



Development Review Committee

1020 East Pioneer Road
Draper, Utah 84020

STAFF REPORT

April 28, 2022

To: Jennifer Jastremsky, Zoning Administrator

Jennifer Jastremsky

Digitally signed by Jennifer Jastremsky
DN: C=US,
E=jennifer.jastremsky@draperutah.gov,
O=Planning Division, OU=Draper City,
CN=Jennifer Jastremsky
Date: 2022.05.09 19:09:45-06'00'

Approved

Date

From: Maryann Pickering, AICP, Planner III
(801) 576-6391 or maryann.pickering@draperutah.gov

Re: AT&T Mobility Draper 845623-571785 – Permitted Use Permit Request

Application No.: USE-087-2022
Applicant: Kate Wythe of Crown Castle on behalf of AT&T Mobility
Project Location: Approximately 1661 E. 13200 South
Current Zoning: RA1 (Residential Agricultural, 40,000 square foot lot minimum)
Acreage: Approximately 5.25 acres (approximately 228,690 square feet)
Request: Request for approval of a Permitted Use Permit in the RA1 zone regarding approval to allow for an equipment upgrade on an existing AT&T wireless facility.

SUMMARY AND BACKGROUND

This application is a request for approval of a Permitted Use for approximately 5.25 acres located on the west side of Highland Drive, at approximately 1661 E. 13200 South (Exhibit B). The property is currently zoned RA1. The applicant is requesting that a Permitted Use be approved to allow for an equipment upgrade on an existing wireless facility.

To keep up with the changes in wireless communication technology, AT&T is upgrading many of its facilities throughout the valley. The current application pertains to the existing wireless facility known as “Draper UTL02013”. The parcel is owned by Glad Rev Trust, currently used as a single family residence that was built in 1983 and backs to the Porter Rockwell Trail.



The subject monopole was approved by the Draper Planning Commission on February 4, 1993. Monopoles are allowed within the residential zones only if a Conditional Use Permit is obtained. The application was Conditional Use Permit #92-131 with Cellular One as the applicant. The monopole has been in continuous use since that approval.

ANALYSIS

General Plan and Zoning. The Land Use Map of the General Plan calls for the Residential Low/Medium Density land use designation for the subject property (Exhibit C). This category is characterized as follows:

Residential Low-Medium Density

LAND USE DESCRIPTION			
CHARACTERISTICS	<ul style="list-style-type: none"> • Very large lot single-family neighborhoods or ranchettes allows for enhancement of Draper’s rural character • Environmentally designed clustered housing with the Suncrest and South Mountain projects being the exceptions • Some natural features and cultivated vegetation is apparent and special care is required in order to preserve those features and areas • Equestrian uses and privileges may exist in certain areas 		
LAND USE MIX	<table border="0"> <tr> <td> Primary <ul style="list-style-type: none"> • Single-family detached homes </td> <td> Secondary <ul style="list-style-type: none"> • Parks • Open space • Churches • Schools </td> </tr> </table>	Primary <ul style="list-style-type: none"> • Single-family detached homes 	Secondary <ul style="list-style-type: none"> • Parks • Open space • Churches • Schools
Primary <ul style="list-style-type: none"> • Single-family detached homes 	Secondary <ul style="list-style-type: none"> • Parks • Open space • Churches • Schools 		
DENSITY	<ul style="list-style-type: none"> • Density range: up to 2 dwelling units per acre • Reduction for non-buildable areas 		
COMPATIBLE ZONING	<ul style="list-style-type: none"> • Residential Agricultural (RA1) • Residential Agricultural (RA2) • Single-family Residential Hillside (RH) • Master Planned Community (MPC) 		
OTHER CRITERIA	<ul style="list-style-type: none"> • Increased densities within equestrian areas may be allowed only with compliance to specified performance standards and impact mitigation measures • Buffers and transitions around existing low-density single-family residences may consist of open space/retention areas, lots that are pie-shaped or otherwise larger than standard sized lots or a combination of these and other appropriate design techniques 		

The property has been assigned the RA1 zoning classification, supporting approximately one dwelling unit per acre (Exhibit D). According to Draper City Municipal Code (DCMC)



Section 9-8-020 the purpose of the RA1 zone is to *“foster low density development with little impact on its surroundings and municipal services; to generally preserve the character of the city’s semirural areas; and to promote and preserve conditions favorable to large lot family life, including the keeping of limited numbers of animals and fowl. The predominant use in these zones is intended to be detached single-family dwellings, protected from encroachment by commercial and industrial uses.”* The subject property is surrounded by the RA2 (Residential Agricultural, 20,000 square foot lot minimum) zone.

Requested Modification. The applicant is proposing an upgrade to the existing equipment within the tower. The application requests that the additions be approved as an eligible facilities request under the Federal Spectrum Act and FCC regulations.

Electronic Code of Federal Regulations

Title 47, Chapter I, Subchapter A, Part 1, Subpart U, §1.6100

(b) Definitions.

- (3) Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:
 - (i) Collocation of new transmission equipment;
 - (ii) Removal of transmission equipment; or
 - (iii) Replacement of transmission equipment.
- (7) Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:
 - (i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;
 - (A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.
 - (ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would



- protrude from the edge of the structure by more than six feet;
- (iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;
 - (iv) It entails any excavation or deployment outside of the current site, except that, for towers other than towers in the public rights-of-way, it entails any excavation or deployment of transmission equipment outside of the current site by more than 30 feet in any direction. The site boundary from which the 30 feet is measured excludes any access or utility easements currently related to the site;
 - (v) It would defeat the concealment elements of the eligible support structure; or
 - (vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in §1.40001(b)(7)(i) through (iv).
- (c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

The proposed additions to the tower and ground area for the co-location are not considered to be substantial under the FCC regulations and the request complies with listed standards to be considered as an eligible facilities request. The following is proposed:

ANTENNA LEVEL

- REMOVE THREE PANEL ANTENNAS
- REMOVE THREE RRHS
- INSTALL THREE AEQK ANTENNAS
- INSTALL THREE AEQU ANTENNAS
- INSTALL THREE RRHS
- INSTALL THREE PIPE MOUNTS
- INSTALL ONE DC9 SURGE SUPPRESSOR
- INSTALL ONE 2-INCH INNERDUCT
- INSTALL ONE 6-#6 AWG DC TRUNK FROM EXISTING DC12 TO NEW DC9



- INSTALL ONE 2 #8AWG DC CABLE FROM DC9 TO NEW THREE AHLBBA, THREE AEQK AND THREE AEQU RRU'S

EQUIPMENT LEVEL

- REMOVE ONE ABIL AND ASIK FROM EXISTING FSM4 AMIA#2 IN EXISTING LTE RACK
- INSTALL 5G CBAND/DOD (THREE ABIO AND ONE ASIL) IN EXISTING AMIA #2 INSIDE EXISTING LTE RACK
- INSTALL ONE NEW AMIA #3 IN EXISTING LTE RACK
- INSTALL TWO EMERSON 3KW HE-48V RECTIFIER IN EXISTING DC POWER PLANT
- INSTALL FOUR GNB MARATHON M12V180FT BATTERIES INSIDE EXISTING BATTERY RACK
- INSTALL OR REUSE TWO 25A DC BREAKERS FOR THE NEW FSM4 (5G)
- INSTALL OR REUSE THREE 30A DC BREAKERS FOR THE NEW AHLBBA RRU'S
- INSTALL OR REUSE SIX 50A DC BREAKERS FOR THE NEW AEQK AND AEQU RRU'S

There will be no changes to the height of the structure or ground space. The proposed plan set is included at Exhibit E.

Criteria for Approval. The criteria for review and potential approval of a permitted use request is found in Section 9-5-070(E) of the Draper City Municipal Code. This section depicts the standard of review for such requests as:

- E. Approval Standards: The following standards shall apply to the issuance of a permitted use permit. A permitted use shall:
1. Be allowed as a permitted use in the applicable zone;
 2. Conform to development standards of the applicable zone;
 3. Conform to applicable regulations of general applicability and regulations for specific uses set forth in this title;
 4. Not be located on any land classified as a primary or secondary conservation area or sensitive land area, except as expressly permitted by provisions of this title;
 5. Not be located in any protected area as shown on a natural resource inventory; and
 6. Conform to any other applicable requirements of this code.

The proposed co-location and installation of proposed appurtenances conform generally to applicable requirements of the code under 9-5-070(E), and FCC issued regulations.

The criteria for review and approval of an Eligible facilities request are found in the Electronic Code of Federal Regulations Title 47, Chapter I, Subchapter A, Part 1, Subpart U,



§1.6100, (c). This section depicts the standard of review for such requests as:

- (c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

REVIEWS

Planning Division Review. The Draper City Planning Division has completed their review of the Permitted Use Permit submission. Comments from this division, if any, can be found in Exhibit A.

Engineering and Public Works Divisions Review. The Draper City Engineering and Public Works Divisions have completed their reviews of the Permitted Use Permit submission. Comments from these divisions, if any, can be found in Exhibit A.

Fire Division Review. The Draper City Fire Marshal has completed his review of the Permitted Use Permit submission. Comments from this division, if any, can be found in Exhibit A.

Noticing. Notice has been properly issued in the manner outlined in the City and State Codes.

STAFF RECOMMENDATION

Staff finds that the application complies with the DCMC and recommends that the Zoning Administrator review the request and approve the application based on the findings listed below and the criteria for approval, as listed within the staff report.

If the Zoning Administrator decides to approve the request, staff recommends they include the following conditions of approval:

1. That the proposed changes will have no perceptible visual impact.
2. That the proposed changes are compliant with Section 9-41-050(E) of the DCMC.
3. The applicant shall obtain all applicable permits from Draper City Fire and the Building Division for this upgrade.



DEVELOPMENT REVIEW COMMITTEE ACKNOWLEDGEMENT

We, the undersigned, as duly appointed members of the Draper City Development Review Committee, do acknowledge that the application which provides the subject for this staff report has been reviewed by the Committee and has been found to be appropriate for review by the Draper City Planning Commission and/or City Council.

Draper City Public Works Department

Draper City Planning Division

Draper City Fire Department

Draper City Legal Counsel

Draper City Building Division



EXHIBIT A DEPARTMENT REVIEWS

REVIEWS ARE NOT MEANT TO BE AN ALL INCLUSIVE LIST OF POSSIBLE COMMENTS OR CONDITIONS.

Planning Division Review

No additional comments provided.

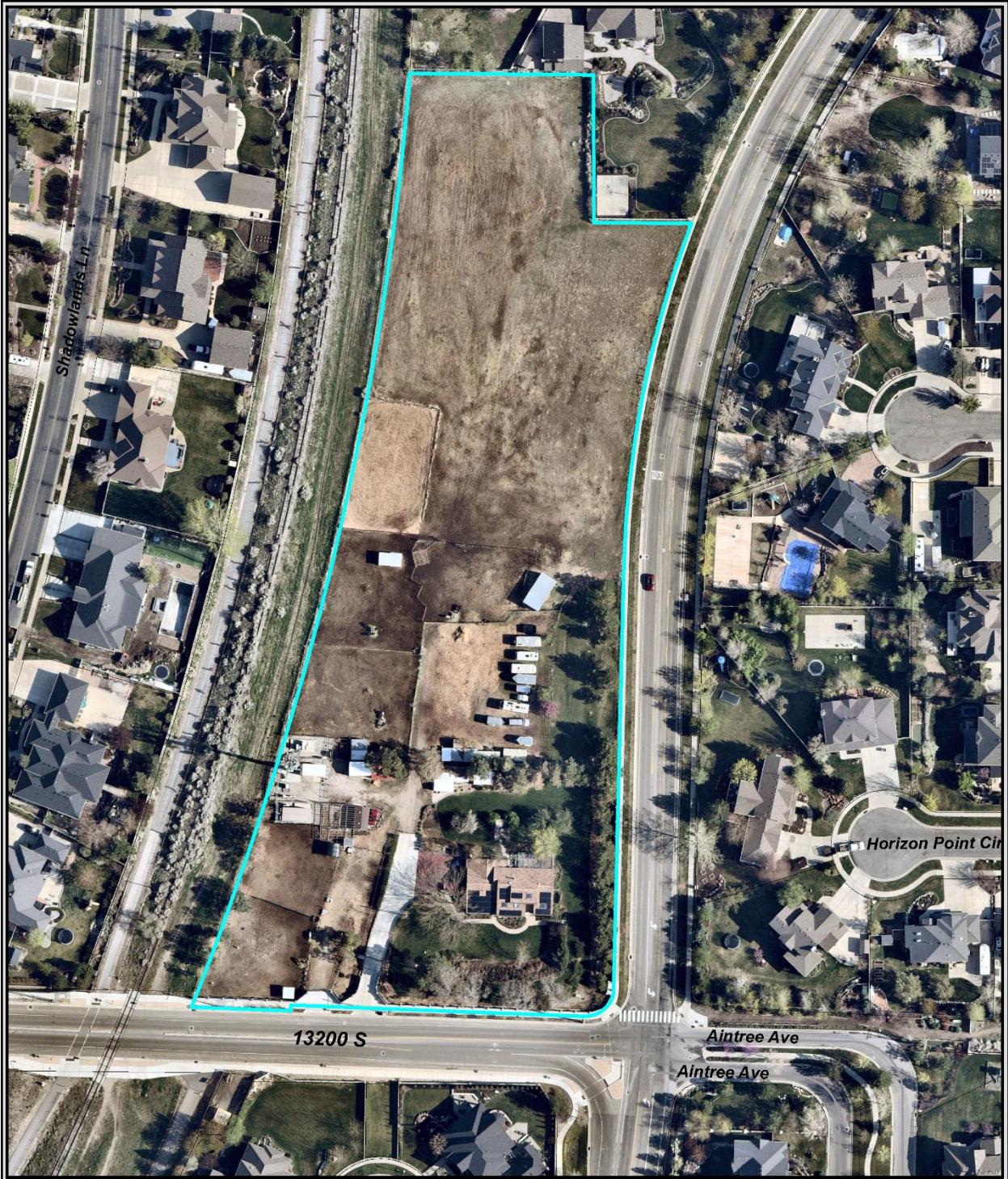
Engineering and Public Works Divisions Review.

No additional comments provided.

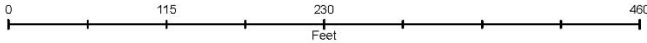
Fire Division Review.

1. 2A-10BC Fire Extinguishers required. The extinguisher needs to be a serviceable type meaning metal head and metal neck. Extinguishers need to be located in a conspicuous location where they will be readily accessible and immediately available for use. Placed on every level of the home. If in cabinet or not the extinguisher or cabinet needs to be mounted so that the top is not more than five (5) feet above the floor.
2. Fire Department Access is required to be maintained. Vehicles cannot park in such a way to impede fire department or emergency vehicle access.
3. Hazardous Material Permit – A Draper City Fire Hazardous Material Permit may need to be obtained. This is for all new and existing installations.

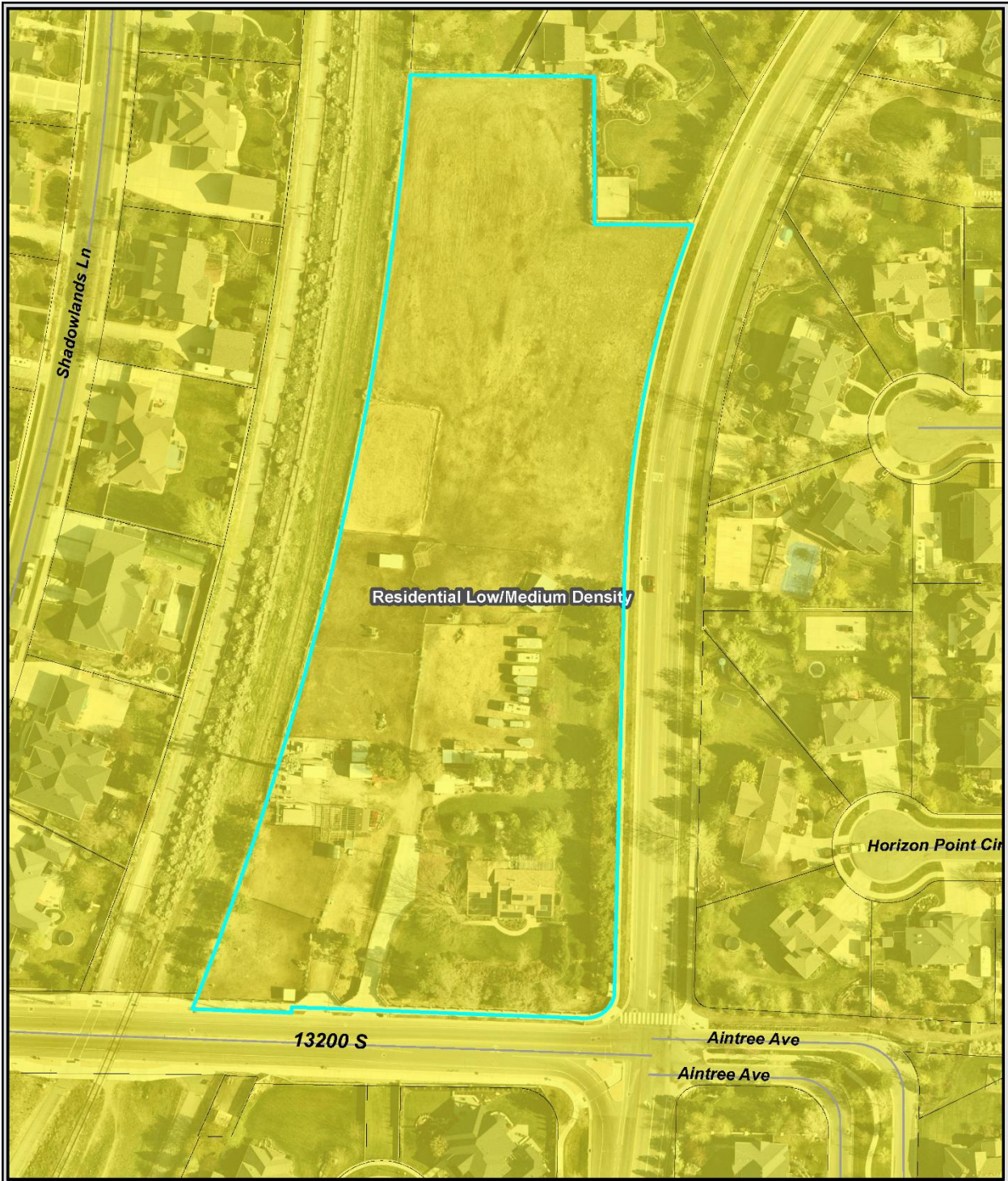
**EXHIBIT B
AERIAL MAP**



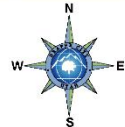
**AT&T Mobility Draper
Permitted Use Permit**



**EXHIBIT C
LAND USE MAP**



**AT&T Mobility Draper
Permitted Use Permit**



**EXHIBIT D
ZONING MAP**



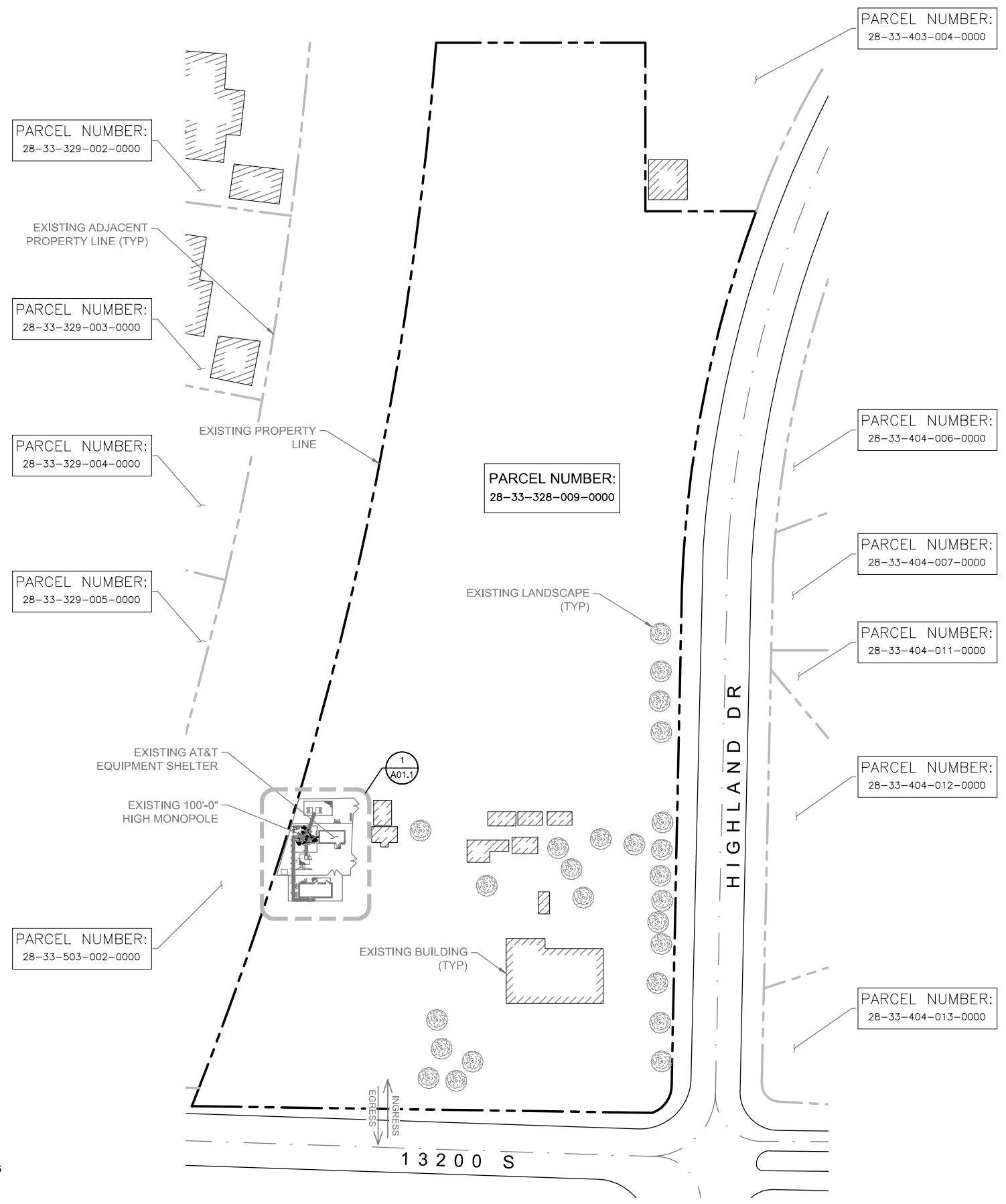
**AT&T Mobility Draper
Permitted Use Permit**



EXHIBIT E
PROPOSED PLANS

THIS IS NOT A SURVEY

ALL INFORMATION AND TRUE NORTH HAVE BEEN OBTAINED FROM EXISTING DRAWINGS AND ARE APPROXIMATE.



PARCEL NUMBER:
28-33-403-004-0000

PARCEL NUMBER:
28-33-329-002-0000

PARCEL NUMBER:
28-33-329-003-0000

PARCEL NUMBER:
28-33-329-004-0000

PARCEL NUMBER:
28-33-329-005-0000

PARCEL NUMBER:
28-33-328-009-0000

PARCEL NUMBER:
28-33-404-006-0000

PARCEL NUMBER:
28-33-404-007-0000

PARCEL NUMBER:
28-33-404-011-0000

PARCEL NUMBER:
28-33-404-012-0000

PARCEL NUMBER:
28-33-503-002-0000

PARCEL NUMBER:
28-33-404-013-0000



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TOLL FREE: (800) 662-4111 OR
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SITE PLAN

50' 0 25' 50' SCALE: 1"=50'-0" (22x34)
(OR) 1/2"=50'-0" (11x17)

1

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2/1/22

No.	Date	Action
O	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL

Plans Prepared For:

CROWN CASTLE
2055 S. STEARMAN DRIVE
CHANDLER, AZ 85286

Applicant:

at&t
Your world. Delivered.

Plans Prepared By:

MORRISON HERSHFIELD
5100 S MACADAM AVE., UNIT 500
PORTLAND, OR 97239
Tel: 503-595-9128 Fax: 503-595-9136
www.morrisonhershfield.com

Project:
DRAPER
SITE ID: UTL02013
1661 EAST 13200 SOUTH
DRAPER, UT 84020
FA: 10088359
BU: 845623

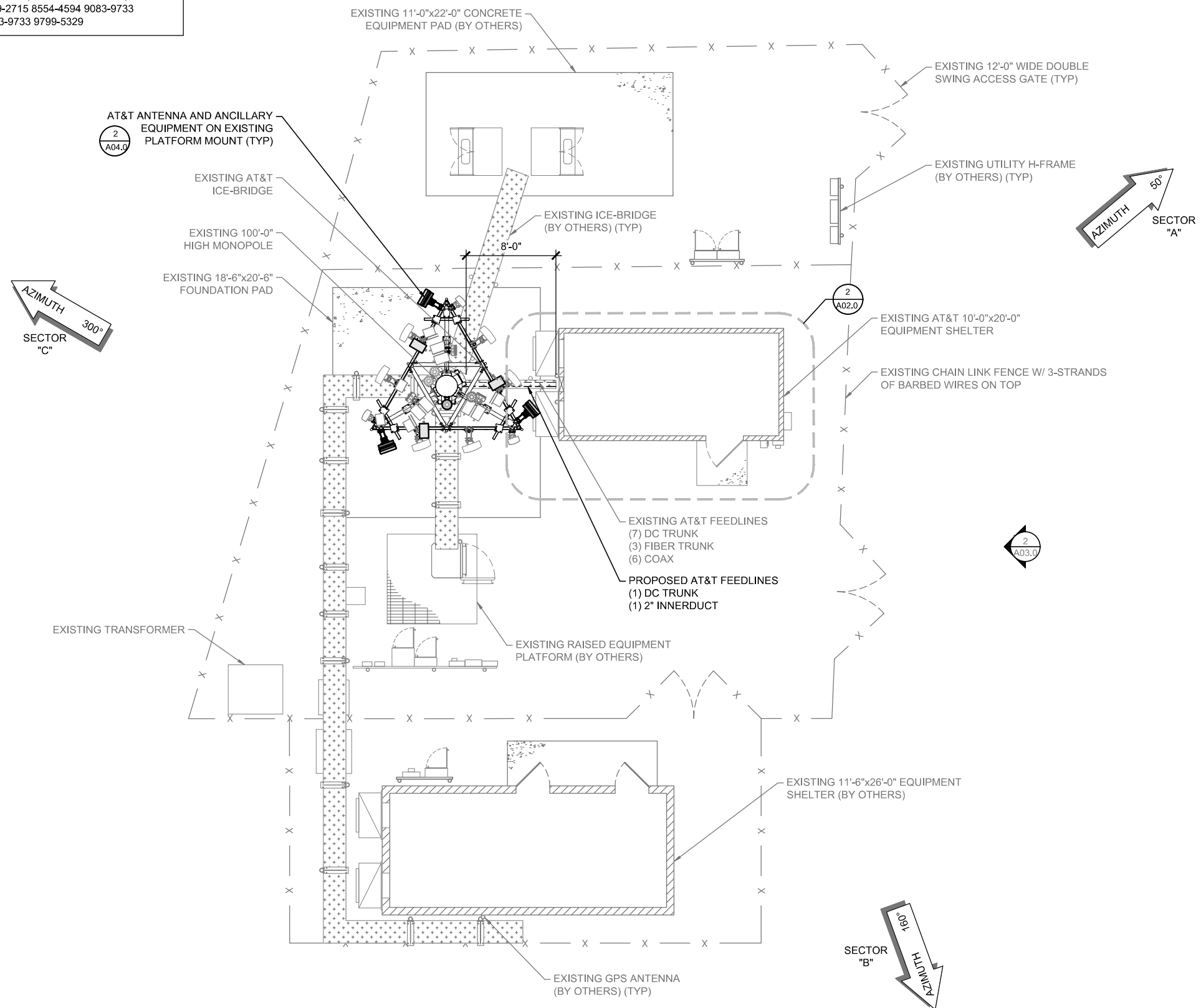
Drawing Title:
SITE PLAN

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: A01.0

X:\Reference\Telecom\US Tower Projects\Crown Analyses\8\CN8-375-845623-DRAPER\CN8-375-845623-UTL02013_5G NR 1SR CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

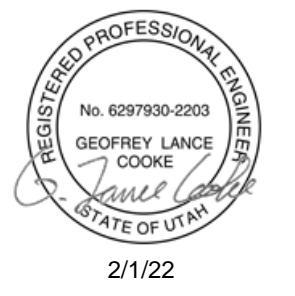
SCALE IS BASE ON 22" X 34" D SIZE

LEGAL DESCRIPTION:
 BEG N 0°01'56" W ALG 1/4 SEC LINE 1345.19 FT & N 89°04'30" W 350.85 FT & N 22°11'50" E 46.37 FT FR
 S 1/4 COR SD SEC 33, T3S, R1E; NE'LY ALG 2915 FT RADIUS CURVE TO L 913.02 FT M ORL (CHD N
 13°25'53" E 909.29 FT) TO SW COR OF DEER HOLLOW SUBPH 1; S 89°43'05" E 165.60 FT; S 0°26'13"E
 133.21 FT; E 88.22 FT TO W'LY LINE OF HIGHLAND DR; SW'LY ALG 941.52 FT RADIUS CURVE TO L
 319.55 FT (CHD S 10°53'02" W 318.02 FT); S1°09'39" W 418.50 FT M OR L; SW'LY ALG 26.01 FT RADIUS
 CURVETO THE R 36.25 FT (CHD S 52°11'01" W); N 87°51'13" W 264.74 FT; S 02°08'47" W 5 FT; N
 87°51'13" W 89.87 FT TO BEG. 5.2525054-0830 7068-0314.0317 7099-2715 8554-4594 9083-9733
 9799-5329 AC. 5054-0830 7068-0314.0317 7099-2715 8554-4594 9083-9733 9799-5329



NOTE:
 SEE A04.0 FOR ANTENNA PLANS

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS OR OMISSIONS. NO VARIATIONS OR MODIFICATIONS TO WORK SHOWN SHALL BE IMPLEMENTED WITHOUT PRIOR WRITTEN APPROVAL. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED BY THE LATEST REVISION. ALL DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF MORRISON HERSHFIELD CORPORATION. NEITHER MORRISON HERSHFIELD NOR THE ARCHITECT WILL BE PROVIDING CONSTRUCTION REVIEW OF THIS PROJECT.



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A	09/06/21	90% CD SUBMITTAL

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Applicant:

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Project:

DRAPER
 SITE ID: UTL02013
 1661 EAST 13200 SOUTH
 DRAPER, UT 84020
 FA: 10088359
 BU: 845623

Drawing Title:

**ENLARGED
 SITE PLAN**

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: A01.1

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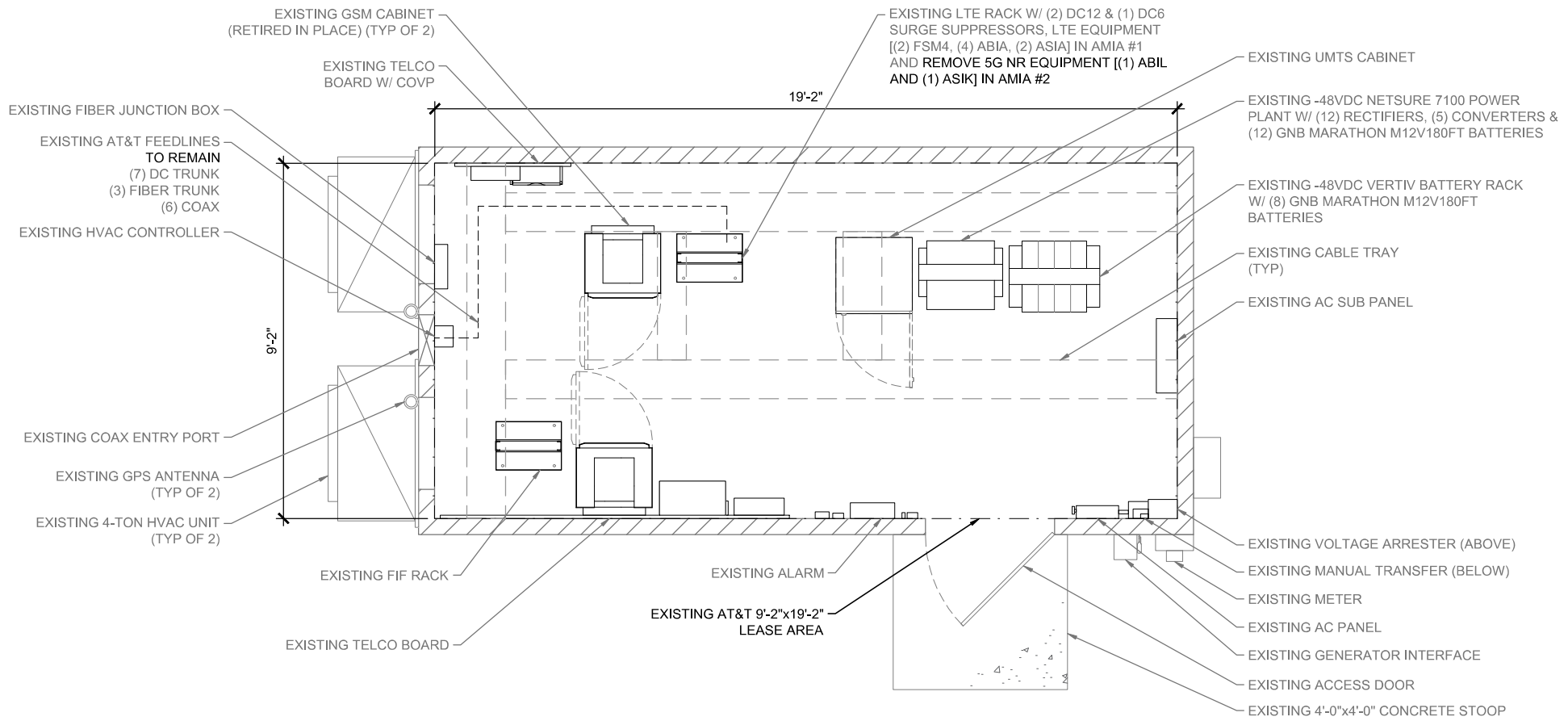
ENLARGED SITE PLAN

0 1.5' 3' 5' SCALE: 3/16"=1'-0" (22x34)
 (OR) 3/32"=1'-0" (11x17)



X:\Reference\Telecom\US Tower Projects\Crown_Analysis-8\CNB-375-845623-DRAPER\CNB-375-845623-DRAPER\CNB-375-10088359-UTL02013_5G NR 1SR CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

EXISTING CABLE INVENTORY				
CABLE TYPE	SIZE	LENGTH	EXIST.	TOTAL
DC	-	150±	7	7
FIBER	-	150±	3	3
COAX	5/8"	150±	6	6



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Drawing Title:

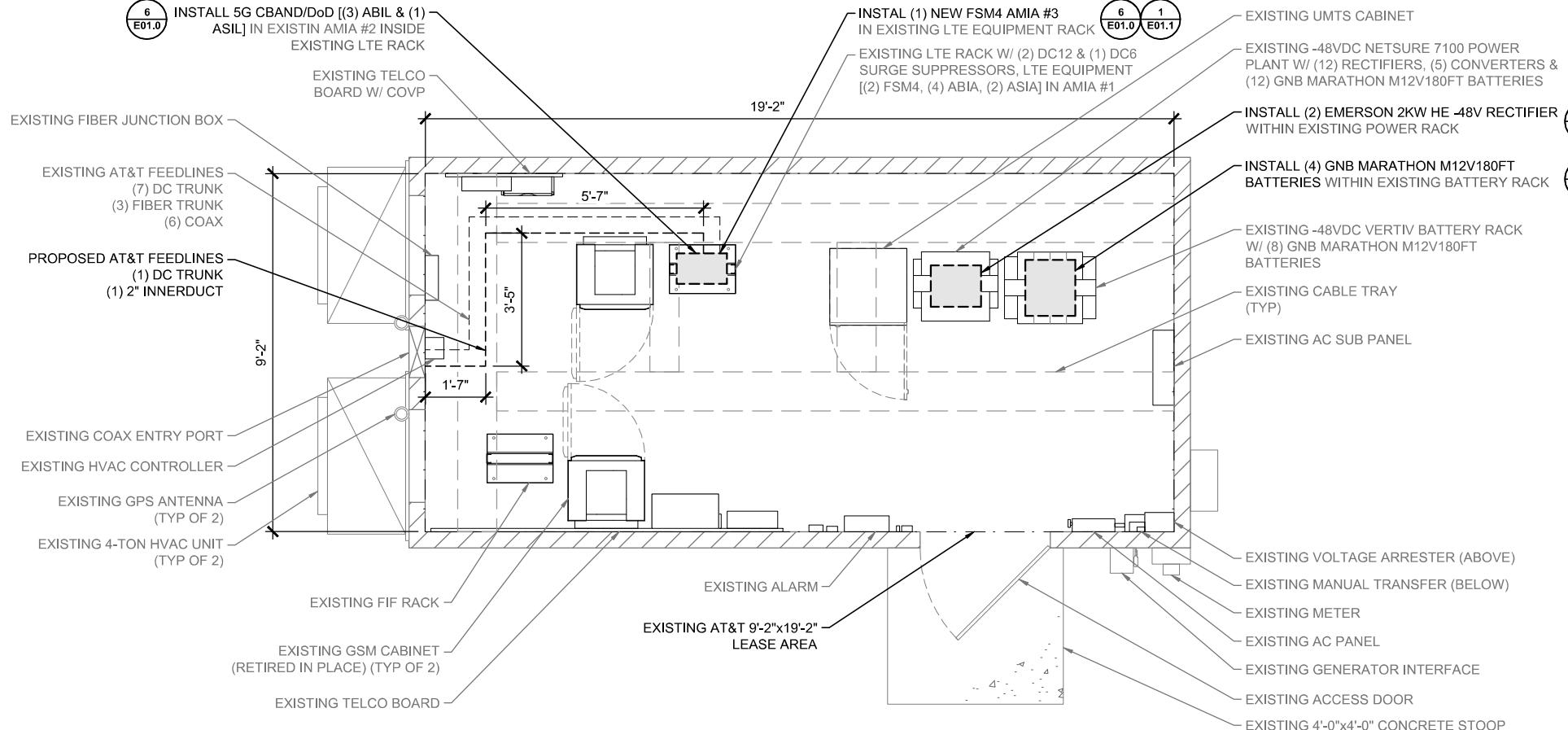
EQUIPMENT PLANS

Project No.: 210139800 : CNB-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: A02.0

EXISTING EQUIPMENT PLAN

0 6" 1' 2' SCALE: 1/2"=1'-0" (22x34) (OR) 1/4"=1'-0" (11x17) 1

PROPOSED CABLE INVENTORY					
CABLE TYPE	SIZE	LENGTH	EXIST.	PROP.	TOTAL
DC	-	150±	7	1	8
FIBER	-	150±	3	-	3
COAX	1-5/8"	150±	6	-	6
INNERDUCT	2"	150±	-	1	1



PROPOSED EQUIPMENT PLAN

0 6" 1' 2' SCALE: 1/2"=1'-0" (22x34) (OR) 1/4"=1'-0" (11x17) 2

X:\Reference\Telecom\US Tower Projects\Crown_Analyses-8\CN8-375-845623-DRAPER\CN8-375 CD\09 CAD\CN8-375_10088359-UTL02013_5G NR_1SR_CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

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COAX	1-5/8"	150±	6	-	6
INNERDUCT	2"	150±	-	1	1

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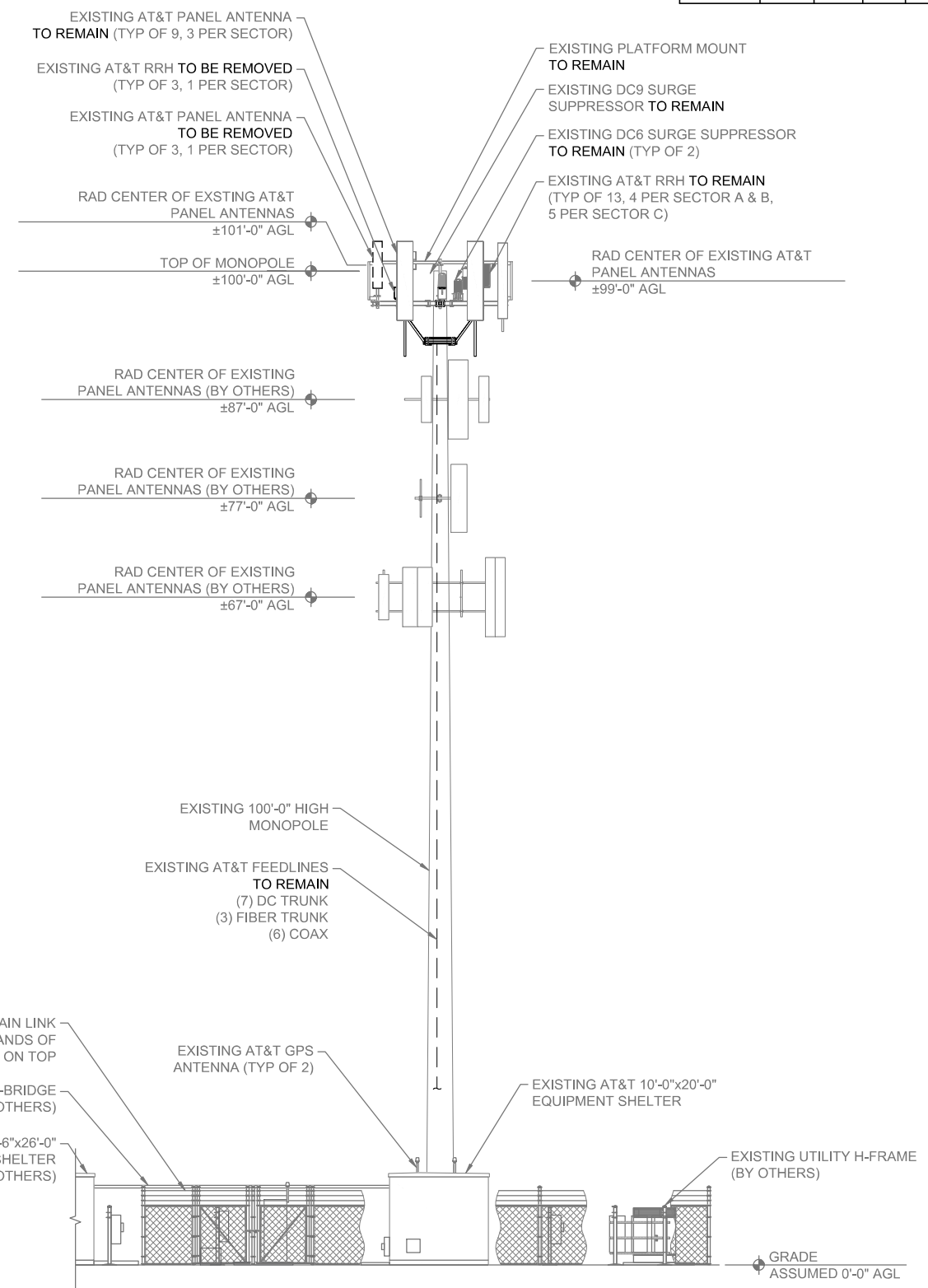
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SITE ID: UTL02013
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DRAPER, UT 84020
FA: 10088359
BU: 845623

Drawing Title:

EAST ELEVATIONS

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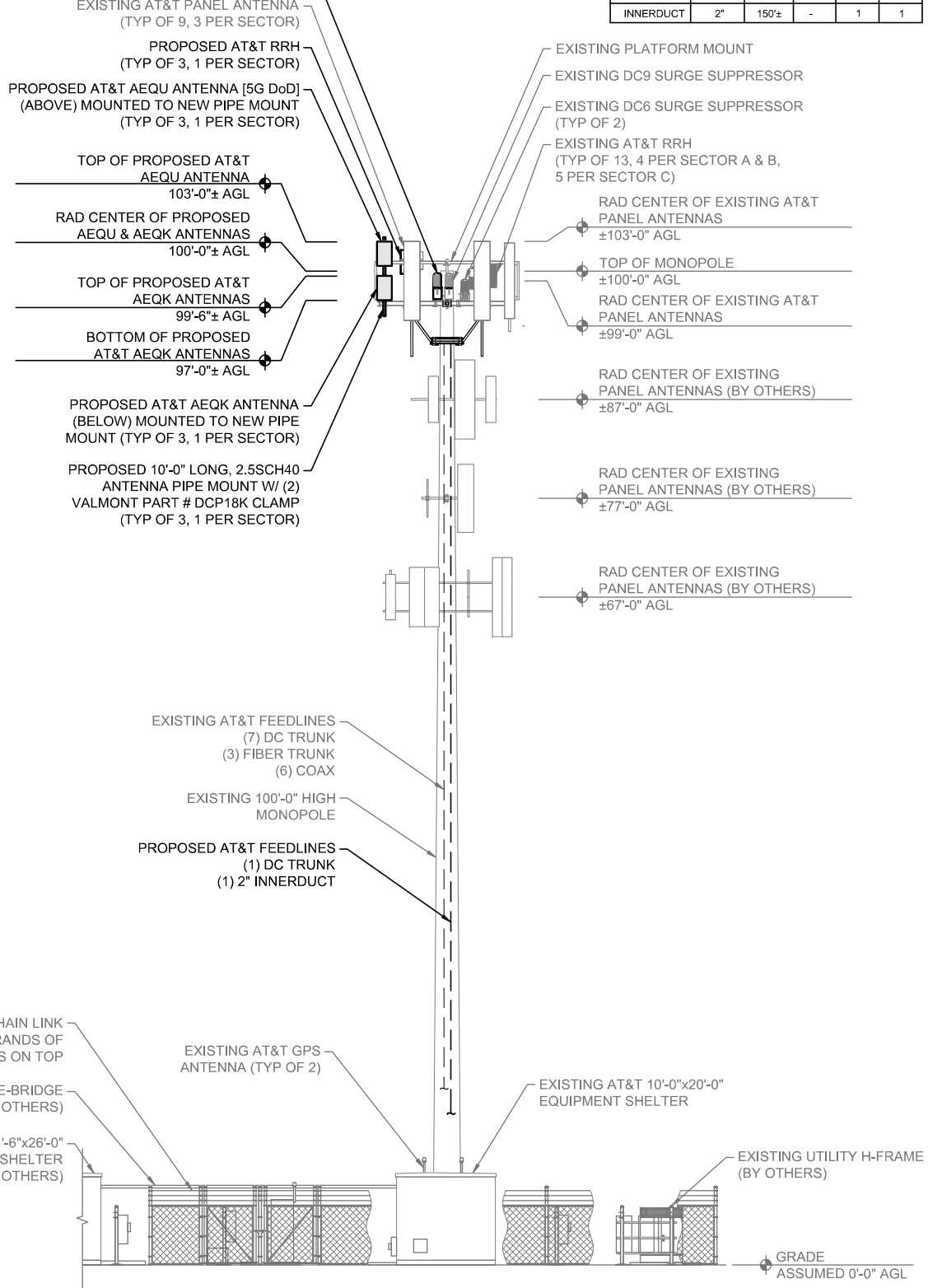


EXISTING EAST ELEVATION

0 2' 4' 8' SCALE: 1/8"=1'-0" (22x34)
(OR) 1/16"=1'-0" (11x17)

PROPOSED EAST ELEVATION

0 2' 4' 8' SCALE: 1/8"=1'-0" (22x34)
(OR) 1/16"=1'-0" (11x17)



PROPOSED EAST ELEVATION

0 2' 4' 8' SCALE: 1/8"=1'-0" (22x34)
(OR) 1/16"=1'-0" (11x17)

X:\Reference\Telecom\US Tower Projects\Crown Analyses\8\CN8-375-845623-DRAPER\CN8-375 CD\09_CAD\CN8-375_10088359-UTL02013_5G NR_1SR_CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

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2/1/22

No.	Date	Action
0	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL

Plans Prepared For:
CROWN CASTLE
 2055 S. STEARMAN DRIVE
 CHANDLER, AZ 85286

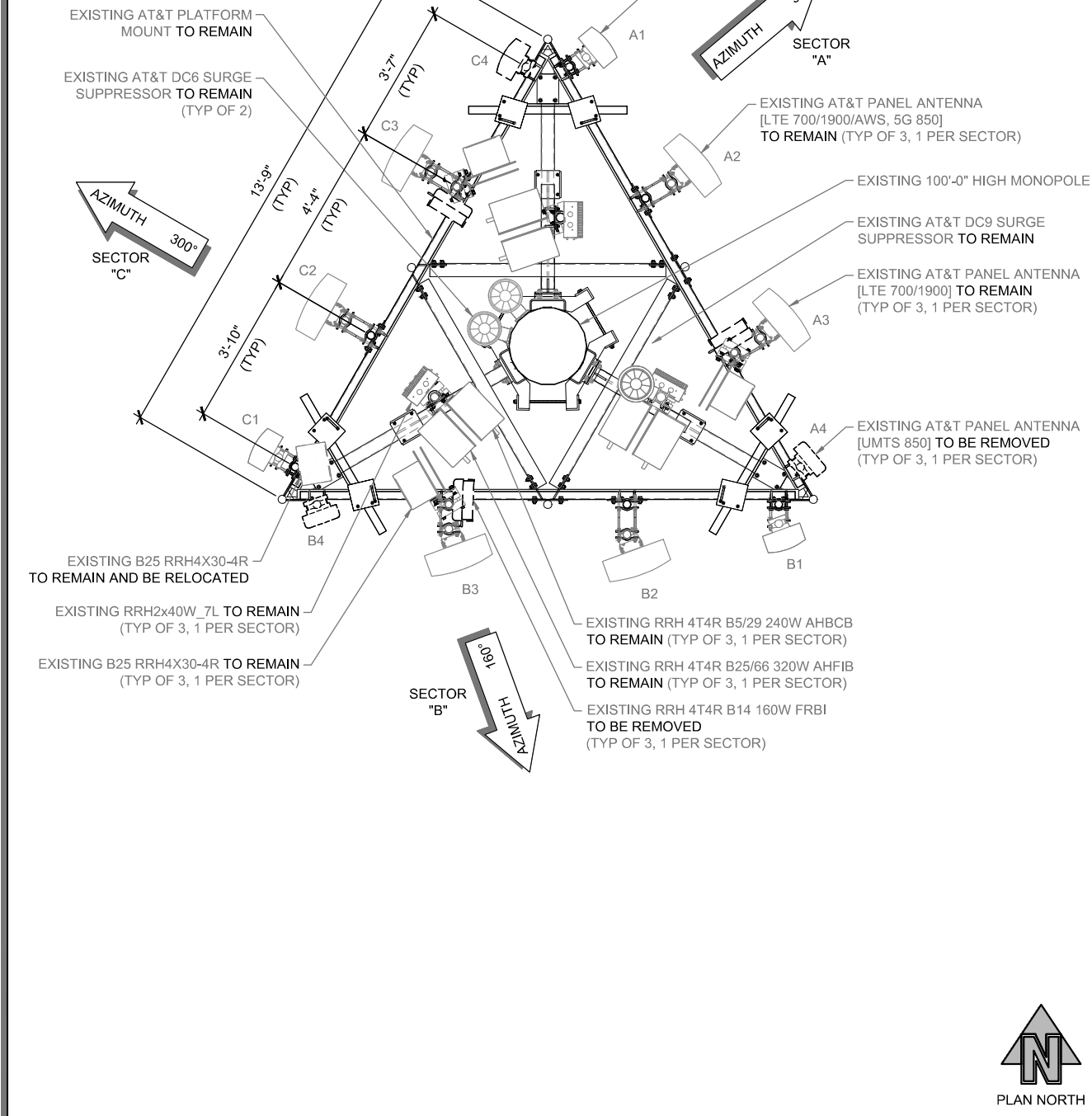
Applicant:
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Plans Prepared By:
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 PORTLAND, OR 97239
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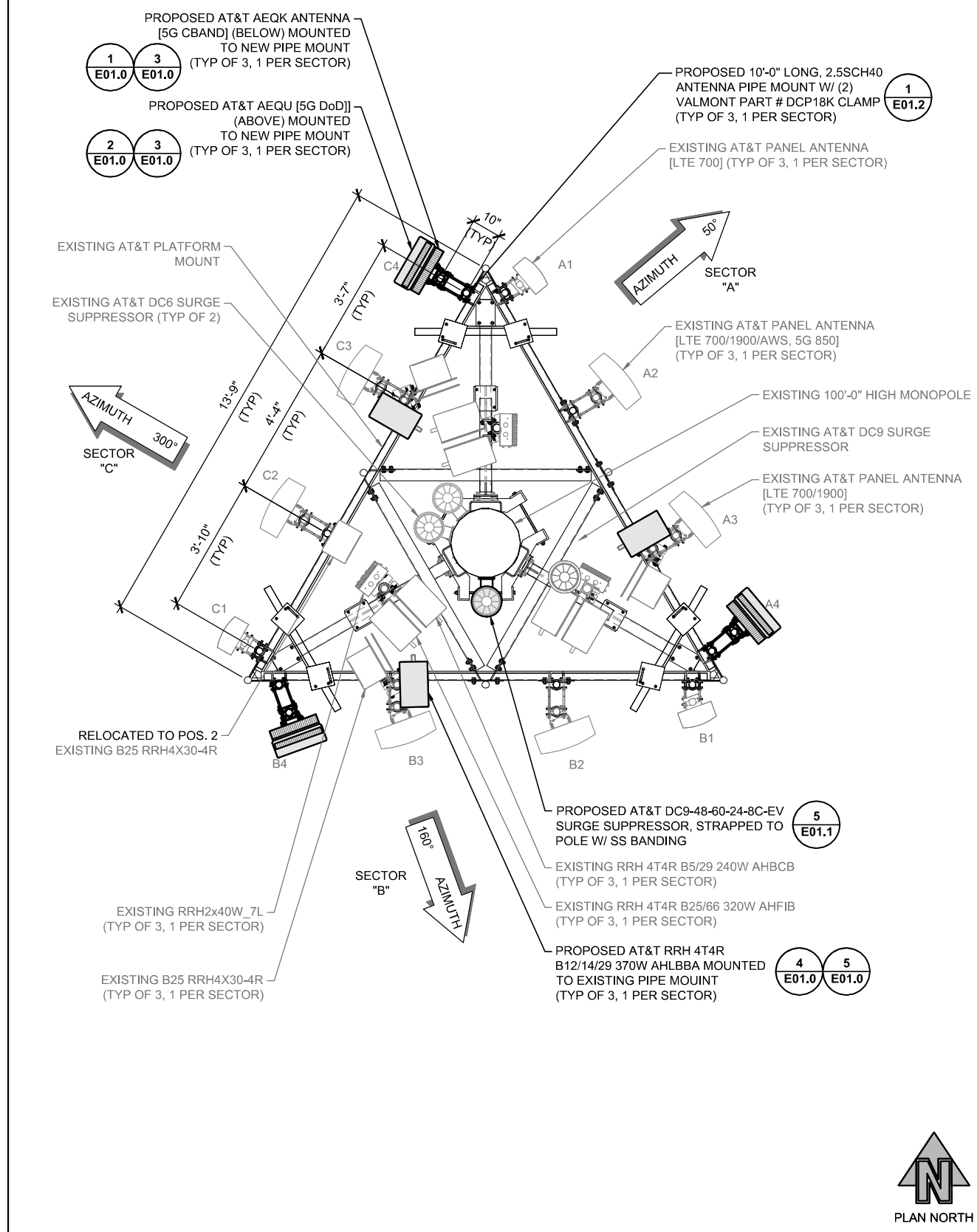
Project:
DRAPER
 SITE ID: UTL02013
 1661 EAST 13200 SOUTH
 DRAPER, UT 84020
 FA: 10088359
 BU: 845623

Drawing Title:
ANTENNA PLANS

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: A04.0



EXISTING ANTENNA PLAN SCALE: 1/2"=1'-0" (22x34) (OR) 1/4"=1'-0" (11x17) 1



PROPOSED ANTENNA PLAN SCALE: 1/2"=1'-0" (22x34) (OR) 1/4"=1'-0" (11x17) 2

SCALE IS BASE ON 22" X 34" D SIZE

X:\Reference\Telecom\US Tower Projects\Crown Analyses\8\CN8-375-845623-DRAPER\CN8-375-845623-DRAPER\CD\02\01\2022_02\01\2022_2:45pm RBrowning

EXISTING ANTENNA CONFIGURATION AND SCHEDULE - PER RFDS VERSION 1.0 - DATED 11-22-21										
	CARRIER / SPECTRUM	ANTENNA POSITION	AZIMUTH	RAD CENTER	MODEL	TMA	RRH	OTHER EQUIPMENT	CABLE	CABLE LENGTH
SECTOR A	LTE 700	A1	50°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L	(1) DC9-48-60-24-8C-EV	(3) DC	±150'-0"
	LTE 700/1900/AWS 5G 850	A2	50°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		(1) FIBER	±150'-0"
	LTE 700/1900	A3	50°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B14 160W FRBI (1) B25 RRH4X30-4R		-	-
	UMTS 850	A4	50°	101'-0"	7750	-	-		(2) COAX	± 150'-0"
SECTOR B	LTE 700	B1	160°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L	(1) DC9-48-60-24-8C-EV	-	-
	LTE 700/1900/AWS 5G 850	B2	160°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		-	-
	LTE 700/1900	B3	160°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B14 160W FRBI (1) B25 RRH4X30-4R		-	-
	UMTS 850	B4	160°	101'-0"	7750	-	-		(2) COAX	± 150'-0"
SECTOR C	LTE 700	C1	300°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L (1) B25 RRH4X30-4R	(2) DC6-48-60-18-8F	(4) DC	±150'-0"
	LTE 700/1900/AWS 5G 850	C2	300°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		(2) FIBER	±150'-0"
	LTE 700/1900	C3	300°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B14 160W FRBI (1) B25 RRH4X30-4R		-	-
	UMTS 850	C4	300°	100'-0"	800 10765 K	-	-		(2) COAX	± 150'-0"

PROPOSED ANTENNA CONFIGURATION AND SCHEDULE - PER RFDS VERSION 1.0 - DATED 11-22-21										
	CARRIER / SPECTRUM	ANTENNA POSITION	AZIMUTH	RAD CENTER	MODEL	TMA	RRH	OTHER EQUIPMENT	CABLE	CABLE LENGTH
SECTOR A	LTE 700	A1	50°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L	(1) DC9-48-60-24-8C-EV	(3) DC	±150'-0"
	LTE 700/1900/AWS 5G 850	A2	50°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		(1) FIBER	±150'-0"
	LTE 700/1900	A3	50°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B12/14/29 370W AHLBBA (1) B25 RRH4X30-4R		-	-
	5G CBAND / 5G DoD	A4	50°	100'-0"	AEQU + AEQK	-	-		-	-
SECTOR B	LTE 700	B1	160°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L	(1) DC9-48-60-24-8C-EV	(1) DC	±150'-0"
	LTE 700/1900/AWS 5G 850	B2	160°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		-	-
	LTE 700/1900	B3	160°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B12/14/29 370W AHLBBA (1) B25 RRH4X30-4R		-	-
	5G CBAND / 5G DoD	B4	160°	100'-0"	AEQU + AEQK	-	-		-	-
SECTOR C	LTE 700	C1	300°	99'-0"	ET-X-UW-70-16-70-18-IR-AT	-	(1) RRH2x40W_7L (1) B25 RRH4X30-4R	(2) DC6-48-60-18-8F	(4) DC	±150'-0"
	LTE 700/1900/AWS 5G 850	C2	300°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B5/29 240W AHBCB (1) RRH 4T4R B25/66 320W AHFIB		(2) FIBER	±150'-0"
	LTE 700/1900	C3	300°	99'-0"	NNH4-65C-R6	-	(1) RRH 4T4R B12/14/29 370W AHLBBA (1) B25 RRH4X30-4R		-	-
	5G CBAND / 5G DoD	C4	300°	100'-0"	AEQU + AEQK	-	-		-	-

NOTE:
REMOVE ALL UNNECESSARY HARDWARE TO MAKE SPACE FOR PROPOSED ANTENNAS AND RRHS

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CHANDLER, AZ 85286

Applicant:

at&t
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Project:

DRAPER
SITE ID: UTL02013
1661 EAST 13200 SOUTH
DRAPER, UT 84020
FA: 10088359
BU: 845623

Drawing Title:
ANTENNA SCHEDULES

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: A04.1

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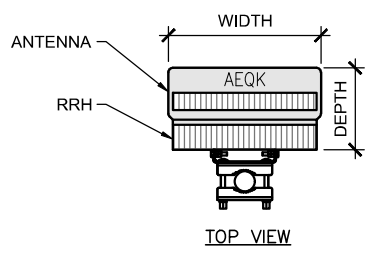
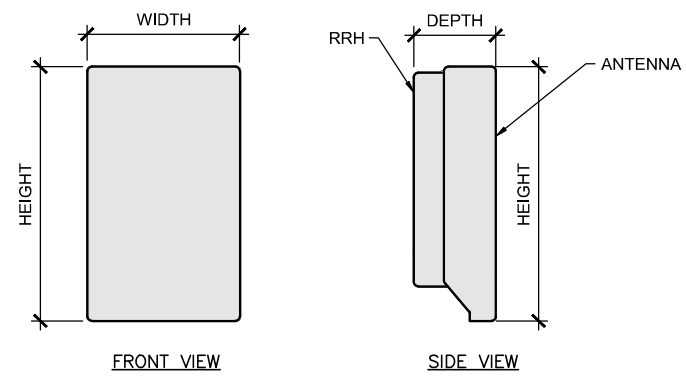
Project:

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SITE ID: UTL02013
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Drawing Title:

DETAILS

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
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PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: E01.0



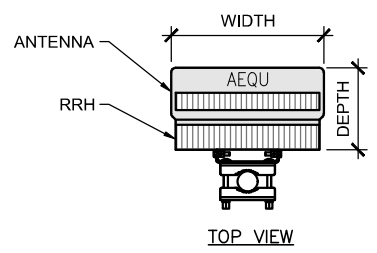
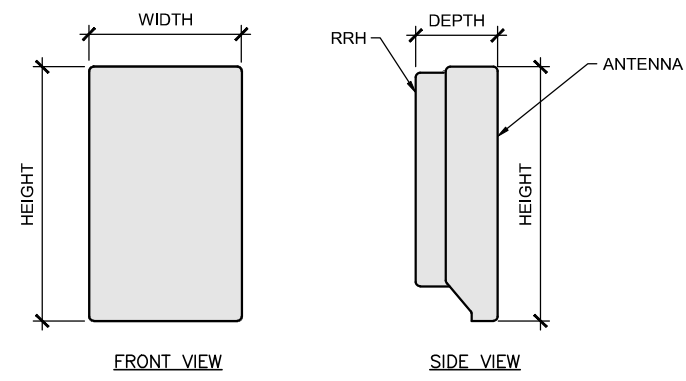
5G INTEGRATED C-BAND ANTENNA - AIRSCALE AEQK

SIZE AND WEIGHT TABLE (CLAMPS EXCLUDED)

HEIGHT	WIDTH	DEPTH	WEIGHT
29.5"	17.7"	9.5"	99.20 LBS

ANTENNA SPECIFICATIONS

SCALE: N.T.S. 1



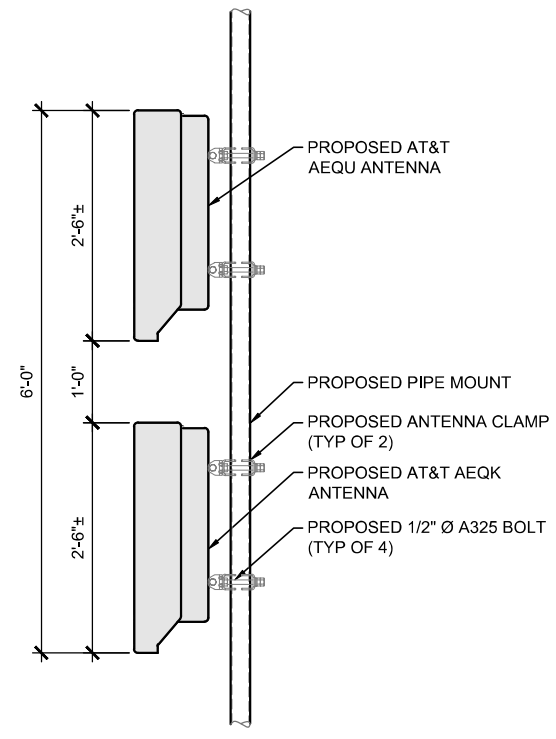
5G INTEGRATED 5G DOD ANTENNA - AIRSCALE AEQU

SIZE AND WEIGHT TABLE (CLAMPS EXCLUDED)

HEIGHT	WIDTH	DEPTH	WEIGHT
29.5"	17.7"	9.5"	99.20 LBS

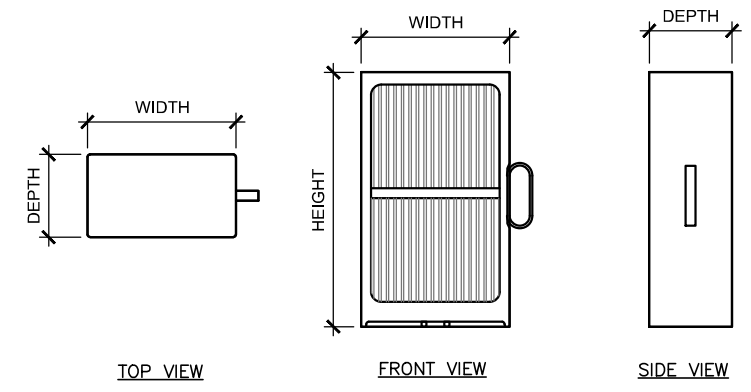
ANTENNA SPECIFICATIONS

SCALE: N.T.S. 2



ANTENNA MOUNTING DETAIL

SCALE: N.T.S. 3



NOKIA AHLBBA (B12/B14/B29)

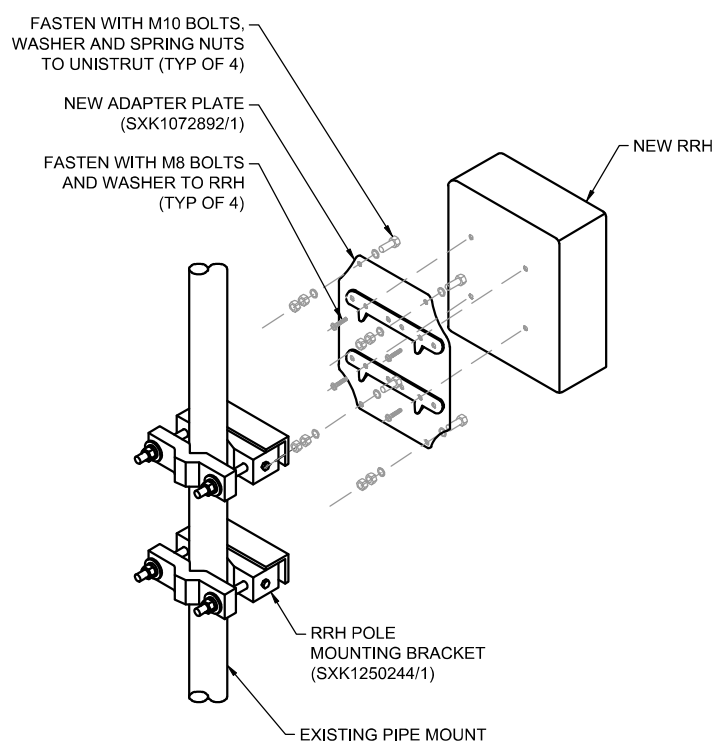
SIZE AND WEIGHT TABLE

HEIGHT	WIDTH	DEPTH	WEIGHT
28.54"	14.84"	8.46"	101.4 LBS

NOTE: DIMENSIONS WITH BRACKET.

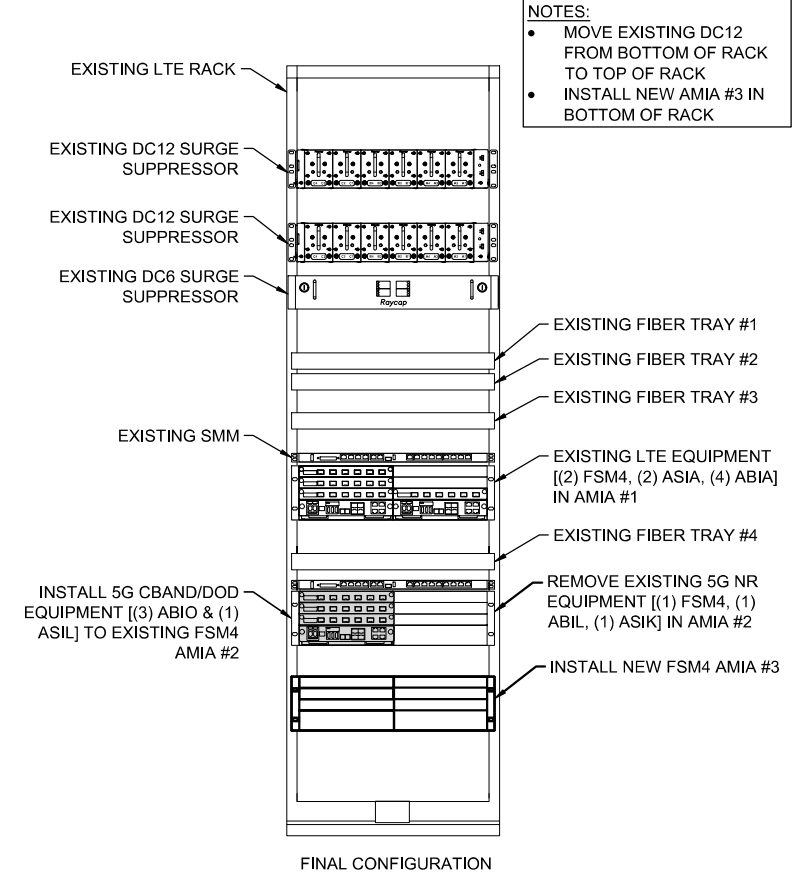
RRH SPECIFICATIONS

SCALE: N.T.S. 4



RRH MOUNTING DETAIL

SCALE: N.T.S. 5

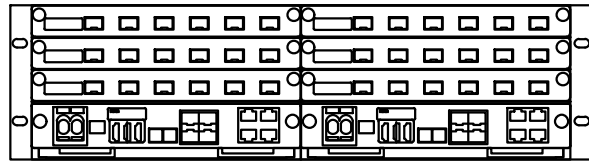


EQUIPMENT RACK DETAIL

SCALE: N.T.S. 6

NOKIA FSM4/AMIA BASEBAND UNIT

DIMENSIONS (WxDxH): 5.04"x17.6"x15.75"
 WEIGHT: 22.27 - 51.81 LBS
 INGRESS PROTECTION: IP20
 OPERATIONAL TEMPERATURE RANGE: -5°C TO 55°C



EMERSON 2KW HE -48V RECTIFIER:

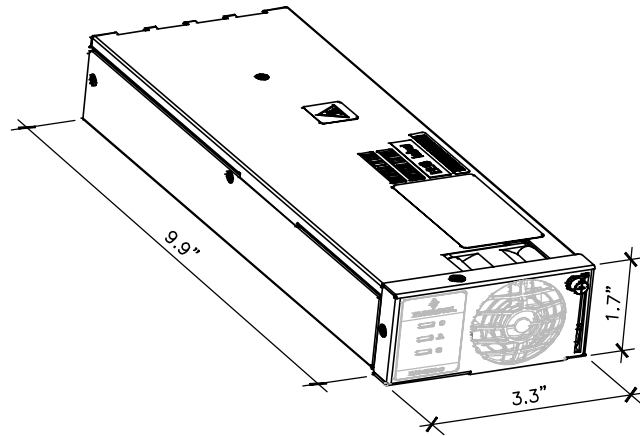
MANUFACTURER: EMERSON

SPECIFICATIONS:

DIMENSION: 1.7"H x 3.3"W x 9.9"D
 WEIGHT: 2.49 LBS. (1.13 KG.)

DC INPUT
 DC INPUT VOLTAGE, NOMINAL: 208/240 VOLTS
 INPUT VOLTAGE, PERMITTED VARIATION: 176 VDC
 MAXIMUM INPUT CURRENT: 11.73A

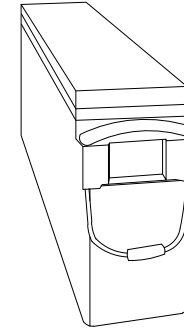
DC OUTPUT
 OUTPUT VOLTAGE: -48 VDC
 OUTPUT VOLTAGE, PERMITTED VARIATION: -42 TO 58 VDC
 OUTPUT POWER: 2000 W @ -48 VDC
 OUTPUT CURRENT: 41.7 A



VRLA M12V180FT BATTERY:

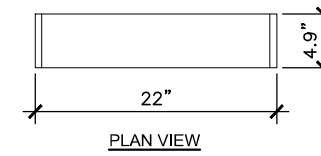
SPECIFICATIONS:

MANUFACTURER: GNB
 EXIDE TYPE DESIGNATION: M12V180FT
 NOM. VOLTAGE V: 12 V
 NOM. CAPACITY C10 1.80 VPC 20° C Ah: 175 AH
 NOM. CAPACITY C8 1.75 VPC 25° C Ah: 180 AH
 NOM. CAPACITY C1 1.60 VPC 20° C Ah: 105 AH
 LENGTH (l) MAX (mm): 22" (558.80)
 WIDTH (b/w) MAX. (mm): 4.90" (124.46)
 HEIGHT (h) MAX (mm): 12.50" (317.50)
 WEIGHT APPROX. (kg): 60.3
 INTERNAL RESISTANCE mOhm: 3.0
 TERMINAL: F-M6-90°

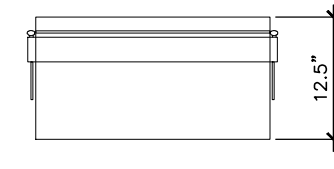


ISOMETRIC VIEW

CONNECT SERIES OF (4) 12V BATTERIES = 48V



PLAN VIEW



SIDE VIEW

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 BU: 845623

Drawing Title:

DETAILS

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: E01.1

BASEBAND UNIT DETAIL

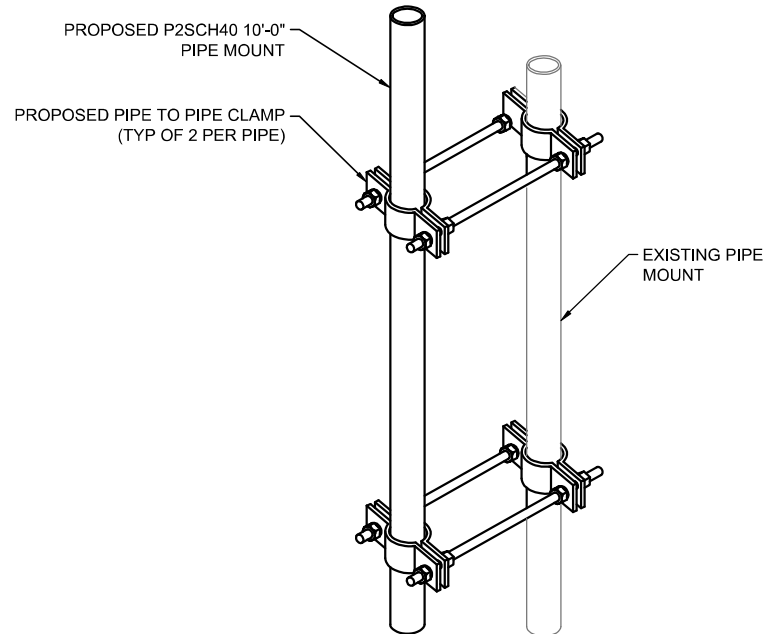
SCALE
N.T.S.

RECTIFIER SPECIFICATIONS

SCALE
N.T.S.

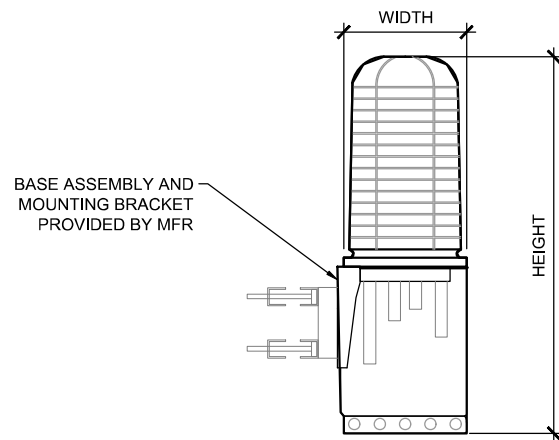
BATTERY SPECIFICATIONS

SCALE
N.T.S.



RAYCAP DC9-48-60-24-8C-EV:

DIMENSIONS, WxH: 10.24"x31.4"
 NOMINAL OPERATING VOLTAGE: 48 VDC
 OPERATING DISCHARGE CURRENT: 20 kA 8/20ms
 MAX DISCHARGE CURRENT: 60 kA 8/20ms
 VOLTAGE PROTECTION LEVEL [Up] PER IEC 61643-11: 145 V
 VOLTAGE PROTECTION RANKING (VPR): 330V
 TOTAL WEIGHT: 11.87 kg | 26.2 lbs



PIPE TO PIPE MOUNTING DETAIL

SCALE
N.T.S.

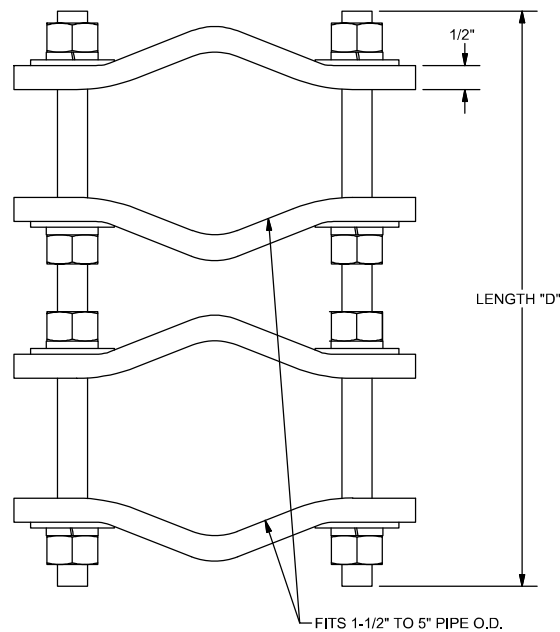
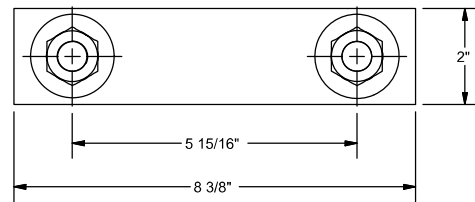
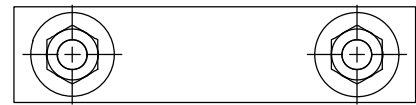
DC9 SURGE SUPPRESSOR

SCALE
N.T.S.

NOT USED

6

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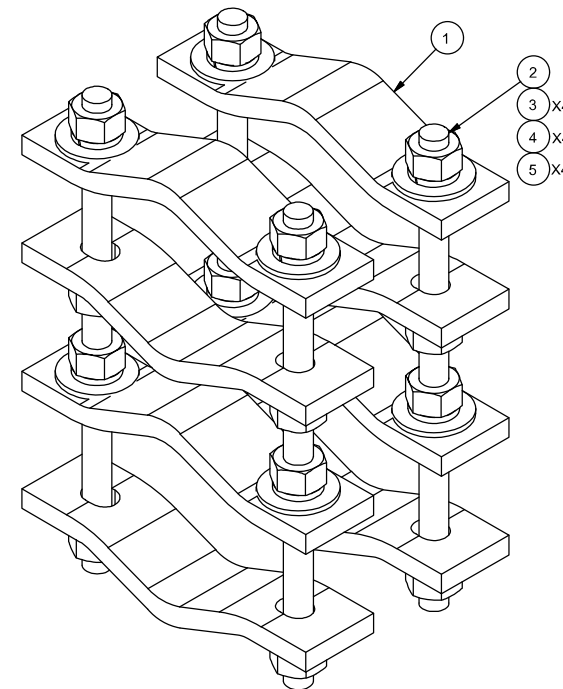
TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (± 0.030 "*)
 DRILLED AND GAS CUT HOLES (± 0.030 "*) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010 "*) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.030 "*)
 ALL OTHER ASSEMBLY (± 0.060 "*)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	8	DCP	CLAMP HALF, 1/2" THICK, 8-3/8"		2.40	19.20
2	B	C	5/8" THREADED ROD	D	E	F
3	16	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	2.08
4	16	G58LW	5/8" HDG LOCKWASHER		0.03	0.42
5	16	G58FW	5/8" HDG USS FLATWASHER		0.07	1.13

VARIABLE PARTS TABLE						
ASSEMBLY "A"	QTY "B"	PART "C"	LENGTH "D"	UNIT WT.	"E" NET WT.	"F" TOTAL WEIGHT
DCP12K	4	G58R-12	12"	1.05	4.18	27.01
DCP18K	4	G58R-18	18"	1.57	6.27	29.10



DESCRIPTION PIPE TO PIPE CLAMP SET 1-1/2" TO 5" PIPE 1/2" THICK CLAMP		Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX	
CPD NO. KC8	DRAWN BY 8/21/2012	ENG. APPROVAL	PART NO. SEE ASSEMBLY "A"
CLASS SUB 81 Q1	DRAWING USAGE CUSTOMER	CHECKED BY CEK 1/22/2013	DWG. NO. DCPxxK

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No.	Date	Action
O	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL

Plans Prepared For:

CROWN CASTLE
 2055 S. STEARMAN DRIVE
 CHANDLER, AZ 85286

Applicant:

at&t
 Your world. Delivered.

Plans Prepared By:

MORRISON HERSHFIELD
 5100 S MACADAM AVE., UNIT 500
 PORTLAND, OR 97239
 Tel: 503-595-9128 Fax: 503-595-9136
 www.morrisonhershfield.com

Project:

DRAPER
 SITE ID: UTL02013
 1661 EAST 13200 SOUTH
 DRAPER, UT 84020
 FA: 10088359
 BU: 845623

Drawing Title:

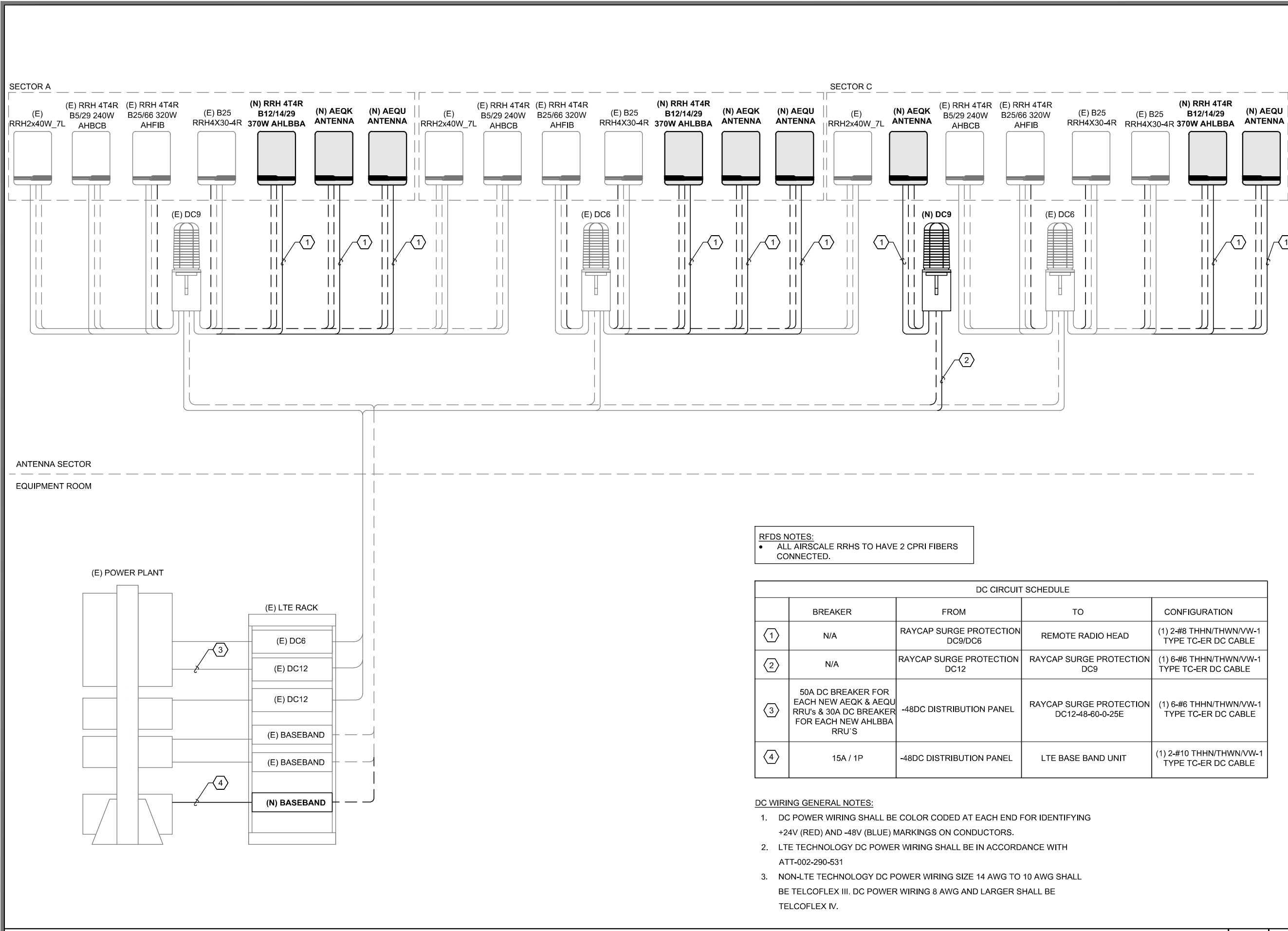
DETAIL

Project No.: 210139800 : 0088-43264	
Designer: RB	Date: 08/06/21
Drawn By: DDM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: E01.2

PIPE TO PIPE CLAMP DETAIL

SCALE
N.T.S. 1

X:\Reference\Telecom\US Tower Projects\Crown Analyses\8\CN8-375-845623-DRAPER\CN8-375-845623-DRAPER\CN8-375-10088359-UTL02013_5G NR 1SR CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning



RFDS NOTES:

- ALL AIRSCALE RRHS TO HAVE 2 CPRI FIBERS CONNECTED.

DC CIRCUIT SCHEDULE				
	BREAKER	FROM	TO	CONFIGURATION
①	N/A	RAYCAP SURGE PROTECTION DC9/DC6	REMOTE RADIO HEAD	(1) 2-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
②	N/A	RAYCAP SURGE PROTECTION DC12	RAYCAP SURGE PROTECTION DC9	(1) 6-#6 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
③	50A DC BREAKER FOR EACH NEW AEQK & AEQU RRU'S & 30A DC BREAKER FOR EACH NEW AHLBBA RRU'S	-48DC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC12-48-60-0-25E	(1) 6-#6 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
④	15A / 1P	-48DC DISTRIBUTION PANEL	LTE BASE BAND UNIT	(1) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE

- DC WIRING GENERAL NOTES:**
- DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V (RED) AND -48V (BLUE) MARKINGS ON CONDUCTORS.
 - LTE TECHNOLOGY DC POWER WIRING SHALL BE IN ACCORDANCE WITH ATT-002-290-531
 - NON-LTE TECHNOLOGY DC POWER WIRING SIZE 14 AWG TO 10 AWG SHALL BE TELCOFLEX III. DC POWER WIRING 8 AWG AND LARGER SHALL BE TELCOFLEX IV.

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS OR OMISSIONS. NO VARIATIONS OR MODIFICATIONS TO WORK SHOWN SHALL BE IMPLEMENTED WITHOUT PRIOR WRITTEN APPROVAL. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED BY THE LATEST REVISION. ALL DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF MORRISON HERSHFIELD CORPORATION. NEITHER MORRISON HERSHFIELD NOR THE ARCHITECT WILL BE PROVIDING CONSTRUCTION REVIEW OF THIS PROJECT.



2/1/22

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Project:

DRAPER
SITE ID: UTL02013
1661 EAST 13200 SOUTH
DRAPER, UT 84020
FA: 10088359
BU: 845623

Drawing Title:

ELECTRICAL DC ONE-LINE DIAGRAM

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval:
Issue No.: 0	Drawing No.: E02.0

ELECTRICAL DC ONE LINE DIAGRAM

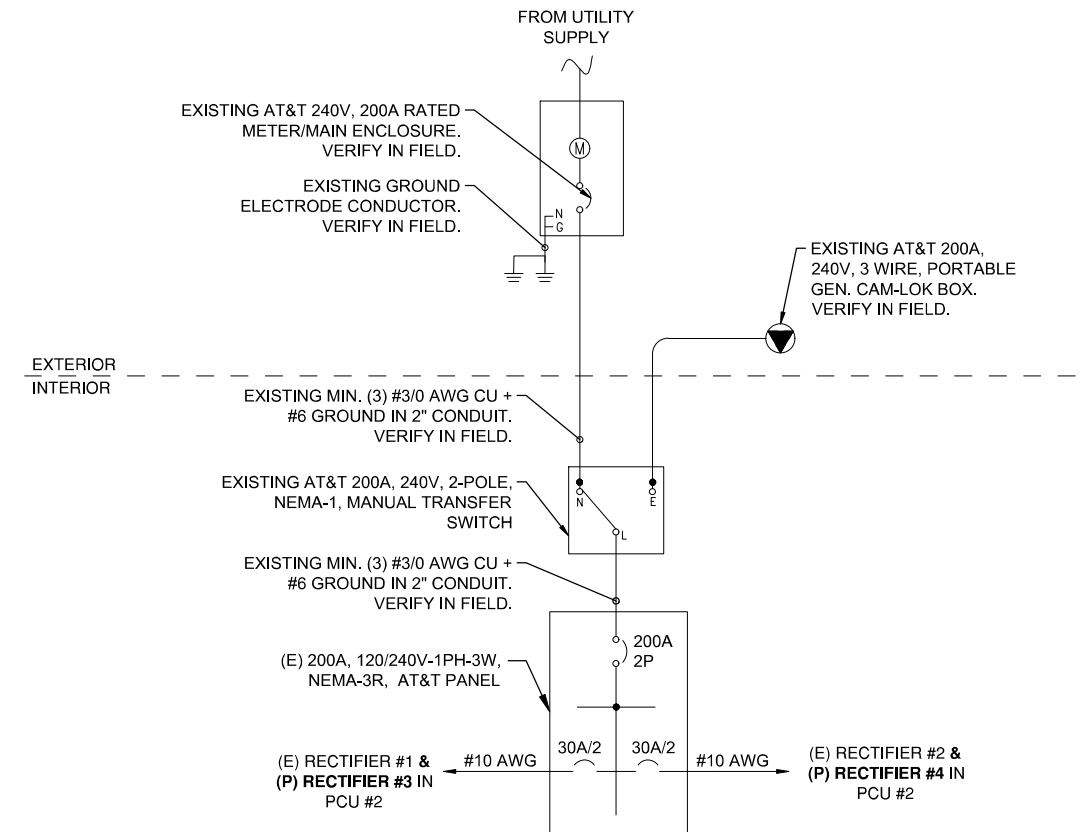
SCALE N.T.S. 1

SCALE IS BASE ON 22" X 34" D" SIZE

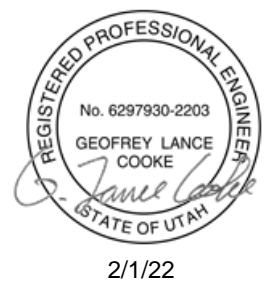
X:\Reference\Telecom\US Tower Projects\Crown Analyses-8\CN8-375-845623-DRAPER\CN8-375-845623-DRAPER\CN8-375-10088359-UTL02013_5G NR 1SR CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

PANEL NAME		LOCATION:		VOLTAGE:		240	120V	1Ø	MOUNTING/ENCLOSURE:		SURFACE		NEMA-1	
EXISTING 200A PANEL PP1		EQUIPMENT ROOM		MAIN LUG ONLY:					AVAIL. FAULT CURRENT:					
				BUS RATING:		200	AMPS		SHORT CIRCUIT RATING:		22,000			
AMPS	POLES	TYPE	CIRCUIT DESCRIPTION	KVA	CKT	A	B	CKT	KVA	CIRCUIT DESCRIPTION	TYPE	POLES	AMPS	
60	2	NC	(E) HVAC #1	2.95	1	2.95		2	0.00	(E) HVAC #2	NC	2	60	
				2.95	3		2.95	4	0.00					
15	1	C	(E) INT. & EXT. LTG.	1.20	5	1.56		6	0.36	(E) RECEPTACLES	NC	1	20	
15	1	NC	(E) SMOKE DETECTOR	0.18	7		0.54	8	0.36	(E) RECEPTACLES	NC	1	20	
30	2		(E) SPARE	0.00	9	0.00		10	0.00	(E) SPARE		2	30	
				0.00	11		0.00	12	0.00					
30	2	NC	(E) RECTIFIER #1 & (P) RECTIFIER #3 IN PCU #2	2.00	13	4.00		14	2.00	(E) RECTIFIER #2 & (P) RECTIFIER #4 IN PCU #2	NC	2	30	
				2.00	15		4.00	16	2.00					
30	2	NC	(E) RECTIFIERS #1 & #3 IN PCU #3	2.00	17	3.00		18	1.00	(E) RECTIFIER #2 IN PCU #3	NC	2	30	
				2.00	19		3.00	20	1.00					
30	2	NC	(E) RECTIFIERS #1 & #3 IN PCU #4	2.00	21	3.00		22	1.00	(E) RECTIFIER #2 IN PCU #4	NC	2	30	
				2.00	23		3.00	24	1.00					
30	2	NC	(E) RECTIFIER #1 IN PCU #5	1.00	25	2.00		26	1.00	(E) RECTIFIER #2 IN PCU #5	NC	2	30	
				1.00	27		2.00	28	1.00					
30	2	NC	(E) RECTIFIER #1 IN PCU #6	1.00	29	2.00		30	1.00	(E) RECTIFIER #2 IN PCU #6	NC	2	30	
				1.00	31		2.00	32	1.00					
-	-	-	SPACE	0.00	33	0.00		34	0.00	SPACE	-	-	-	
-	-	-	SPACE	0.00	35			36	0.00	SPACE	-	-	-	
-	-	-	SPACE	0.00	37	0.00		38	0.00	SPACE	-	-	-	
-	-	-	SPACE	0.00	39			40	0.00	SPACE	-	-	-	
-	-	-	SPACE	0.00	41	0.00		42	0.00	SPACE	-	-	-	
PHASE TOTAL				18.51			17.49	KVA						
ALL NEW BREAKERS SHALL MATCH EXISTING AIC RATING										TOTAL CONNECTED LOAD	36.00	KVA	150A	
										TOTAL DEMAND LOAD	36.30	KVA	151A	

- NOTES:**
- EXISTING MAIN AC PANEL WILL NOT BE REPLACED.
 - CONTRACTOR SHALL INSTALL AND RUN ANY NEW CONDUCTORS TOGETHER IN A NEW 1" EMT CONDUIT.
 - CONTRACTOR TO VERIFY EXISTING BREAKER SIZE AND CONNECTIONS IF THEY WILL BE RE-USED.
 - ADDITIONAL DC LOAD HAS BEEN INCLUDED IN THE AC LOAD CALCULATIONS.
 - RECTIFIER NUMBER SHOWN INDICATES THE RECTIFIER POSITION IN THE DC PLANT - NOT THE RECTIFIER COUNT.



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Project:
DRAPER
 SITE ID: UTL02013
 1661 EAST 13200 SOUTH
 DRAPER, UT 84020
 FA: 10088359
 BU: 845623

Drawing Title:
ELECTRICAL AC ONE-LINE DIAGRAM & PANEL SCHEDULE

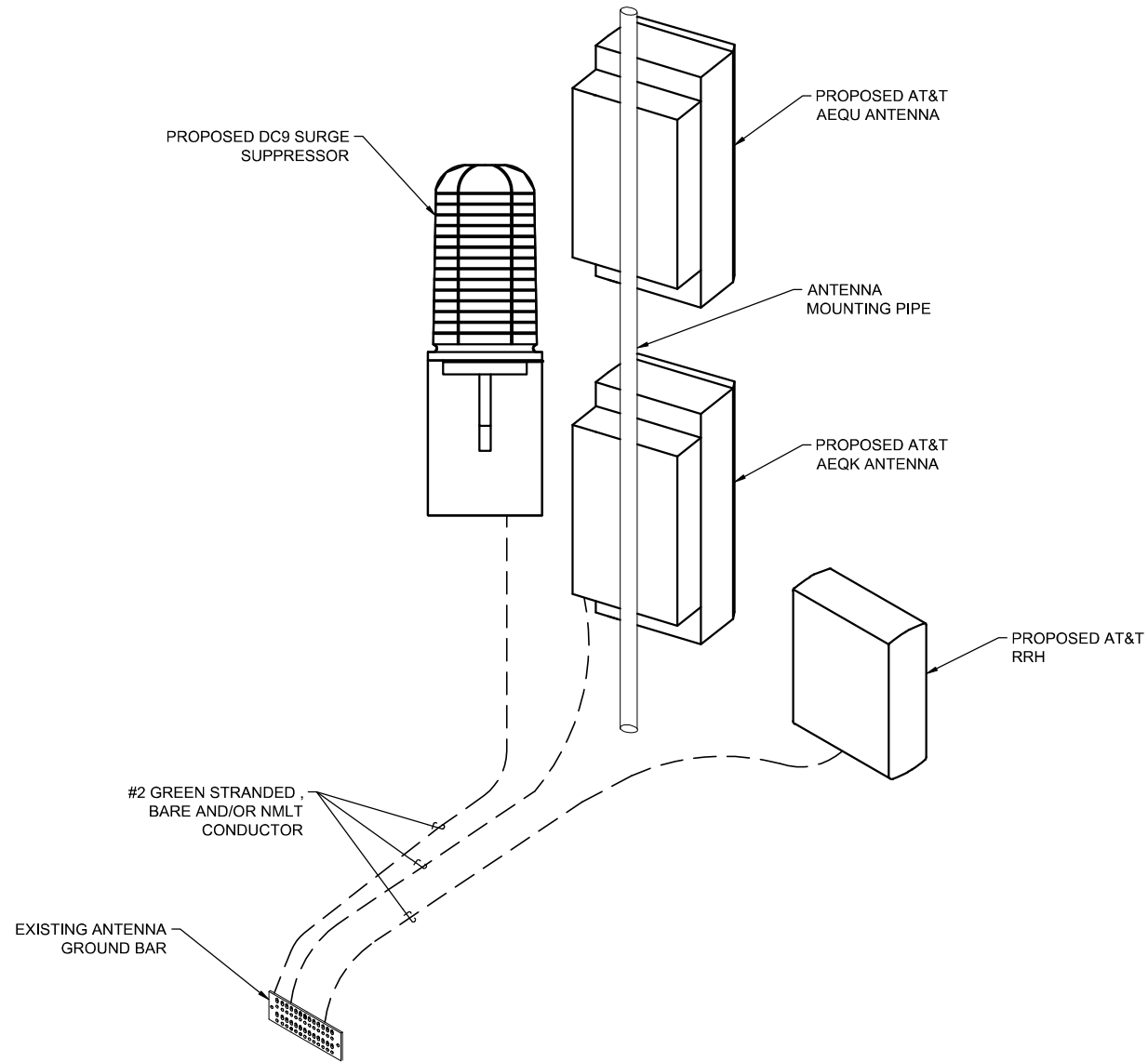
Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: E02.1

ELECTRICAL AC ONE LINE DIAGRAM & PANEL SCHEDULE

SCALE N.T.S. 1

SCALE IS BASE ON 22" X 34" "D" SIZE

X:\Reference\Telecom\US Tower Projects\Crown_Analyses-8\CNB-375-845623-DRAPER\CNB-375-10088359-UTL02013_5G NR 1SR CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning



NOTES:

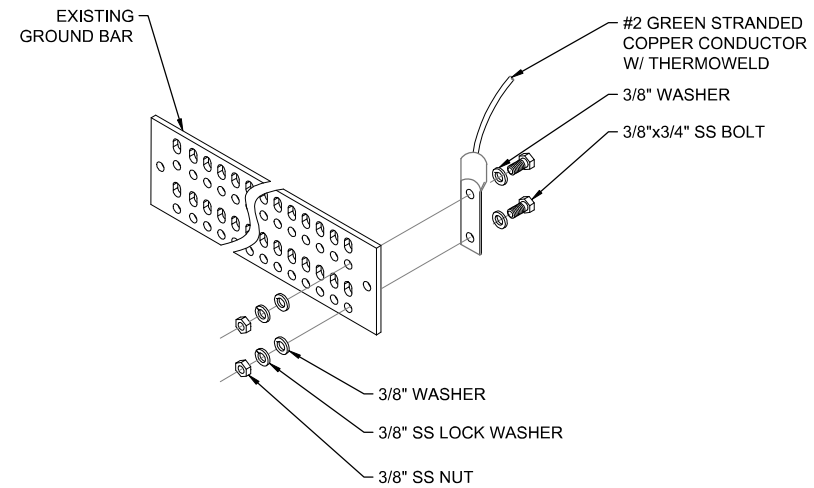
1. CONTRACTOR SHALL REFER TO AT&T GROUNDING AND BONDING PRACTICE TP-76416. ALL EXOTHERMIC CADWELDS SHALL BE PERFORMED BY CERTIFIED TECHNICIAN.
2. PROVIDE WEATHER PROOFING AND GROUNDING KIT TO BOND DC POWER CABLE SHIELD TO EXTERNAL HATCH PLATE GROUND BAR.
3. PROVIDE GROUND CONNECTION FOR DC POWER CABLE SHIELD TO "P" SECTION OF CRGB WITHIN SHELTER.
4. CONTRACTOR SHALL USE THEFT RESISTANT GROUND WIRES AND BARS WHEN FEASIBLE.
5. CONTRACTOR SHALL MAINTAIN A 12" MINIMUM GROUND WIRE BEND RADII.
6. GROUND LUGS, HEATSHRINK AND CLAMPS DEVICES SHALL COMPLY WITH AT&T GROUNDING AND BONDING PRACTICE TP-76416.

ANTENNA GROUNDING SCHEMATIC (TYP)

SCALE
N.T.S. 1

GROUNDING NOTES

SCALE
N.T.S. 3



NOTES:

1. UTILIZE EXISTING AT&T GROUND BARS AND GROUNDING.
2. ADD GROUND BARS IF THERE ARE INSUFFICIENT LUG POSITIONS.
3. REFERENCE AT&T BONDING & GROUNDING PRACTICE TP76416.

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE
N.T.S. 2

1. RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DOCUMENTS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
2. GUARANTEE/WARRANTY: GUARANTEE INSTALLATION TO BE FREE OF DEFECTS, SHORTS, GROUNDS, ETC., FOR A PERIOD OF ONE YEAR. FURNISH WARRANTY SO THE DEFECTIVE MATERIAL AND/OR WORKMANSHIP WILL BE REPAIRED/REPLACED IMMEDIATELY UPON NOTIFICATION AT NO COST TO THE OWNER FOR PERIOD OF WARRANTY.
3. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
4. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
5. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
6. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
7. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
8. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
9. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
10. CONTRACTOR SHALL REFER TO AT&T GROUNDING AND BONDING PRACTICE TP-76416.

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Project:

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SITE ID: UTL02013
1661 EAST 13200 SOUTH
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FA: 10088359
BU: 845623

Drawing Title:
GROUNDING DETAILS

Project No.: 210139800 CNB842754	
Designer: RB	Date: 02/08/21
Drawn By: DDM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: E03.0

SCALE IS BASE ON 22" X 34" "D" SIZE

GENERAL CONSTRUCTION NOTES

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
GENERAL CONTRACTOR - SEE PROJECT TEAM IN TITLE SHEET
SUBCONTRACTOR - CONTRACTOR (CONSTRUCTION)
OWNER - AT&T
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
- GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF 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. VERIFY WITH SITE OWNER IF A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE PROCEEDING WITH ANY CONSTRUCTION.
- 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.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- 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 SHOWN 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.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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 CONFIRM TO ALL OSHA REQUIREMENTS AND AS PER CALIFORNIA BUILDING CODE CHAPTER 33 AS STATED IN THE ENTIRE CHAPTER.
- GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
- ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. SUBCONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
- 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.
- SUBCONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.

- 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.
- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND SUBCONTRACTORS TO THE SITE AND/OR BUILDING.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
- 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.
- THE GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A:OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
- 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.
- 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.
- 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.
- 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.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT MODIFIED PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT MODIFIED 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.
- ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- 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.
- SUBCONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
- 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).
- OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
- NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.

- 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.
- SUBCONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF SUBCONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
- SUBCONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- 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.
- NO WHITE STROBIC LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
- ALL FIBER/POWER CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- NO NOISE, SMOKE, DUST, ODOR, OR VIBRATIONS WILL RESULT FROM THIS FACILITY.
- NO LANDSCAPING IS PROPOSED AT THIS SITE.

SITE WORK & DRAINAGE

PART 1 - GENERAL

CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

1.1 REFERENCES:

- DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-CURRENT EDMON).
- ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).
- OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION).

1.2 INSPECTION AND TESTING:

- FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS SHALL BE PERFORMED BY SUBCONTRACTORS INDEPENDENT TESTING LAB. THIS WORK TO BE COORDINATED BY THE SUBCONTRACTOR.
- ALL WORK SHALL BE INSPECTED AND RELEASED BY THE GENERAL CONTRACTOR WHO SHALL CARRY OUT THE GENERAL INSPECTION OF THE WORK WITH SPECIFIC CONCERN TO PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND/OR CALLED FOR ON THE DRAWINGS. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO REQUEST TIMELY INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF WORK INACCESSIBLE OR DIFFICULT TO INSPECT.

1.3 SITE MAINTENANCE AND PROTECTION:

- PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE SUBCONTRACT.
- AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
- KEEP SITE FREE OF ALL PONDING WATER.
- PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT AND EPA REQUIREMENTS.
- PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS OR OMISSIONS. NO VARIATIONS OR MODIFICATIONS TO WORK SHOWN SHALL BE IMPLEMENTED WITHOUT PRIOR WRITTEN APPROVAL. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED BY THE LATEST REVISION. ALL DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF MORRISON HERSHFIELD CORPORATION. NEITHER MORRISON HERSHFIELD NOR THE ARCHITECT WILL BE PROVIDING CONSTRUCTION REVIEW OF THIS PROJECT.



2/1/22

O	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL
No.	Date	Action

Plans Prepared For:

CROWN CASTLE

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Drawing Title:

GENERAL NOTES

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: G01.0

SCALE IS BASE ON 22" X 34" D" SIZE

X:\Reference\Telecom\US Tower Projects\Crown Analyses-8\CN8-375-845623-DRAPER\CN8-375-10088359-UTL02013_5G NR 15R CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning

F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ENGINEER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.

G. PROVIDE A MINIMUM 48-HOUR NOTICE TO THE ENGINEER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.

PART 2 - PRODUCTS

2.1 SUITABLE BACKFILL: ASTM D2321 (CLASS I, II, III OR IVA) FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.

2.2 NON-POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS III, IVA OR IVB) COARSE AGGREGATE. FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.

2.3 POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS IA, IB OR II) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN 3 INCHES IN ANY DIMENSION OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.

2.4 SELECT STRUCTURAL FILL: GRANULAR FILL MATERIAL MEETING THE REQUIREMENTS OF ASTM E850-95. FOR USE AROUND AND UNDER STRUCTURES WHERE STRUCTURAL FILL MATERIAL ARE REQUIRED.

2.5 GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRADED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (SE OR SW-SM).

2.6 COARSE AGGREGATE FOR ACCESS ROAD SUBBASE COURSE SHALL CONFORM TO ASTM D2940.

2.7 UNSUITABLE MATERIAL HIGH AND MODERATELY PLASTIC SILTS AND CLAYS (LL>45). MATERIAL CONTAINING REFUSE, FROZEN LUMPS, DEMOLISHED BITUMINOUS MATERIAL, VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN ANY DIMENSION. AND DEBRIS AS DETERMINED BY THE CONSTRUCTION MANAGER, TYPICAL THESE WILL BE SOILS CLASSIFIED BY ASTM AS PT, MH, CH, OH, ML, AND OL.

2.8 GEOTEXTILE FABRIC: MIRAFI 500X OR APPROVED EQUAL.

2.9 PLASTIC MARKING TAPE: SHALL BE ACID AND ALKALI RESISTANT POLYETHYLENE FILM SPECIFICALLY MANUFACTURED FOR MARKING AND LOCATING UNDERGROUND UTILITIES. 6 INCHES WIDE WITH A MINIMUM THICKNESS OF 0.004 INCH. TAPE SHALL HAVE MINIMUM STRENGTH OF 1500 PSI IN BOTH DIRECTIONS AND MANUFACTURED WITH INTEGRAL CONDUCTORS, FOIL BACKING OR OTHER MEANS TO ENABLE DETECTION BY A METAL DETECTOR WHEN BURIED UP TO 3 FEET DEEP. THE METALLIC CORE OF THE TAPE SHALL BE ENCASED IN A PROTECTIVE JACKET OR PROVIDED WITH OTHER MEANS TO PROTECT IT FROM CORROSION. TAPE COLOR SHALL BE RED FOR ELECTRIC UTILITIES AND ORANGE FOR TELECOMMUNICATION UTILITIES.

PART 3 - EXECUTION

3.1 GENERAL:

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

B. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK.

C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.

1. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REFUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE, RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.

2. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS.

3. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING AND DEMOLITION WORK COMPLETELY WITH SUITABLE FILL.

A. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.

B. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.

C. SEPARATE AND STOCK PILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.

3.2 BACKFILL:

A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.

1. PRIOR TO PLACING BACKFILL AROUND STRUCTURES. ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.

2. BACKFILL BY PLACING AND COMPACTING SUITABLE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS AND COMPACTED. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.

3. WHENEVER THE DENSITY TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE SPECIFICATION REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GEOTECHNICAL ENGINEER. DIE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DISKING AND DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE MINIMUM COMPACTION REQUIREMENTS.

B. THOROUGHLY COMPACT EACH LAYER OF BACKFILL TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 698.

3.3 TRENCH EXCAVATION:

A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.

B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 1557.

C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, BACKFILL AT THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION AND BACKFILL WITH GRANULAR BEDDING MATERIAL.

3.4 TRENCH BACKFILL:

A. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.

B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.

C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.

D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.

E. PROTECT CONDUIT FROM LATERAL MOVEMENT. IMPACT DAMAGE, OR UNBALANCED LOADING.

F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 8-INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.

G. 3.5 COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH BUT NO LESS THAN A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 698.

3.5 AGGREGATE ACCESS ROAD:

A. CLEAR, GRUB, STRIP AND EXCAVATE FOR THE ACCESS ROAD TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. SCARIFY TO A DEPTH OF 6 INCHES AND PROOF-ROLL. ALL HOLES, RUTS, SOFT PLACES AND OTHER DEFECTS SHALL BE CORRECTED.

B. THE ENTIRE SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 1557.

C. AFTER PREPARATION OF THE SUBGRADE IS COMPLETE THE GEOTEXTILE FABRIC (MIRAFI 500Xi) SHALL BE INSTALLED TO THE LIMITS INDICATED ON THE DRAWINGS BY ROLLING THE FABRIC OUT LONGITUDINALLY ALONG THE ROADWAY. THE FABRIC SHALL NOT BE DRAGGED ACROSS THE SUBGRADE. PLACE THE ENTIRE ROLL IN A SINGLE OPERATION, ROLLING OUT AS SMOOTHLY AS POSSIBLE.

1. OVERLAPS PARALLEL TO THE ROADWAY WILL BE PERMITTED AT THE CENTERLINE AND AT LOCATIONS BEYOND THE ROADWAY SURFACE WIDTH (I.E. WITHIN THE SHOULDER WIDTH) ONLY. NO LONGITUDINAL OVERLAPS SHALL BE LOCATED BETWEEN THE CENTERLINE AND THE SHOULDER. PARALLEL OVERLAPS SHALL BE A MINIMUM OF 3 FEET WIDE.

2. TRANSVERSE (PERPENDICULAR TO THE ROADWAY) OVERLAPS AT THE END OF A ROLL SHALL OVERLAP IN THE DIRECTION OF THE AGGREGATE PLACEMENT (PREVIOUS ROLL ON TOP) AND SHALL HAVE A MINIMUM LENGTH OF 3 FEET.

3. ALL OVERLAPS SHALL BE PINNED WITH STAPLES OR NAILS A MINIMUM OF 10 INCHES LONG TO INSURE POSITIONING DURING PLACEMENT OF AGGREGATE. PIN LONGITUDINAL SEAMS AT 25 FOOT CENTERS AND TRANSVERSE SEAMS EVERY 5 FEET.

D. THE AGGREGATE BASE AND SURFACE COURSES SHALL BE CONSTRUCTED IN LAYERS NOT MORE THAN 4 INCH (COMPACTED) THICKNESS. AGGREGATE TO BE PLACED ON GEOTEXTILE FABRIC SHALL BE END-DUMPED ON THE FABRIC FROM THE FREE END OF THE FABRIC OR OVER PREVIOUSLY PLACED AGGREGATE. THE FIRST LIFT SHALL BE BLADED DOWN TO A THICKNESS OF 8 INCHES PRIOR TO COMPACTION. AT NO TIME SHALL EQUIPMENT, EITHER TRANSPORTING THE AGGREGATE OR GRADING THE AGGREGATE, BE PERMITTED ON THE ROADWAY WITH LESS THAN 4 INCHES OF MATERIAL COVERING THE FABRIC.

E. THE AGGREGATE SHALL BE IMMEDIATELY COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D 1557 WITH A TAMPING ROLLER, OR WITH A PNEUMATIC-TIRED ROLLER, OR WITH A VIBRATORY MACHINE OR ANY COMBINATION OF THE ABOVE. THE TOP LAYER SHALL BE GIVEN A FINAL ROLLING WITH A THREE-WHEEL OR TANDEM ROLLER.

3.6 FINISH GRADING:

A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH, EVEN SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.

B. UTILIZE SATISFACTORY ALL MATERIAL RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.

C. ACHIEVE FINISHED GRADE BY PLACING A MINIMUM OF 4 INCHES OF 1/2" - 3/4" CRUSHED STONE ON TOP SOIL STABILIZER FABRIC.

D. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

3.7 ASPHALT PAVING ROAD:

A. CHAPTER 630 - CALIFORNIA DEPARTMENT OF TRANSPORTATION FLEXIBLE PAVEMENT.

B. DESIGN GUIDE AND STANDARDS FOR ROADWAY REHABILITATION PROJECTS (DIB 79-03).

DO NOT SCALE DRAWINGS. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND ADVISE CONSULTANTS OF ANY ERRORS OR OMISSIONS. NO VARIATIONS OR MODIFICATIONS TO WORK SHOWN SHALL BE IMPLEMENTED WITHOUT PRIOR WRITTEN APPROVAL. ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED BY THE LATEST REVISION. ALL DRAWINGS AND SPECIFICATIONS REMAIN THE PROPERTY OF MORRISON HERSHFIELD CORPORATION. NEITHER MORRISON HERSHFIELD NOR THE ARCHITECT WILL BE PROVIDING CONSTRUCTION REVIEW OF THIS PROJECT.



2/1/22

O	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
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Plans Prepared For:

CROWN CASTLE

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Applicant:

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Your world. Delivered.

Plans Prepared By:

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Drawing Title:

GENERAL NOTES

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: G02.0

ELECTRICAL NOTES

PART 1 - GENERAL

1.1 GENERAL CONDITIONS:

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

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

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

1.3 REFERENCES:

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

1. ANSII/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)
4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
6. OSHA (OCCUPATIONAL SAFETY MID HEALTH ADMINISTRATION)
7. UL (UNDERWRITERS LABORATORIES. NC.)
8. AT&T GROUNDING MID BONING 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, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

PART 2 - PRODUCTS

2.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.
- B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE

- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH HE 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 10 GALVANIZING
2. LIQUID TIGHT 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 THIN/THWN-2. 600 VOLT. SIZE AS INDICATED. #12 AWG SHALL BE TIE MINIMUM SIZE CONDUCTOR USED.
2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED MID #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES.
5. EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY. DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE. HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION. RATING AS INDICATED. UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D OR 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 EXOTHERMALLY WELDED PIGTAIL, PROTECTIVE BOXES. AND BACKFILL MATERIAL MANUFACTURER SHALL BE LYNCOLE KIT GROUNDING ROD TYPES K2-(*)CS OR K2L-(*)CS (*) LENGTH AS REQUIRED.
2. GROUND ACCESS BOX SHALL BE A POLY PLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREATHER" HOLES. KIT MODEL #XB-22. ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED. BRANCH CIRCUITS ID NUMBERING, 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 BARE, SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE BARE. TINNED. ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB, 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 FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INTERIOR CONNECTIONS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.

4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT 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 NEC. 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 NEC.

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.

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2/1/22

No.	Date	Action
0	02/01/22	ISSUED FOR PERMIT
B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL

Plans Prepared For:

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Applicant:

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GENERAL NOTES

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: G03.0

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ELECTRICAL NOTES

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 AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
8. SUBCONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. SUBCONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
13. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
- B. CONDUCTORS AND CABLE:**
- 1 ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:
- | DESCRIPTION | 208/240/120 VOLT SYSTEMS |
|-------------|--------------------------|
| PHASE A | BLACK |
| PHASE B | RED |
| PHASE C | BLUE |
| NEUTRAL | WHITE |
| GROUNDING | GREEN |
4. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDULETS APPROVED FOR THIS PURPOSE.
5. PULLING LUBRICANTS SHALL BE UL APPROVED. SUBCONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.
6. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE SUBCONTRACTOR'S EXPENSE.
- C. DISCONNECT SWITCHES:**
1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

- 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 NATIONAL ELECTRICAL CODE.
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. SUBCONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING.
6. 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 36" 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 36" 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 ARRESTERS.
16. SUBCONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE SUBCONTRACTORS 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 LISTED TO SUBCONTRACTOR.
2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

GENERAL NOTES

1. DURING CONSTRUCTION, AT LEAST ONE EXTINGUISHER SHALL BE PROVIDED ON EACH FLOOR LEVEL AT EACH STAIRWAY, IN ALL STORAGE AND CONSTRUCTION SHEDS, IN LOCATIONS WHERE FLAMMABLE OR COMBUSTIBLE LIQUIDS ARE STORED OR USED, AND WHERE OTHER SPECIAL HAZARDS ARE PRESENT PER CFC SECTION 3315.1.
2. BUILDINGS UNDERGOING CONSTRUCTION, ALTERATION, OR DEMOLITION SHALL CONFORM TO CFC CHAPTER 33. WELDING, CUTTING AND OTHER HOT WORK SHALL BE IN CONFORMANCE WITH CFC CHAPTER 35.

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B	12/09/21	90% CD SUBMITTAL
A	09/06/21	90% CD SUBMITTAL

Plans Prepared For:

CROWN CASTLE

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GENERAL NOTES

Project No.: 210139800 : CN8-375	
Designer: RB	Date: 09/06/21
Drawn By: DLM	Checked By: RB
PM Review: GLC	Client Approval
Issue No.: 0	Drawing No.: G04.0

X:\Reference\Telecom\US Tower Projects\Crown Analyses-8\CN8-375-845623-DRAPER\CN8-375-10088359-UTL02013_SG_NF_1SR_CBAND_FCD_Rev_0_01_31_22.dwg 02/01/2022 2:45pm RBrowning