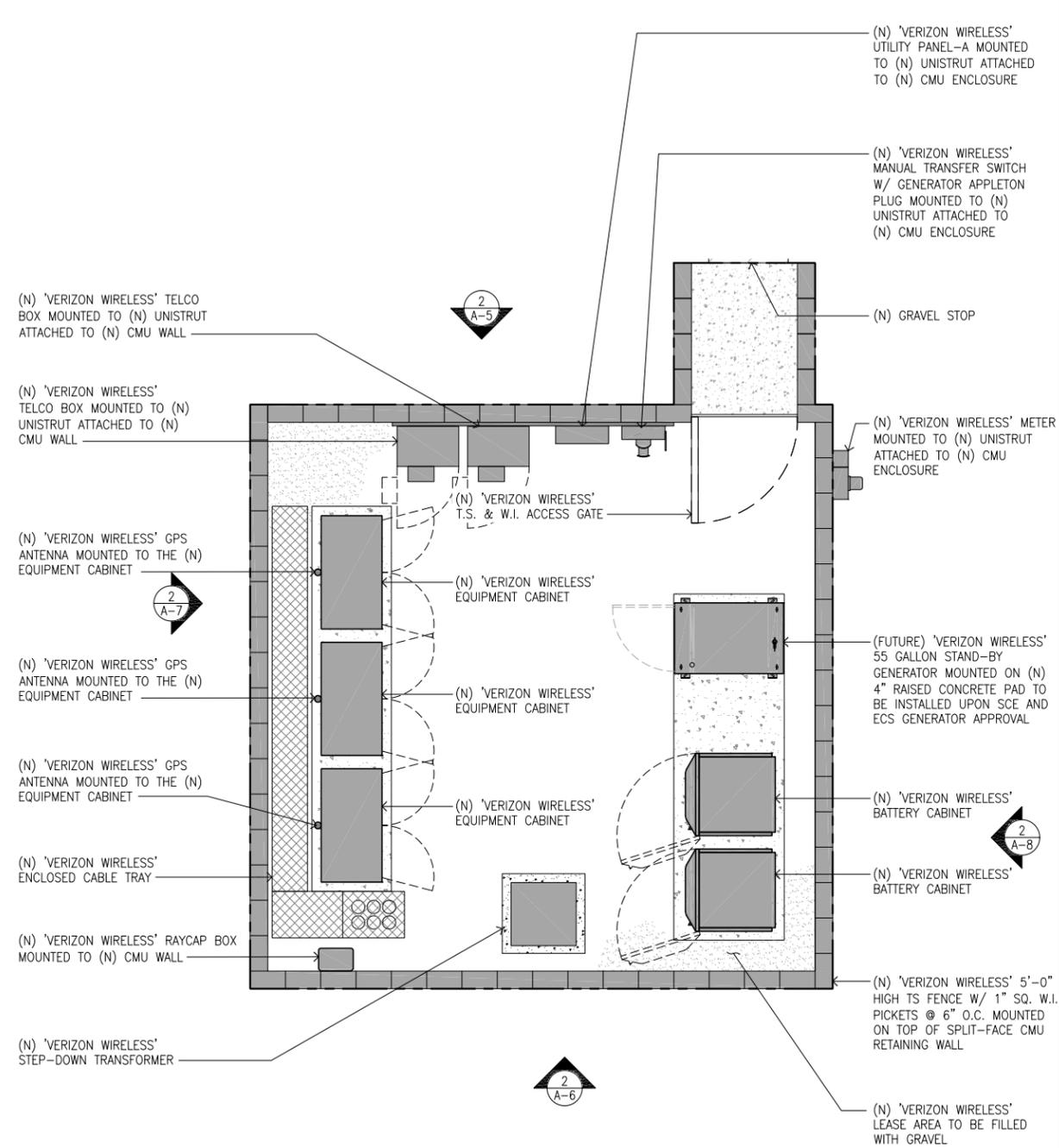
A-3

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES.

NOTE:
1. (N) TUBE STEEL AND WROUGHT-IRON FENCING NOT SHOWN FOR CLARITY.



NOTE:
1. (N) TUBE STEEL AND WROUGHT-IRON FENCING NOT SHOWN FOR CLARITY.



ISSUE STATUS

REV.	DATE	DESCRIPTION	BY
A	08/17/15	90% CONSTRUCTION	JMM
B	08/21/15	100% CONSTRUCTION	CAP
C	02/26/16	REVISED 100% CD	ESQ
D	03/18/16	REVISED 100% CD	MM
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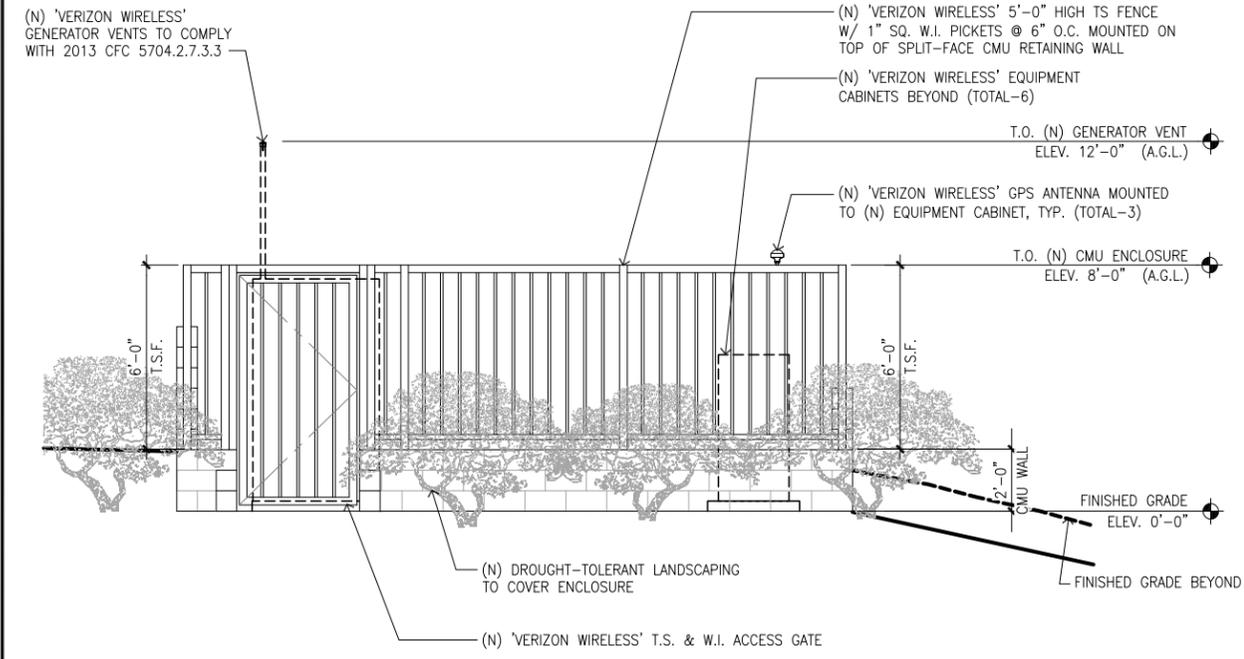
LUNA BONITA
SAN ONOFRE/SANTIAGO #2
M19-T3 220KV BUILT 1968
EAST OF CONEJO PARK
LAGUNA HILLS, CA 92653
ORANGE COUNTY

SHEET TITLE:
EQUIPMENT PLAN AND DIMENSION PLAN

A-4

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES

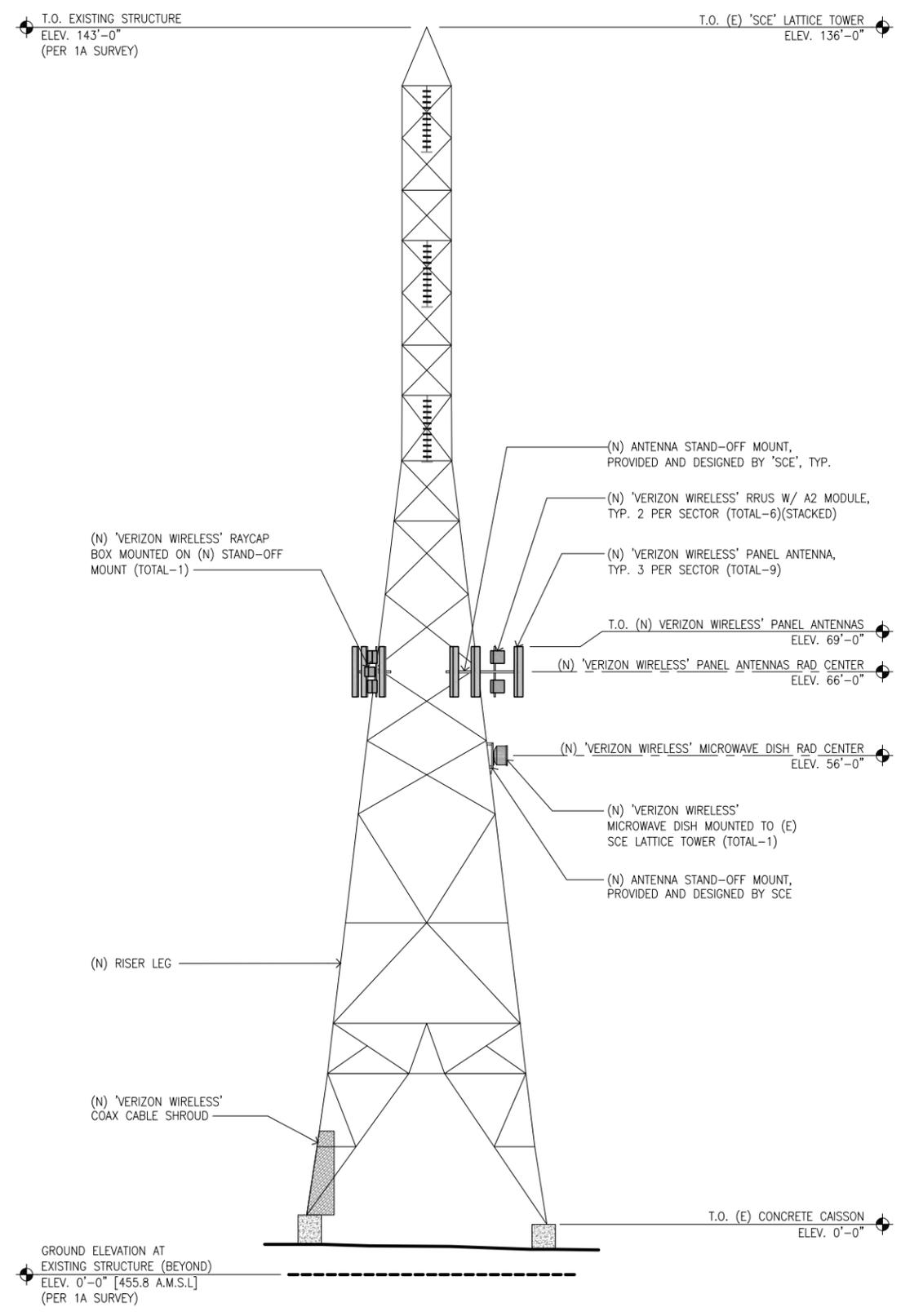
NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



NORTH EQUIPMENT ELEVATION

SCALE: 3/8"=1'-0"
0 1' 2' 4'

OVERALL HEIGHT:
143'-0" (PER 1A SURVEY)



NORTH TOWER ELEVATION

SCALE: 1/8"=1'-0"
0 2' 4' 8' 16'

ISSUE STATUS

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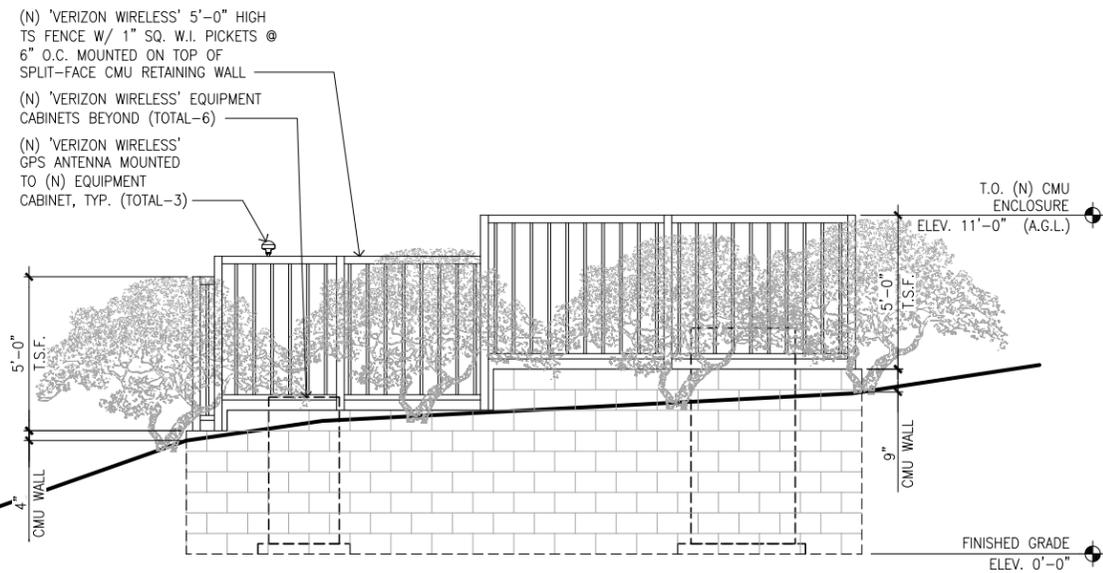
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LAGUNA HILLS, CA 92653
ORANGE COUNTY

SHEET TITLE:
NORTH ELEVATIONS

A-5

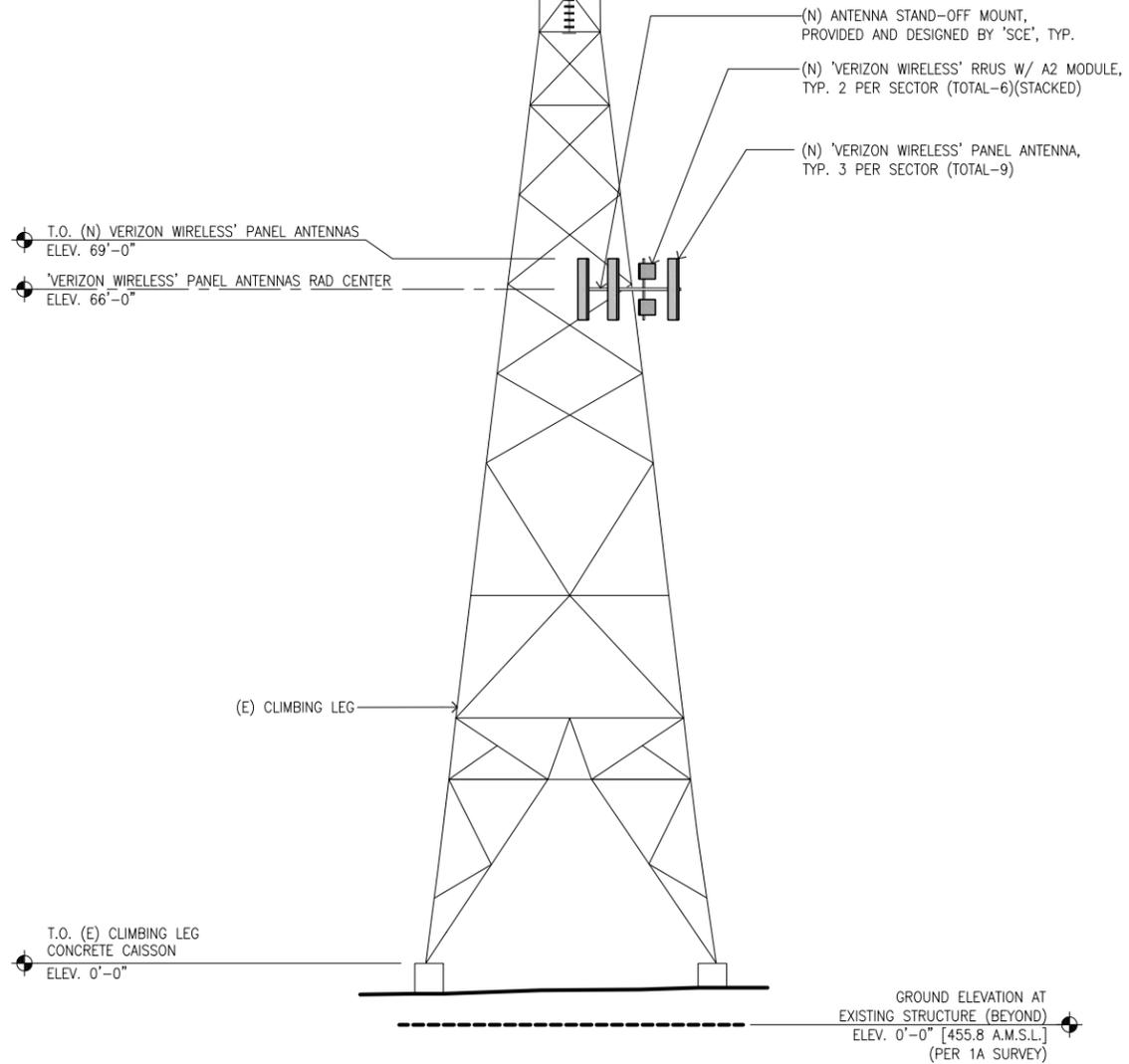
NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



OVERALL HEIGHT:
143'-0" (PER 1A SURVEY)

T.O. (E) 'SCE' LATTICE TOWER
ELEV. 136'-0"

T.O. EXISTING STRUCTURE
ELEV. 143'-0"
(PER 1A SURVEY)



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ORANGE COUNTY

SHEET TITLE:
SOUTH ELEVATIONS

A-6

SOUTH EQUIPMENT ELEVATION

SCALE
3/8"=1'-0"
0 1' 2' 4'

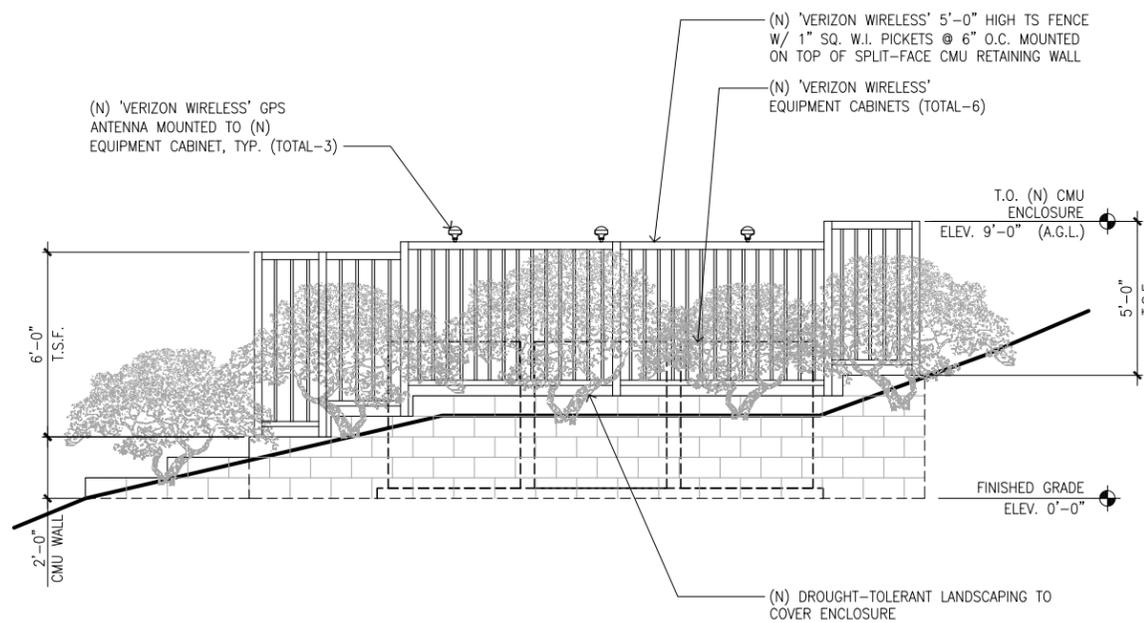
2

SOUTH TOWER ELEVATION

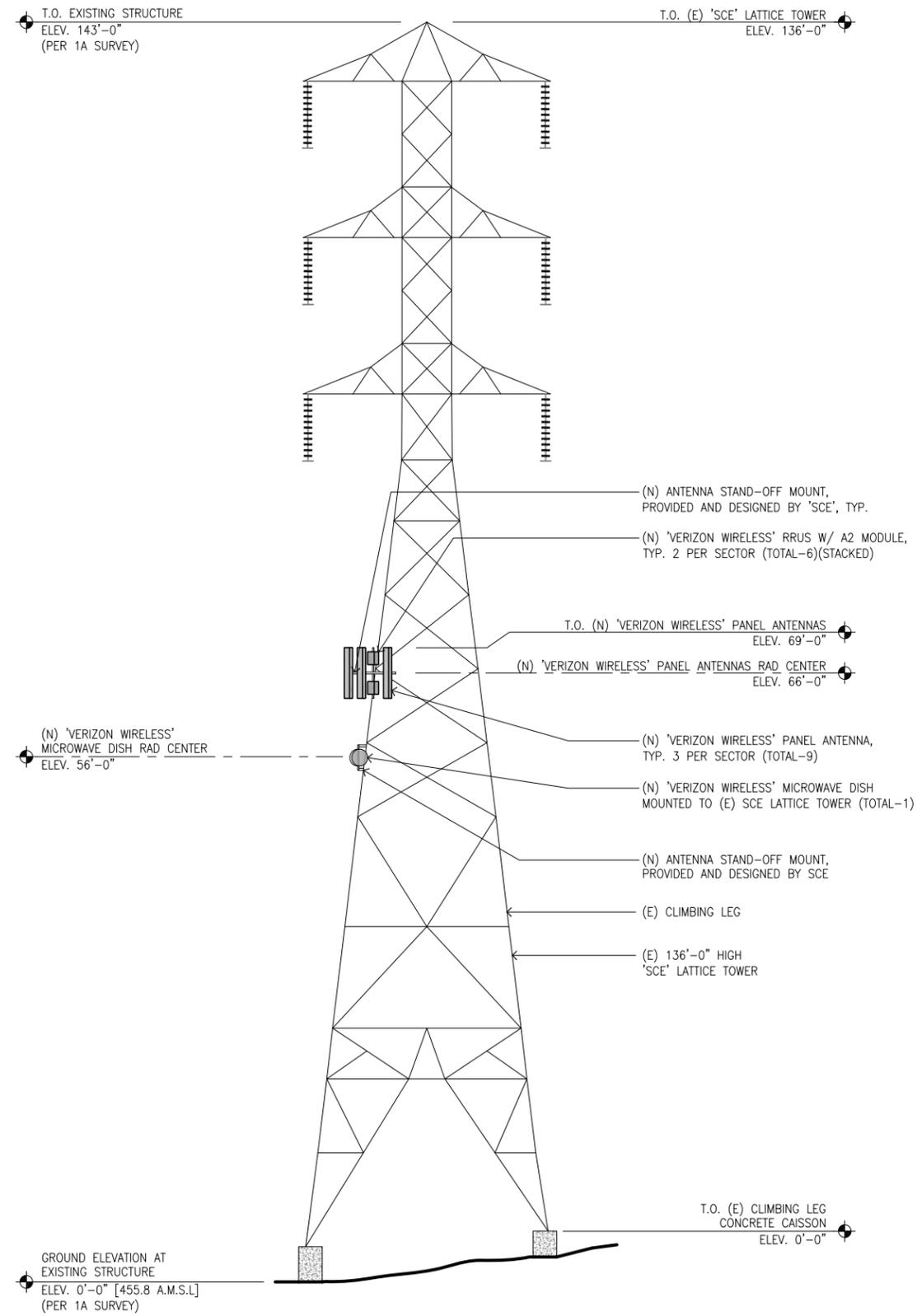
SCALE
1/8"=1'-0"
0 2' 4' 8' 16'

1

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



OVERALL HEIGHT:
143'-0" (PER 1A SURVEY)



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ORANGE COUNTY

SHEET TITLE:
WEST ELEVATIONS

A-7

WEST EQUIPMENT ELEVATION

SCALE 3/8"=1'-0" 0 1' 2' 4'

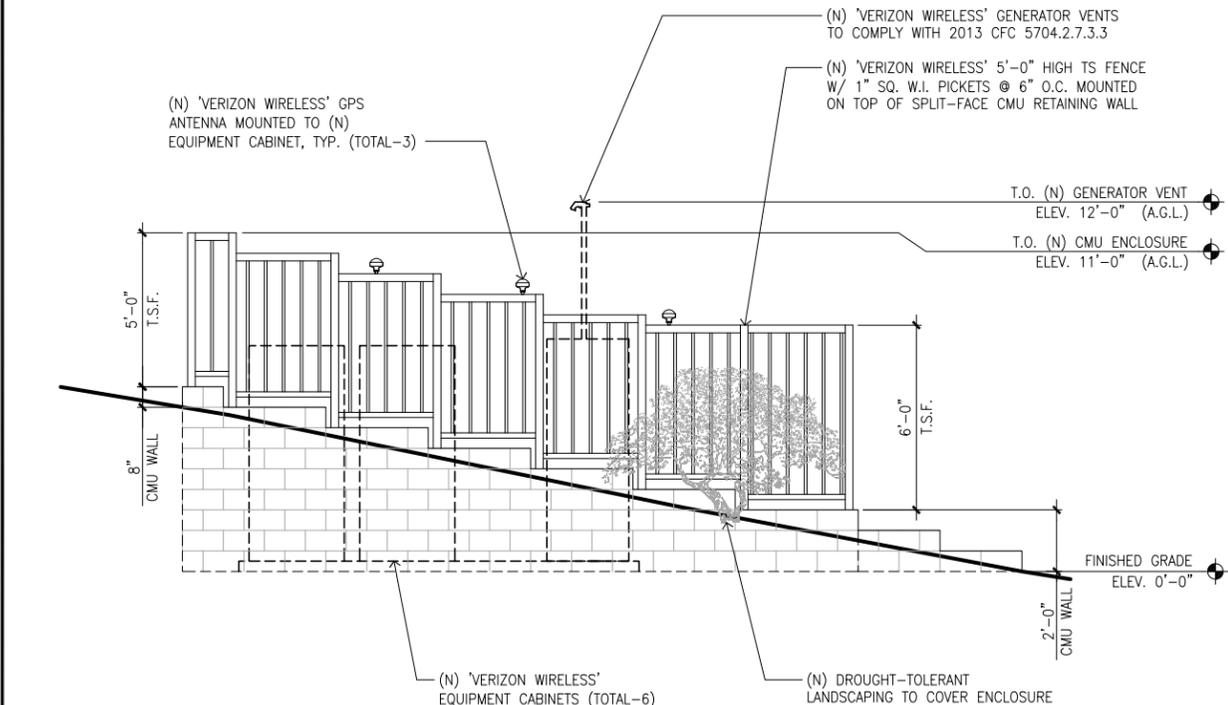
2

WEST TOWER ELEVATION

SCALE 1/8"=1'-0" 0 2' 4' 8' 16'

1

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



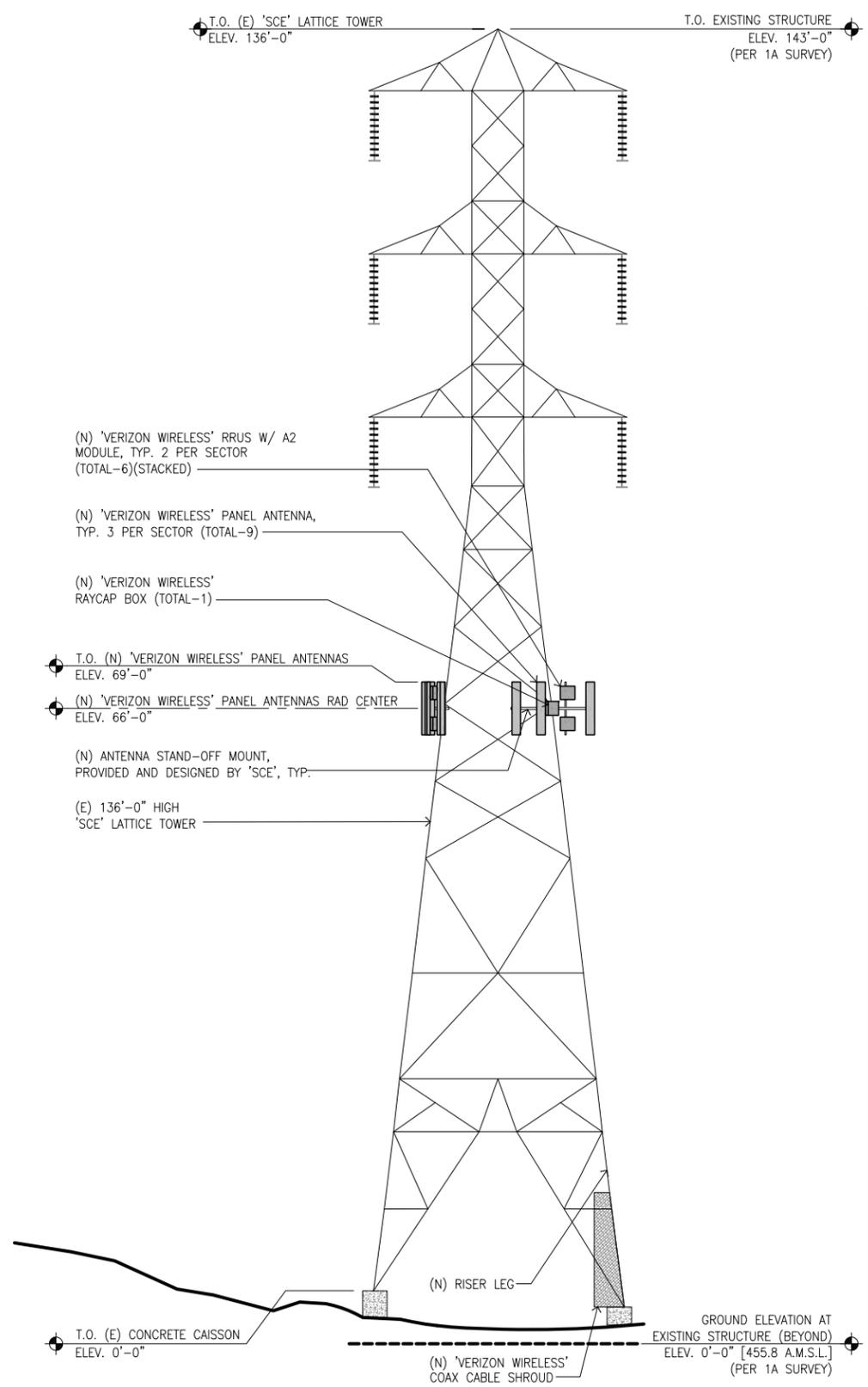
EAST EQUIPMENT ELEVATION

SCALE 3/8"=1'-0" 0 1' 2' 4'

2

EAST TOWER ELEVATION

OVERALL HEIGHT: 143'-0" (PER 1A SURVEY)



SCALE 1/8"=1'-0" 0 2' 4' 8' 16'

1

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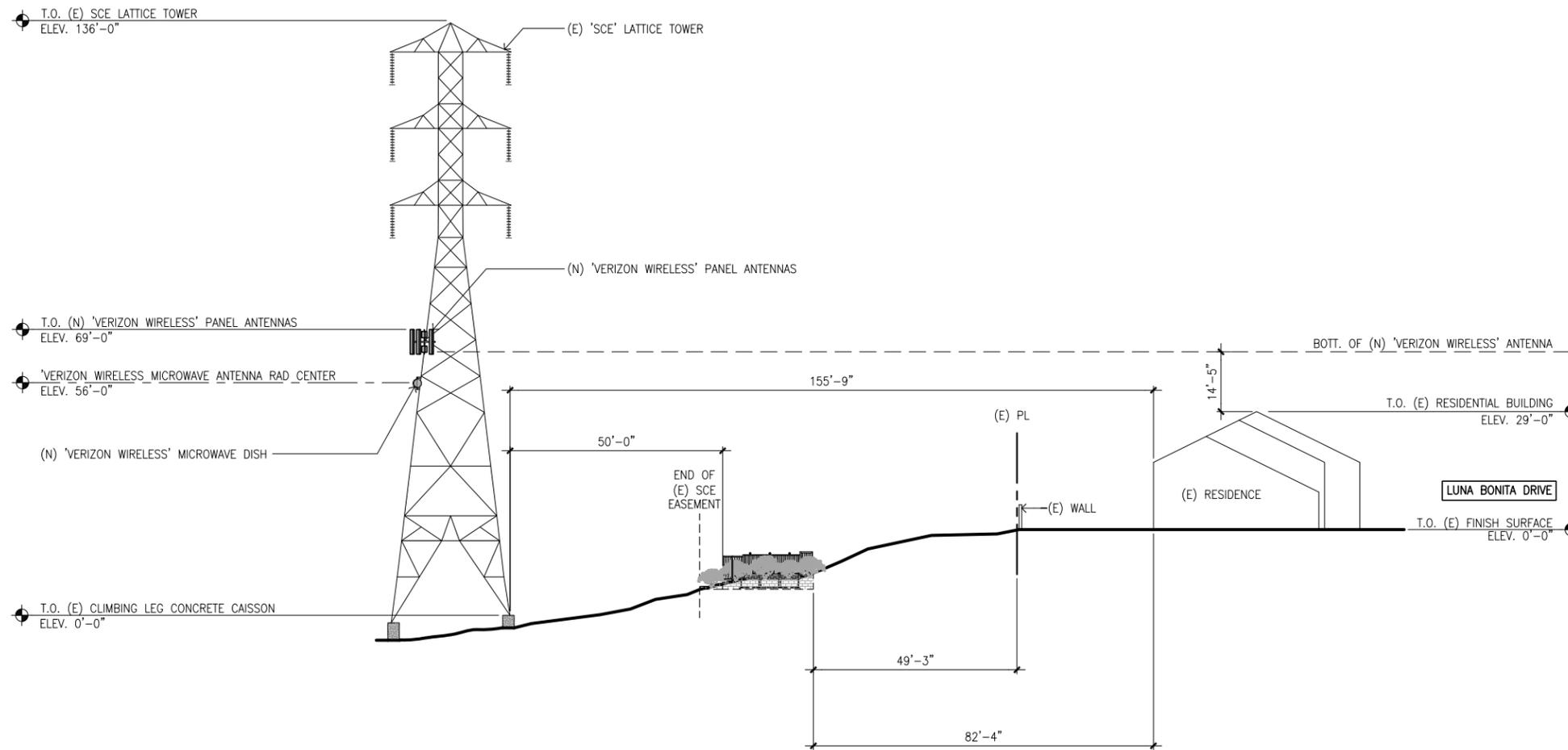
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EAST OF CONEJO PARK
LAGUNA HILLS, CA 92653

ORANGE COUNTY

SHEET TITLE:
EAST ELEVATIONS

A-8

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 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653
 ORANGE COUNTY

SHEET TITLE:
 SITE CROSS SECTION

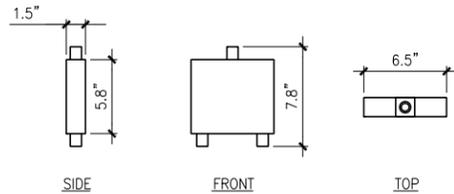
A-9

SITE CROSS SECTION - WEST ELEVATION

SCALE
 1/16"=1'-0"
 0 4' 8' 16' 32'

SPECIFICATIONS THE SHARELITE FDR6004 SERIES OF DIPLEXERS ARE DESIGNED ENABLE FEEDER SHARING BETWEEN SYSTEMS IN 698-960 MHZ RANGE AND 1710-2200 MHZ RANGE. EQUIPPED WITH IN-LINE CONNECTOR PLACEMENT.
THE SHARELITE FDR6004/1C-3L SERIES

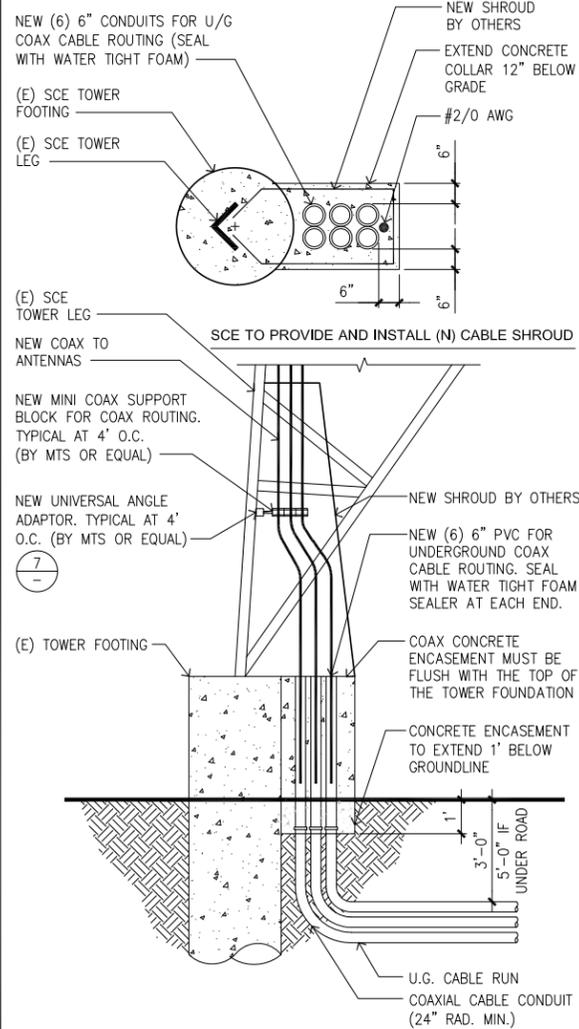
SIZE (HxWxD) 5.8" x 6.5" x 1.5"
WEIGHT 3.1 LBS
COLOR SILVER GRAY
CONNECTORS: RF 7/16 - FEMALE LONG-NECK WALL, POLE MOUNTING



WWW.RFSWORLD.COM

DIPLEXER SPECIFICATIONS

SCALE N.T.S. 8



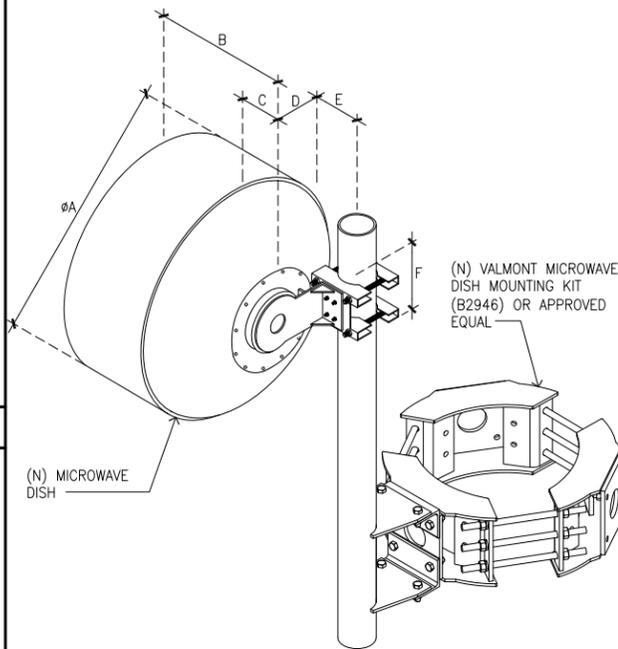
NOTE:
1. TYPICAL RISER LEG IS THE FOOTING OPPOSITE OF THE STEP LEG. CONDUITS TO BE INSTALLED INLINE WITH THE CENTER LINE OF THE TOWER LEG. MINIMUM SPACE BETWEEN CONDUITS. MAXIMUM OF SIX (6) 6" CONDUITS. MINIMUM OF 6" OF CONCRETE ENCASEMENT ON THREE SIDES OF CONDUITS.

TOWER COAX CONDUIT RISER

SCALE N.T.S. 9

TECHNICAL DATA SHEET - 2 FT. ANTENNA (UXA AND SUX)

PRIMELINE ANTENNA, ULTRA HIGH PERFORMANCE, HIGH CROSS POLAR DISCRIMINATION, DUAL POLARIZED, 2 FT.



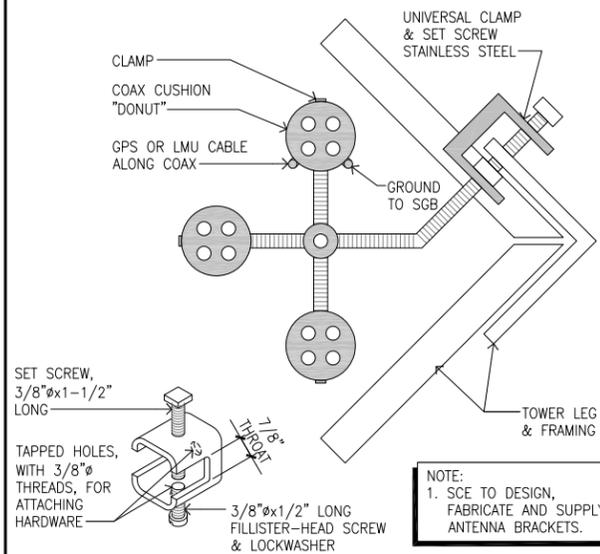
ALL DIMENSIONS IN MM (IN)

ØA	B	C	ØD FOR MOUNTING PIPE DIAMETER	E	F	
700	389	114	114	89	51	
(28)	(15.4)	(4.5)	(4.5)	(3.5)	(2.0)	
					99	146
					(3.9)	(5.7)
APPROXIMATE WEIGHT, KG (LB)					15	(33)

VALMONT MICROWAVE DISH MOUNTING KIT INCLUDES:
(1) TRI BRACKET FOR 12"-24" POLE
(1) STABILIZING ROD BRACKET
(1) 4 1/2" O.D.x3' ANTENNA MOUNTING PIPE

MICROWAVE SPECIFICATION

SCALE N.T.S. 6

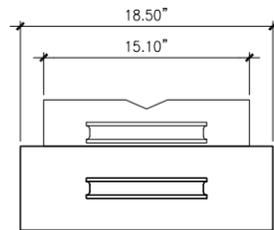


NOTE:
1. SCE TO DESIGN, FABRICATE AND SUPPLY ANTENNA BRACKETS.

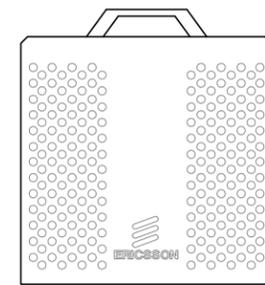
COAX MOUNTING BRACKET

SCALE N.T.S. 7

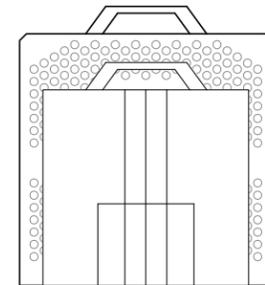
NOTE:
1. USE MANUFACTURER SUPPLIED MOUNTING HARDWARE FOR RRUS ATTACHMENT.



TOP



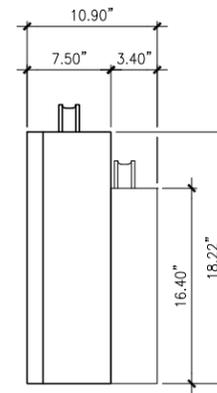
FRONT



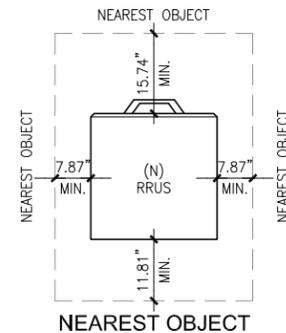
REAR

RRU SPECIFICATIONS

MANUFACTURER: ERICSSON
MODEL: RRUS W/ A2 MODULE
LENGTH: 18.22 IN
WIDTH: 18.50 IN
DEPTH: 10.90 IN
WEIGHT: 79.32 LBS



SIDE



*KEEP 40" CLEAR FROM FRONT OF RRUS

RRUS W/ A2 MODULE SPECS.

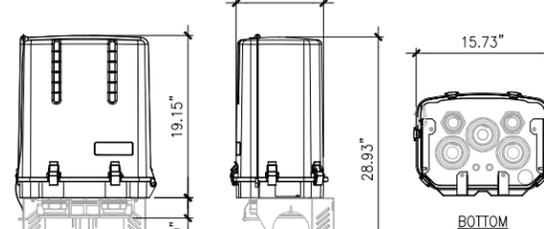
SCALE N.T.S. 4

SPECIFICATIONS DC SURGE PROTECTION FOR RRU/INTERGRATED ANTENNA RADIO HEAD TOWER/BASE/ROOFTOP/ROOFTOP DISTRIBUTION MODELS RCMDC-3315-PF-48

WEIGHT TOTAL: 32 LBS (14.51 KG)

NOTE:
1. USE MANUFACTURER SUPPLIED MOUNTING HARDWARE FOR ATTACHMENT.

PRODUCT DIAGRAM



FRONT

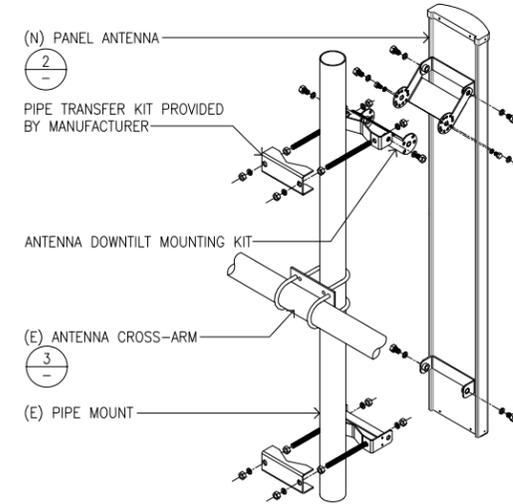
SIDE

BOTTOM

Raycap WWW.RAYCAPSURGEPROTECTION.COM

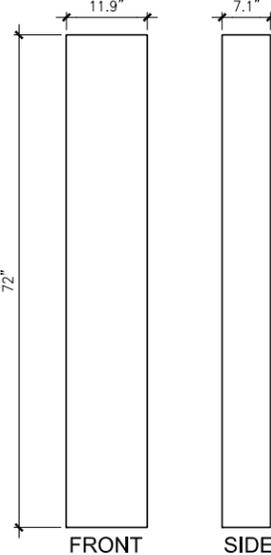
RAYCAP SPECIFICATION

SCALE N.T.S. 5



ANTENNA MOUNTING DETAIL

SCALE N.T.S. 1



FRONT

SIDE

ANTENNA SPECIFICATIONS
MANUFACTURER: COMMSCOPE
MODEL: SBNHH-1D65B
LENGTH: 72 IN
WIDTH: 11.9 IN
DEPTH: 7.1 IN
WEIGHT: 40.6 LBS

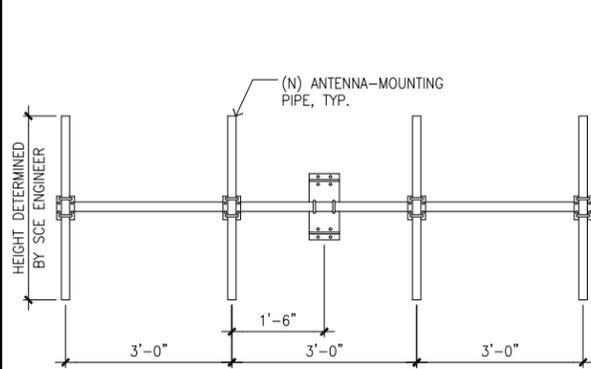


BOTTOM

TOP

ANTENNA SPECIFICATIONS

SCALE N.T.S. 2



NOTE:
1. SCE TO DESIGN, FABRICATE AND SUPPLY ANTENNA BRACKETS AS NEEDED.

ANTENNA MOUNTING

SCALE N.T.S. 3

ISSUE STATUS

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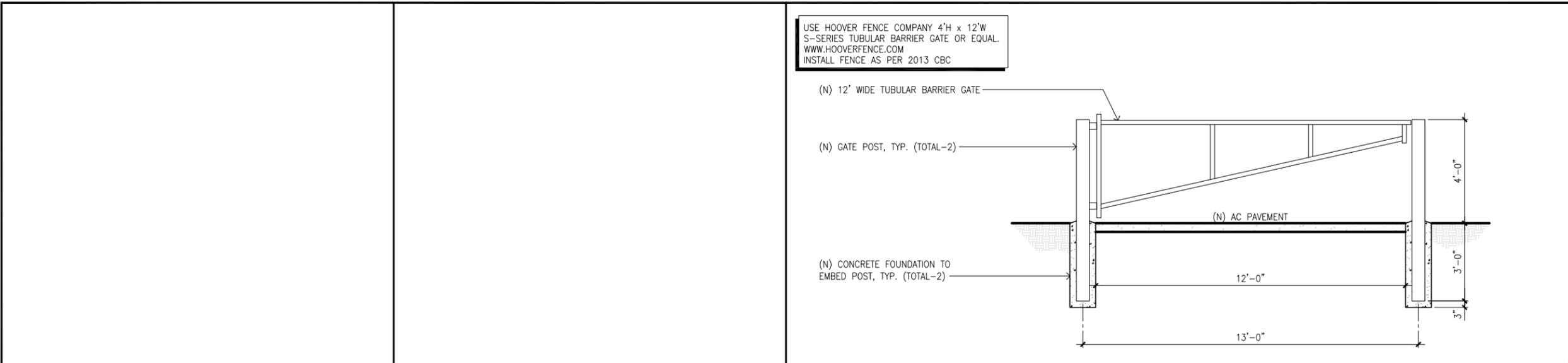
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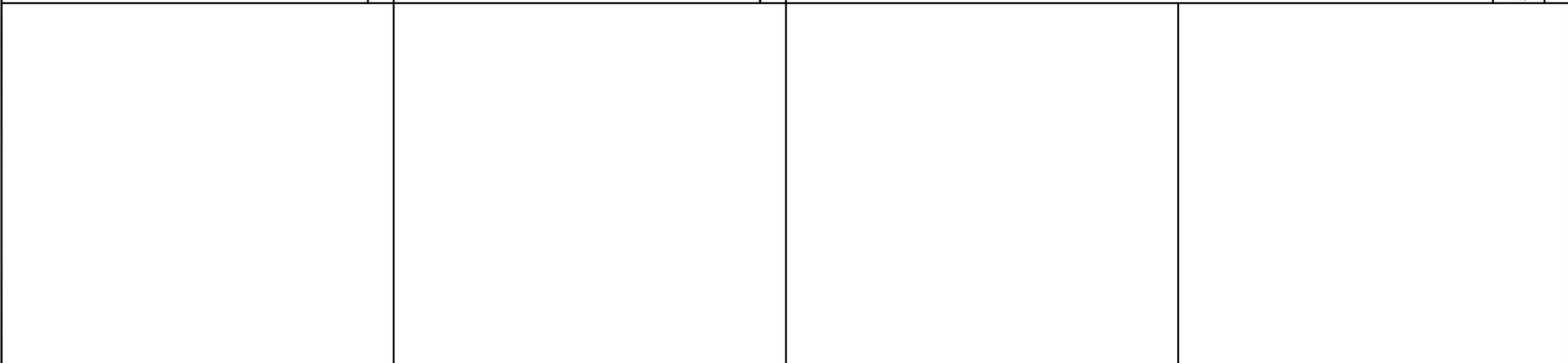
SHEET TITLE:
DETAILS

A-10

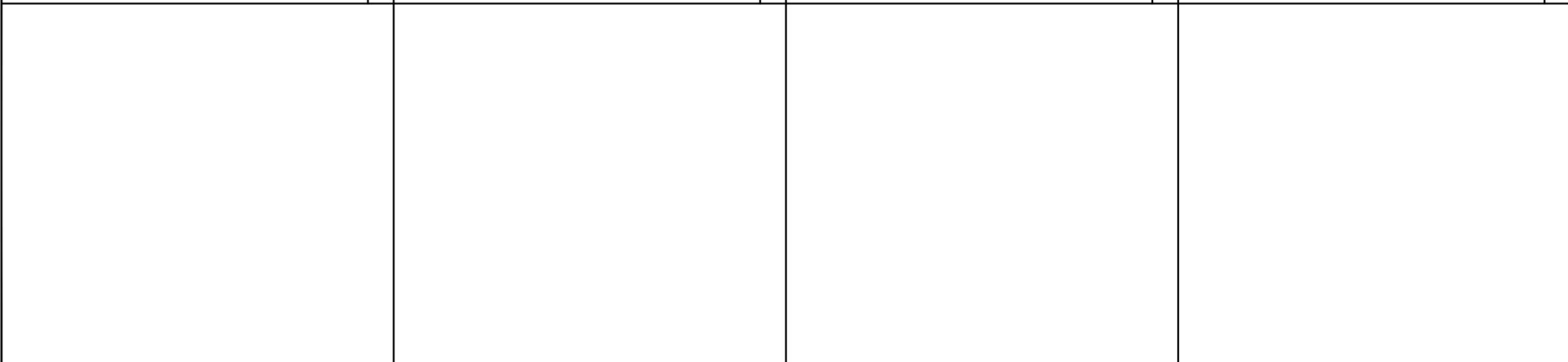
NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES



NOT USED	9	NOT USED	6	VEHICLE ACCESS GATE DETAIL	SCALE N.T.S.	1
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NOT USED	10	NOT USED	7	NOT USED	4	NOT USED	2
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NOT USED	11	NOT USED	8	NOT USED	5	NOT USED	3
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ORANGE COUNTY

SHEET TITLE:
DETAILS

A-11

GENERAL NOTES:

1. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS AND WIRE WAY SHALL BE IN ACCORDANCE WITH THE 2013 CALIFORNIA BUILDING CODE AND "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND PPIC, OR THE SUPER STRUT -SEISMIC RESTRAINT, OR THE KIN-LINE SEISMIC RESTRAINT SYSTEM.

2. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:

AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
 INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
 NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
 AMERICAN STANDARD ASSOCIATION (ASA)
 FIRE PROTECTION AGENCY (NFPA)
 AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
 CALIFORNIA ELECTRICAL CODE (CEC) - LATEST EDITION
 CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
 INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
 ALL LOCAL CODES AND ORDINANCES OF AGENCIES HAVING JURISDICTION.
 WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST STRINGENT RULE SHALL APPLY.

3. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BY SUBMITTING A BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS AND SPECIFICATIONS. HE SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM DOING THE WORK IN COMPLETE ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

5. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES.

6. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES AT THE SITE. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

7. THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE ARCHITECT, AND ALL CHANGES AS NOTED ON THE RECORD SET OF DRAWINGS SHALL BE INCORPORATED THEREON WITH BLACK INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER. FAILURE TO KEEP RECORD DRAWINGS UP-TO-DATE SHALL CONSTITUTE CAUSE FOR WITHHOLDING OF PROGRESS PAYMENTS.

8. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE OWNER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.

9. SHOP DRAWINGS SHALL BE SUBMITTED FOR ITEMS INDICATED ON PLANS. SHOP DRAWINGS SHALL INCLUDE ALL DATA WITH CAPACITIES, SIZES, DIMENSIONS, CATALOG NUMBERS AND MANUFACTURER'S BROCHURES.

10. AFTER ALL REQUIREMENTS OF THE SPECIFICATIONS AND/OR THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

11. THE CONTRACTOR SHALL FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF SUBSTANTIAL COMPLETION.

12. ALL EQUIPMENT MOUNTED ON ROOF FOR CONNECTION TO PCS EQUIPMENT SHALL BE MOUNTED ON UNISTRUT STANDS UTILIZING APPROVED PITCH POCKETS, FLASHING, ETC.

13. ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.

14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS. REVIEW THE DRAWINGS OF OTHER TRADES AND LOCATION OF EQUIPMENT.

15. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE WALLS OR FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF EXISTING WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE U.L. APPROVED. DO NOT CUT OR BREAK ANY EXISTING REINFORCING BARS IN EXISTING CONCRETE OR MASONRY. IF IN DOUBT REGARDING LOCATION OF REINFORCING, THEN CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL UTILIZE X-RAY, ULTRA-SOUND, OR OTHER AVAILABLE TECHNOLOGY TO LOCATE EXISTING REINFORCEMENTS PRIOR TO DRILLING OR CORING OPERATIONS.

16. CONNECTIONS TO VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS: LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS. LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS. PROVIDE A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR IN FLEXIBLE CONDUIT RUNS. MAXIMUM LENGTH SHALL BE SIX FEET UNLESS OTHERWISE NOTED.

17. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAWCUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO PERFORM HIS WORK. ATTENTION IS CALLED TO THE FACT THAT THERE ARE EXISTING UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN TRENCHING FOR HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED BY HIM OR HIS WORK.

19. WHENEVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIALS), ARISES ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ARCHITECT/ENGINEER.

20. UTILITY PENETRATIONS, OF ANY KIND, IN FIRE AND SMOKE PARTITIONS, NON-RATED CEILINGS, AND/OR NON-RATED WALLS, SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL SECURELY INSTALLED.

21. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT HAND HOLES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. HAND HOLES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

22. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET OR JUNCTION BOXES SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 370-6.

23. IDENTIFICATION NAMEPLATES SHALL BE MICARTA 1/8 INCH THICK AND OF APPROVED SIZE WITH BEVELED EDGES AND ENGRAVED WHITE LETTERS A MINIMUM OF 1/4 INCH HIGH ON BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED FOR ALL CIRCUITS IN THE SERVICE DISTRIBUTION AND POWER DISTRIBUTION SWITCHBOARDS OR PANELBOARDS, DISCONNECTING SWITCHES, TRANSFORMERS, TERMINAL CABINETS, TELEPHONE CABINETS, ETC. ALL NAMEPLATES SHALL BE ATTACHED WITH SCREWS, HAND HOLES, JUNCTION BOXES, AND DEVICE BOXES SHALL BE MARKED WITH A PERMANENT MARKER.

24. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE DETAILS, OR SECTIONS PRIOR TO INSTALLATION.

25. DRAWINGS ARE DIAGRAMMATIC ONLY. ROUTING OF CONDUITS, RACEWAYS, CABLE TRAYS, AND/OR LADDER RACKS SHALL BE AT THE DISCRETION OF THE CONTRACTOR UNLESS OTHERWISE NOTED AND SHALL BE COORDINATED WITH OTHER SECTIONS. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CML. OR MECHANICAL ITEMS OR FEATURES.

26. SPECIAL RECEPTACLE FOR CONNECTION TO PORTABLE EMERGENCY GENERATOR WHEN SPECIFIED SHALL BE 200 AMPERE, THREE-WIRE, THREE-POLE, REVERSE SERVICE, PIN AND SLEEVE TYPE WITH MOUNTING BOX. VERIFY TYPE OF EMERGENCY GENERATOR CONNECTION WITH CONSTRUCTION MANAGER.

27. RIGID GALVANIZED STEEL CONDUIT SHALL BE FULL WEIGHT THREADED TYPE. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN WALLS OR CEILING SPACES WHERE NOT SUBJECT TO MECHANICAL DAMAGE. PVC SCHEDULE 40 MAY BE INSTALLED BENEATH SLAB OR BELOW GRADE. FLEXIBLE STEEL CONDUIT MAY BE USED AT OUTLET CONNECTIONS WITH NO RUNS LONGER THAN SIX FEET. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL CONDUITS.

28. RIGID GALVANIZED STEEL CONDUIT FITTINGS SHALL BE THREADED AND THOROUGHLY GALVANIZED. ELECTRICAL METALLIC TUBING (EMT) CONDUIT FITTINGS SHALL BE STEEL, RAIN-TIGHT THREADLESS COMPRESSION TYPE. DIE CAST, SET SCREW, OR INDENTER TYPES ARE NOT ACCEPTABLE. FLEXIBLE STEEL CONDUIT FITTINGS SHALL BE MALLEABLE IRON CLAMP, SQUEEZE TYPE OR STEEL TWIST-IN TYPE WITH INSULATED THROAT. SET SCREW TYPE IS NOT ACCEPTABLE.

29. ALL CONDUCTORS SHALL BE COPPER #10 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND U.L. LISTED UNLESS NOTED OTHERWISE. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.

30. JUNCTION AND HAND HOLES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS. FOR OUTSIDE, DAMP, OR SURFACE LOCATIONS, BOXES SHALL BE HEAVY CAST ALUMINUM OR CAST IRON WITH REMOVABLE, GASKET, NON-FERROUS MACHINE SCREW SECURED COVERS. BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUIT ENTERING THE BOX AND EQUIPPED WITH PLASTER EXTENSION RINGS WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

31. ALL OUTDOOR ELECTRICAL DEVICES OR EQUIPMENT SHALL BE OF WEATHERPROOF TYPE.

32. ALL CONNECTIONS TO GROUND BUSES SHALL BE MADE W/CRIMP TYPE COMPRESSION CONNECTORS (2 HOLE LUGS). BUSS SHALL BE DRILLED TO ACCOMMODATE ALL CONNECTORS.

GROUNDING NOTES:

1. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

2. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.

3. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE TIN COATED OR GREEN INSULATED WIRE.

4. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE TO A RANGE OF 5 TO 10 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE GROUND CONDUCTOR FROM THE ANTENNA TO GROUNDING POINT. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE WIRELESS CARRIER REPRESENTATIVE.

5. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

6. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.

7. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 30" BELOW GRADE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.

8. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

9. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" WITH A MINIMUM NO. 6 TINNED COPPER CONDUCTOR AND (2) 2-HOLE COMPRESSION CONNECTOR AT BUS.

10. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
 a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS (MECHANICAL CONNECTIONS).
 b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
 c. TWO -(2) HOLE TINNED COPPER COMPRESSION FITTINGS (BUS BAR CONNECTIONS).

11. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP.

12. ALL GROUND CONNECTIONS SHALL BE BURNISHED AND SHALL HAVE A COATING OF "KOPR-SHIELD" OR "NO-OX-ID" APPLIED TO THE CONNECTION.

13. ALL CONNECTION HARDWARE AT EQUIPMENT SHALL BE TYPE 316 SS, OR DURIEM BRONZE. "KOPR-SHIELD" OR "NO-OX-ID" APPLIED TO THE CONNECTION.

14. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.

15. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER PIPE WITHIN FIVE FEET OF WATER SERVICE IF APPLICABLE.

ABBREVIATIONS:

AWG	AMERICAN WIRE GAUGE	(N)	NEW
AFC	AVAILABLE FAULT CURRENT	Ø	PHASE
BTCW	BARE TINNED COPPER WIRE	P	POLE
BTS	BASE TRANSMISSION SYSTEM	P.O.C.	POINT OF CONNECTION
C	CONDUIT	PVC	POLYVINYL CHLORIDE CONDUIT
CB	CIRCUIT BREAKER	(R)	REPLACE OR REWIRE WITH AS (E)
CO	CONDUIT ONLY	RGS	RIGID GALVANIZED STEEL
DWG	DRAWING	TEL	TELEPHONE
EMT	ELECTRICAL METALLIC TUBING	TEL	TELEPHONE
(E)	EXISTING EQUIPMENT	TYP.	TYPICAL
(F)	FUTURE EQUIPMENT	U.G.	UNDERGROUND
GEN	GENERATOR	UNO	UNLESS NOTED OTHERWISE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	W	WIRE
GND	GROUND	WP	WEATHERPROOF EQUIPMENT
KAIC	THOUSAND AMPS INTERRUPTING CAPACITY		
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		

ABBREVIATIONS

1

SYMBOLS:

	GROUNDING WIRE, DASHED LINE INDICATES UNDERGROUND
	POWER LINE, DASHED INDICATES UNDERGROUND, 3/4" C-2#12&1#12GND, UNO
	TELEPHONE LINE, DASHED LINE INDICATES UNDERGROUND
	COAXIAL CABLE, DASHED LINE INDICATES UNDERGROUND
	DETAIL REFERENCE DETAIL NO. X ON SHEET X-X
	GROUND ROD
	GROUND ROD WITH ACCESS
	FUSED DISCONNECT SWITCH, 240V, 2P, 30A, WEATHERPROOF, UNO
	UTILITY METER
	CIRCUIT BREAKER
	FUSE
	DUPLEX RECEPTACLE WITH GFCI IN WEATHERPROOF ENCLOSURE
	SWITCH, 120AC, 20A ob - SWITCH LEG M - MANUAL MOTOR STARTER
	CLAMP OR DOUBLE HOLE LUG TYPE GROUND CONNECTION
	EXOTHERMIC CONNECTION (CADWELD) TO GROUND RING AND COMPRESSION CONNECTION TO GROUND HALO

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LUNA BONITA

SAN ONOFRE/SANTIAGO #2
 M19-T3 220KV BUILT 1968
 EAST OF CONEJO PARK
 LAGUNA HILLS, CA 92653

ORANGE COUNTY

SHEET TITLE:
ELECTRICAL NOTES AND SPECIFICATIONS

E-1

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES

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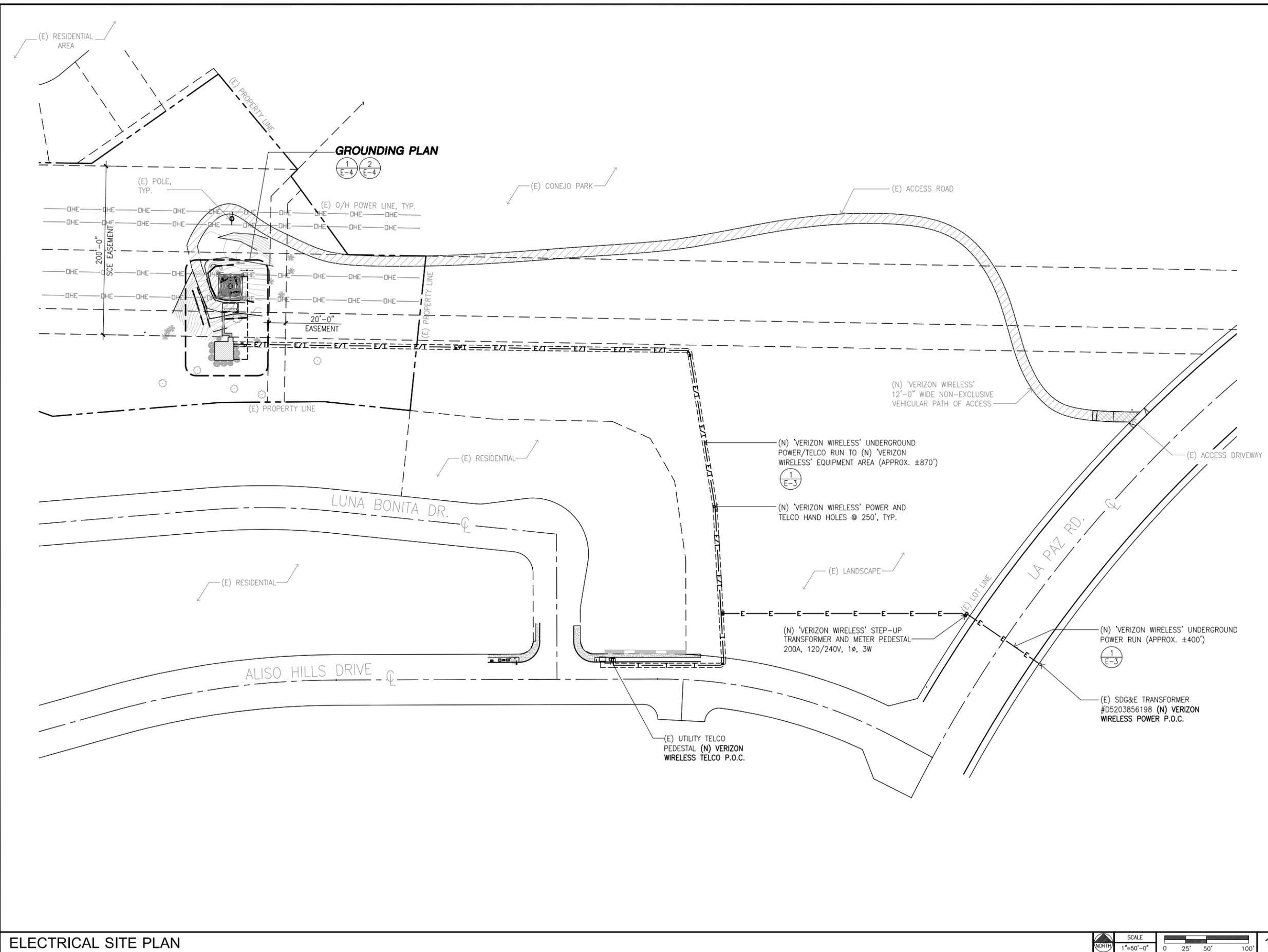
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SHEET TITLE:
ELECTRICAL SITE PLAN

E-2

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ELECTRICAL SITE PLAN

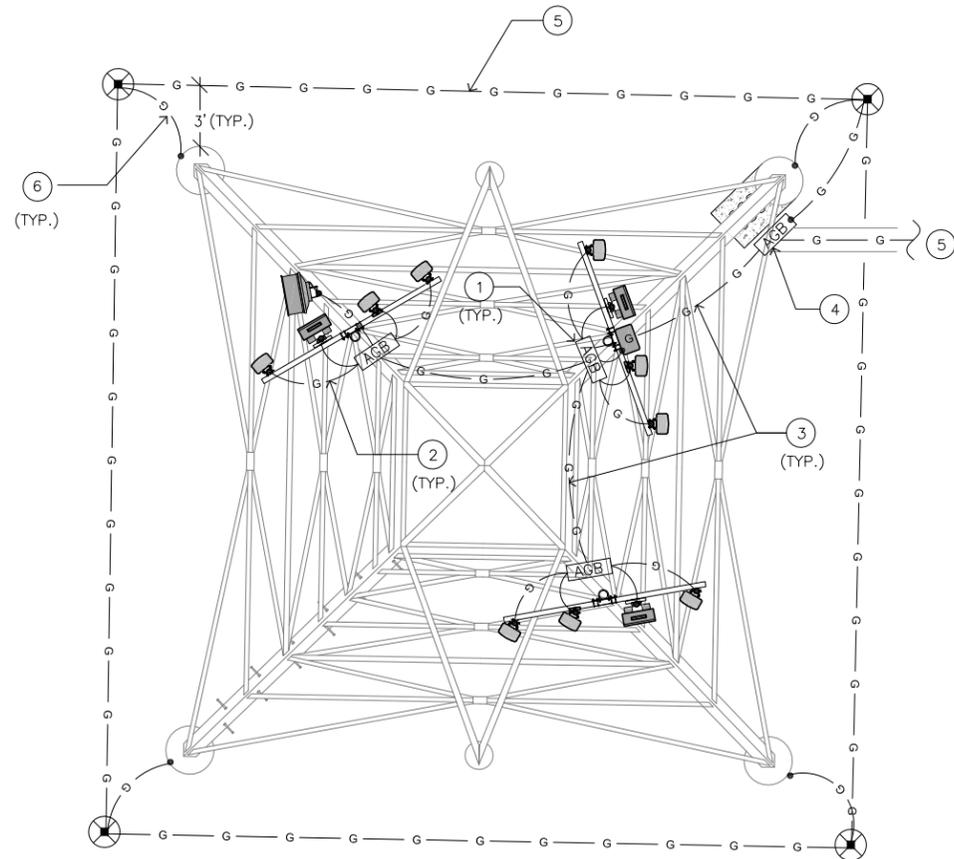


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NEW GROUNDING KEY NOTES:

- ① ANTENNA GROUND BAR AT EACH SECTOR AND CONNECT TO LOWER ANTENNA GROUND BAR
- ② "ERICO" WIRE PART NO. CC5A05 TO ANTENNAS AND RRUS
- ③ "ERICO" WIRE PART NO. CC5A20
- ④ LOWER ANTENNA GROUND BAR AT BOTTOM OF TOWER WITH MECHANICAL CONNECTION ONLY TO SCE TOWER.
- ⑤ #2/0 AWG BARE TINNED CU TO MASTER GROUND BAR AT EQUIPMENT AREA.
- ⑥ #2/0 BARE CU TO TOWER LEG

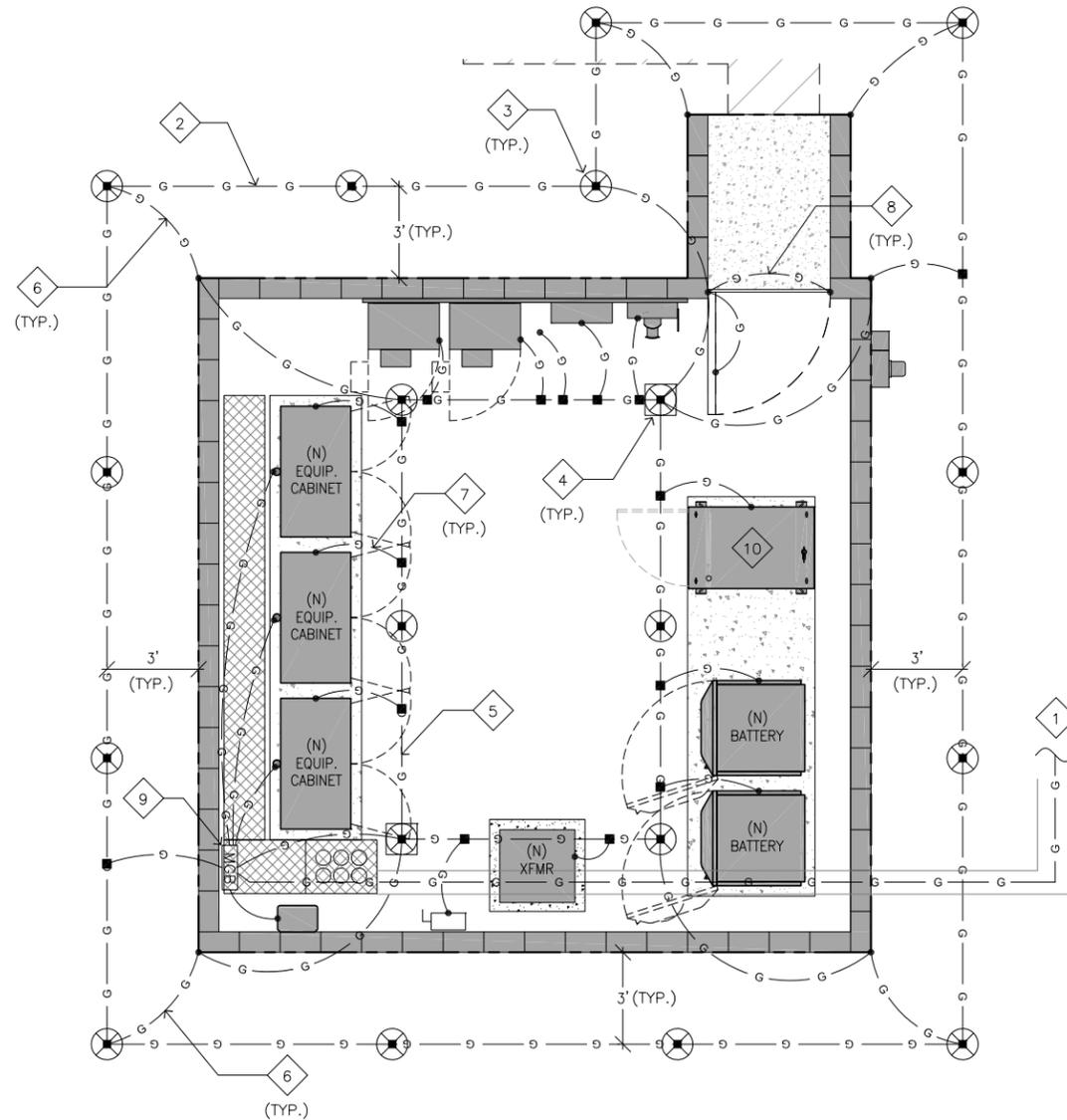
ANTENNA GROUNDING NOTE:
PROVIDE "ERICO" THEFT DETERRENT COMPOSITE CABLE FOR ALL GROUNDING WIRE ABOVE GRADE.



GROUNDING KEY NOTES:

- ① #2/0 AWG BARE TINNED CU, TO ANTENNA GROUND BAR AT BOTTOM OF TOWER.
- ② #2/0 AWG BARE TINNED CU, LOCATED 3' OUTSIDE CMU WALL.
- ③ 5/8" X 10'-0" GROUND ROD.
- ④ 5/8" X 10'-0" GROUND ROD W/ INSPECTION SLEEVE.
- ⑤ #2 BARE TINNED GROUND RING.
- ⑥ #2/0 BARE CU TO EACH GATE POST, FENCE CORNER POST
- ⑦ #2 AWG BARE TINNED CU TO EQUIPMENT.
- ⑧ #2 AWG BARE TINNED CU GATE GROUNDING.
- ⑨ MASTER GROUND BAR FOR CABLE ENTRY AND CONNECT TO GROUNDING RING.
- ⑩ 10KW DC STAND-BY GENERATOR (FUTURE).

EQUIPMENT AREA GROUNDING NOTE:
FOR EQUIPMENT GROUND WIRE LOCATED ABOVE GROUND LEVEL, USE "ERICO" THEFT DETERRENT COMPOSITE CABLE PART NO. CC5A20.



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ANTENNA GROUNDING PLAN



2 EQUIPMENT GROUNDING PLAN



1

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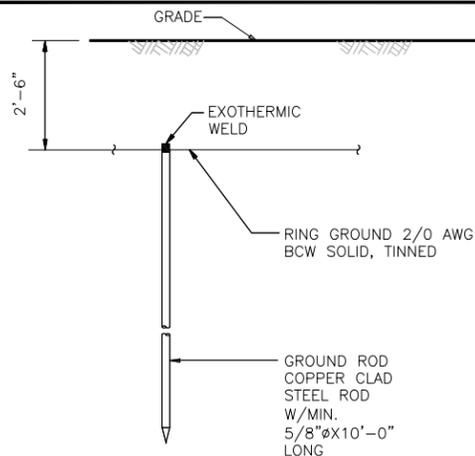
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SHEET TITLE:

GROUNDING PLANS

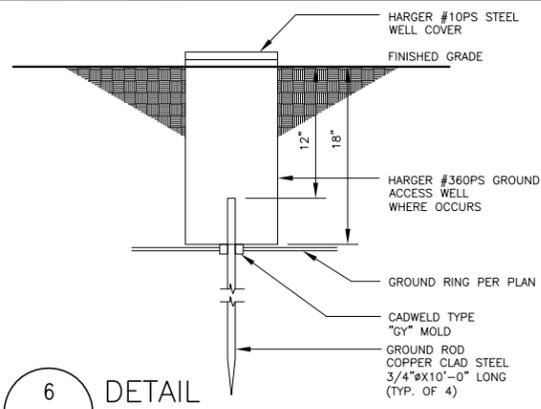
E-4

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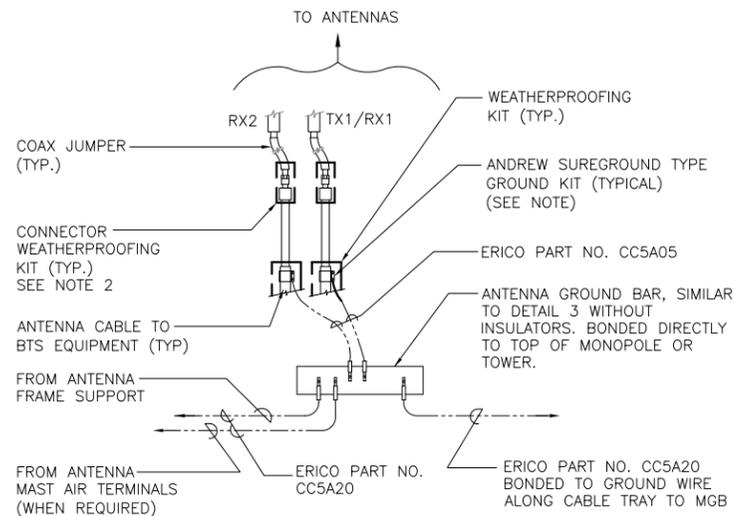
GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.

5 DETAIL
E5 SCALE: N.T.S.



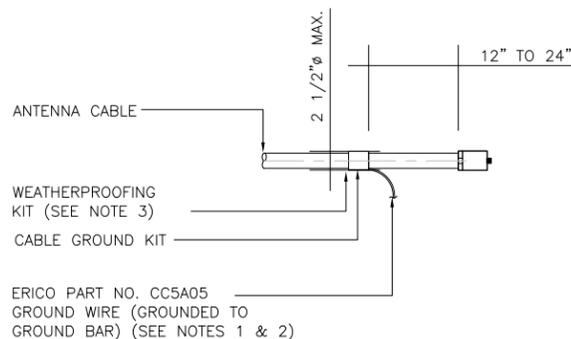
6 DETAIL
E5 SCALE: N.T.S.

- NOTES:
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 - WEATHER PROOFING SHALL BE ANDREW TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.
 - PROVIDE "ERICO" THEFT DETERRENT COMPOSITE CABLE FOR ALL ANTENNA GROUNDING.



CONNECTION OF GROUND WIRE TO GROUNDING BAR, ROOFTOP

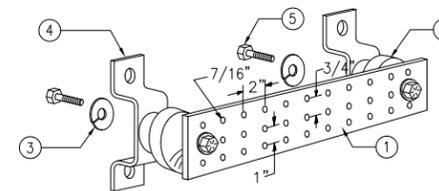
3 DETAIL
E5 SCALE: N.T.S.



CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

- NOTES:
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 - GROUNDING KIT SHALL BE ANDREW SUREGROUND TYPE KIT WITH TWO-HOLE LUG.
 - WEATHER PROOFING SHALL BE ANDREW TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

4 DETAIL
E5 SCALE: N.T.S.

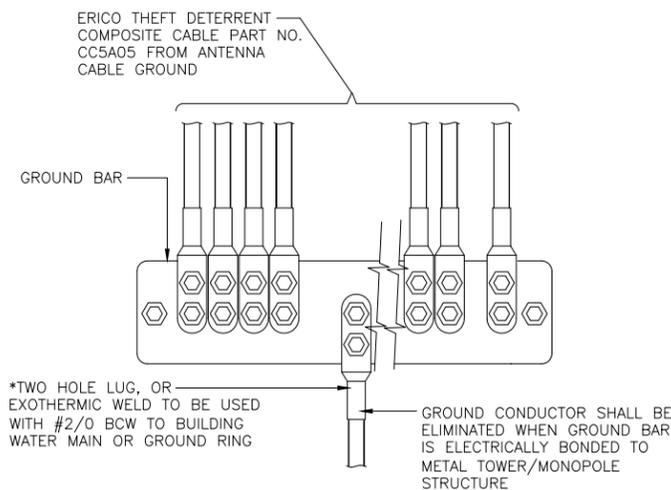


LEGEND

- GALVANIZED STEEL GROUND BAR, 1/4" X 4" X 20", ERICO PART. NO. TELVZGWGSMGB OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUAL
- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR EQUAL
- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1 OR EQUAL
- INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO TOWER/MONOPOLE STRUCTURE. CONNECTION TO TOWER/MONOPOLE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

GROUND BAR DETAIL

1 DETAIL
E5 SCALE: N.T.S.



INSTALLATION OF GROUND WIRE TO GROUND BAR

2 DETAIL
E5 SCALE: N.T.S.

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LUNA BONITA
SAN ONOFRE/SANTIAGO #2
M19-T3 220KV BUILT 1968
EAST OF CONEJO PARK
LAGUNA HILLS, CA 92653
ORANGE COUNTY

SHEET TITLE:
ELECTRICAL DETAILS

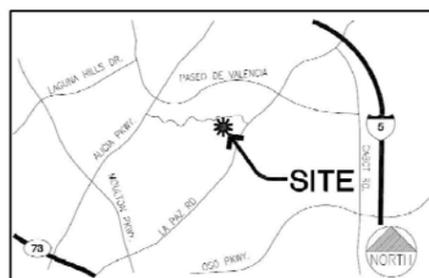
E-5



Introduction

This is a GPR (Ground Potential Rise) analysis report for the VZW Luna Bonita site, which has been proposed to be constructed at a Southern California Edison HV Transmission Line, located near La Paz Rd. in Laguna Hills, CA. The purpose of this analysis is to provide engineering data for VZW and Telco's use to determine telecom design considerations in the event of a potential ground fault and associated GPR at the HV site.

If any questions on this report contact Stephanie O'Raidy, Power QC, 310-722-1602.



GPR and Safety

GPR is a phenomenon where a significant flow of electrical current travels into the earth and raises the voltage potential in the earth in the vicinity of the soil entry point, thereby known as ground potential rise. This is a consideration for telecommunications equipment which is located at or near this location, typically at high voltage towers or substations, which are possible sources of high energy ground faults. The telecommunications provider uses data provided by GPR calculations to determine if any special protection is required for its equipment such as optic or fiberlink devices.

Data Used

- With this analysis the following information and resources were utilized:
- General Site Information provided by VZW
- Power & Fault Data provided by SCE
- On site Soil Resistivity Testing completed by Power QC
- Grounding System Calculations completed by Power QC
- Ground Potential Rise Analysis completed by Power QC

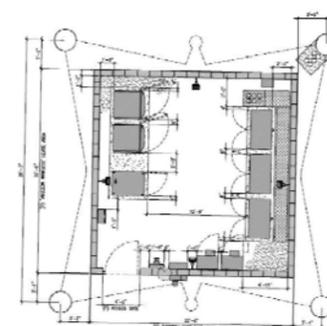


Site Information

The VZW equipment has been proposed to be installed at the SCE HV transmission tower M19-T3, which carries the 220KV San Onofre-Santiago Line. The site equipment will be located underneath the HV tower with the antennas mounting to the structure. The HV line does have a continuous OHCW.

In the event of a Primary ground fault at this SCE HV tower, a ground potential rise will occur on and around the HV tower, which could potentially affect the safety and operation of the proposed telecommunications site. The summary data on the following page includes the data necessary for Telco to evaluate and design protection measures for this site.

Plan View (courtesy VZW)



GPR Analysis

In order to compute the GPR calculations, the maximum potential fault current at the HV tower M19-T3, soil analysis, and the grounding system configuration were utilized. The maximum potential fault current to ground was determined to be 10,625 Amps, based on the Line information provided by SCE. The grounding system resistance for the combined HV tower & cell site ground was calculated to be 0.12, based on the soil data, site grounding, and assumed tower footing configuration. See Fig. 1.

Utilizing the maximum potential fault current, and the calculated resistance of the HV tower grounding system, the maximum GPR for the HV tower was calculated to be 5,359 volts. The 300 Volt GPR level was calculated to be approximately 65 feet from the base of the SCE HV transmission tower. See Fig. 2.

Table with 2 columns: Parameter and Value. Includes: Calculated GPR Data for M19-T3 at Luna Bonita Site, Maximum Expected Fault Current: 10,625 A, HV tower Calculated Resistance: 0.12 Ohm, Fault Current into HV tower ground: 6,781 A, Ground Potential Rise, max: 5,359 V, 300 Volt GPR Calculated Distance: ~65 feet, Sq. Ft. area: 784 ft^2, X/R: 7.7

Attachments

- SCE Data
- Soil Resistivity Data
- Site Grounding Model
- GPR voltage/distance graph (300V)
- Software calculation data



SCE Transmission Tower Data

From: Protection Engineering
Subject: Fault Data for Verizon Luna Bonita
SAF#: 901218370

Per your request, below are the phase-to-ground fault current contributed by each terminal, the total phase to ground fault current, all in amperes, positive and zero sequence impedance and fault clearing times for a fault at the tower location indicated.

San Onofre-Santiago #1 220KV TL: Fault at tower M19-T3 which is located 19.7 miles or 69.5% of the line from the San Onofre substation.

Phase-to-ground fault current = 10625 amps

San Onofre Contribution = 3125 amps

Santiago Contribution = 7500 amps

Impedance Z1 = 0.00094 + j0.01524 per-unit (100 MVA base)

Impedance Z0 = 0.00727 + j0.03988 per-unit (100 MVA base)

Fault Clearing Time = 3 to 5 cycles

San Onofre-Santiago #2 220KV TL: Fault at tower M19-T3 which is located 19.7 miles or 69.5% of the line from the San Onofre substation.

Phase-to-ground fault current = 10615 amps

San Onofre Contribution = 3301 amps

Santiago Contribution = 7323 amps

Impedance Z1 = 0.00094 + j0.01524 per-unit (100 MVA base)

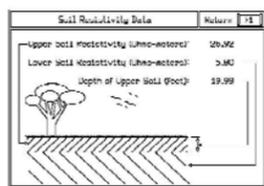
Impedance Z0 = 0.00728 + j0.03988 per-unit (100 MVA base)

Fault Clearing Time = 3 to 5 cycles



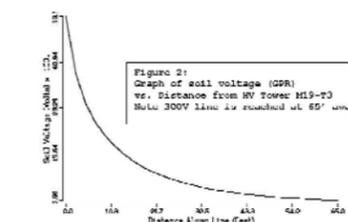
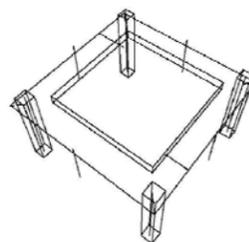
Soil Resistivity Data

Table with 3 columns: Equivalent Depth Tested, Raw Data, Soil Resistivity. Includes a sub-table for SOIL RESISTIVITY TEST DATA with fields for CLIENT, PROJECT, TEST LOCATION, TEST METHOD, TEST, and COMMENTS.



Figures

Figure 1: Site Ground Modeled



VZW site Luna Bonita GPR Analysis M19-T3

System Conditions:
Line-to-Line to Ground Fault at Bus: TOWER

Report for Protected Phase A
Fault Current (Amps, DC) 10624.071 106.249

Line-to-Line to Line to Line Transmission Tower 9900V
Computations at frequency: 60.00

Table with 4 columns: Mode, Magnitude (kV), Phase (deg), Magnitude (kV), Phase (deg). Includes rows for VOLTAGE, CURRENT, and POWER.

ISSUE STATUS table with columns: REV., DATE, DESCRIPTION, BY. Includes revisions A through E.

core DEVELOPMENT SERVICES & E SERVICES. 3350 E. Birch Street #250, Brea, California 92821. (714)729-8404 (714)333-4441 fax. www.core.us.com

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SHEET TITLE:
GPR ANALYSIS

E-6

NOTE: THE ORIGINAL SIZE OF THIS PLAN IS 24" X 36". SCALE RATIO IS NOT VALID FOR REDUCED OR ENLARGED SHEET SIZES.

