Development Review Committee
1020 East Pioneer Road
Draper, UT 84020

STAFF REPORT
February 5, 2021

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: 2021.02.23 14:41:53-07'00'

Approved Date

From: Travis Van Ekelenburg, Planner II
801-576-6522, travis.vanekelenburg@draperutah.gov

Re: **T-Mobile Antenna Modification–Permitted Use Permit Request**

Application No.:	USE-1102-2020
Applicant:	Steve Ciolek, representing T-Mobile Wireless
Project Location:	Approximately 12226 S 1000 E
Current Zoning:	CO1 (Professional Office) Zone
Acreage:	Approximately 1.4 Acres (Approximately 60,984 ft^2)
Request:	Request for approval of a Permitted Use Permit in the CO1 zone regarding an existing wireless facility equipment upgrade.

SUMMARY AND BACKGROUND

This application is a request for approval of a Permitted Use Permit for approximately 1.4 acres located on the north side of Draper Parkway, at approximately 12226 S 1000 E (Exhibit B). The property is currently zoned CO1. The property is owned by GC Trust and is currently used as a dental office. The applicant is requesting that a Permitted Use Permit be approved to allow for an equipment upgrade on an existing Wireless Facility.

To keep up with the changes in wireless communication technology, T-Mobile is upgrading many of its facilities throughout the valley. The current application pertains to the existing Wireless Facility known as SL01116C Draper Dental.

ANALYSIS

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

Neighborhood Commercial

LAND USE DESCRIPTION	
CHARACTERISTICS	• Small-scale commercial land uses that serve local residents in adjacent neighborhoods • Minimal impact in predominantly residential areas • Well-landscaped street frontages • Limited traffic access points and pedestrian access from surrounding residential areas • Don't overcrowd commercial lots; i.e., require adequate setback and landscape buffers • Screened parking and adequate ingress and egress to parking areas • Adequate drainage • Low noise standards
LAND USE MIX	• Small-scale commercial • Planned retail • Office
COMPATIBLE ZONING	• Neighborhood Commercial (CN) • Institutional Care (IC) • Commercial Services (CS)
LOCATION	• Adjacent to neighborhood • Along local roads

The property has been assigned the CO1 zoning classification (Exhibit D). According to Draper City Municipal Code (DCMC) Section 9-8-020 the purpose of the CO1 zone is to *"The purpose of the CO zone is to provide locations primarily along arterial or major collector streets which will accommodate offices or laboratories for professional persons and other related uses. The zone is intended to provide availability of professional services conveniently to all neighborhoods in the city. Two (2) CO zones are provided: CO1 and CO2. CO1 zones are intended to allow office and related uses on relatively small tracts of land so they can be conveniently and compatibly located adjacent to residential areas. CO2 zones allow larger office and related use developments adjacent to commercial areas and away from residential areas. Typical uses in this zone include offices for doctors, dentists, accountants, and other similar professions, medical and dental laboratories, and pharmacies."* The CO1 zoning abuts the subject property on the north and west; CC (Community Commercial) to the east and south.

Requested Modification. This is simply an equipment upgrade and there will be no change to the site plan. This facility is inside the roof portion of the building and is not seen by the public. The equipment listed below will be a like for like equipment exchange. The new antennas are a bit wider but will use the existing mounts so the azimuth on each sector will remain unchanged. The ground equipment such as the cabinetry will use the same space as the cabinets that are being removed. The proposal consists of the following changes:

- Remove 2 existing AC breakers in the sub panel
- Remove 2 existing equipment cabinets
- Remove 12 existing coax cables, 4 per sector
- Remove 6 existing TMA's (Tower Mounted Amplifier) 2 per sector
- Remove 6 existing T-Mobile antennas, 2 per sector

- Add new AC breaker in sub panel
- Add 2 new equipment cabinets
- Add 3 hybrid cables up to antenna arrays
- Add 6 radio modules, 2 per sector
- Add 6 antennas, 2 per sector

Criteria For Approval. The criteria for review and potential approval of a Permitted Use Permit request is found in Sections 9-5-070(E) of the DCMC. 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 criteria for review and potential approval of a Wireless Telecommunications Facilities request is found in Sections 9-41-050(I) of the DCMC. This section depicts the standard of review for such requests as:

> DCMC Section 9-41-050 (I): I. Facilities Located In Commercial Zones: The facilities set forth below shall be permitted uses in commercial and industrial zones so long as they meet the requirements of this subsection and are not located on otherwise vacant property:
> 1. Hidden antennas.
> 2. Stealth design antennas.
> 3. Flush mounted wall antennas.
> 4. Roof mounted antennas that are:
>
> a. Completely enclosed from view within an architecturally compatible screen approved by staff.
>
> b. Set back at least ten feet (10') from exterior walls of the building on nonparapet wall buildings, or ten feet (10') from the parapet wall on parapet wall buildings.

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.

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.

Conditions of approval:

1. The applicant shall obtain all applicable permits from Draper City, Fire Division and the Building Division for this upgrade.
2. Per DCMC Section 9-5-070(J) A Permitted Use shall expire if not exercised within one hundred eighty (180) days of issuance.

The findings for approval as are follows:

2. That the proposed changes will have no perceptible visual impact.
3. That the proposed changes are compliant with Section 9-5-070(E) of the DCMC.
4. That the proposed changes are compliant with Section 9-41-050(I) of the DCMC.

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.

Brien Maxfield
Digitally signed by Brien Maxfield
DN: cn=Brien Maxfield, o=Draper City, ou, email=brien.maxfield@draper.ut.us, c=US
Date: 2021.02.10 16:57:27 -07'00'

Draper City Public Works Department

Jennifer Jastremsky
Digitally signed by Jennifer Jastremsky
DN: C=US, E=jennifer.jastremsky@draper.ut.us, O=Draper City Planning, CN=Jennifer Jastremsky
Date: 2021.02.10 15:59:29-07'00'

Draper City Planning Division

Don Buckley
Digitally signed by Don Buckley
DN: C=US, E=don.buckley@draper.ut.us, O=Draper City Fire Department, OU=Fire Marshal, CN=Don Buckley
Date: 2021.02.10 16:32:28-07'00'

Draper City Fire Department

Mike Barker
Digitally signed by Mike Barker
DN: cn=Mike Barker, o=Draper City, ou=City Attorney, email=mike.barker@draper.ut.us, c=US
Date: 2021.02.10 15:56:04 -07'00'

Draper City Legal Counsel

Keith Collier
Digitally signed by Keith Collier
DN: C=US, E=keith.collier@draper.ut.us, O=Draper City, OU=Building Dept, CN=Keith Collier
Location: Home
Reason: I agree to the terms defined by the placement of my signature on this document
Contact Info: Keith Collier
Date: 2021.02.11 06:46:01-07'00'

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.

1. No Comments.

Engineering and Public Works Divisions Review.

1. The present and future requirements for transportation, traffic, water, sewer, and other utilities for the subject site do not appear to be detrimentally impacted. The number of trips generated by employees, none onsite with only occasional maintenance activities, will not have an impact to the area. The proposed property layout appears to provide adequate off street parking. Given the represented use and nature of operation, the use is not anticipated to generate a significant impact to traffic, water, sewer, or other utilities;

    a. Access is proposed from 1000 East and Draper Parkway. The proposed limited access, maintenance only, and limitations of the area, meets the intent of the access management of the Master Transportation Plan adopted by the city.

    b. Power to the proposed site exists within the existing infrastructure. From that standpoint, the power supply will be underground, therefore meeting Draper City Municipal Code 8-2-020.

    c. Any work within the public right-of-way of 1000 East or Draper Parkway requires an Encroachment Permit.

2. The proposed use does not appear detrimental to the health, safety, or general welfare of the persons residing or working in the vicinity, or injurious to the property or improvements in the vicinity;

3. The proposed use appears to have been presented as desirable to provide a service or facility which will contribute to the general well-being of the neighborhood and the community; and

4. The proposed use appears to comply with the regulations and conditions as specified in the Draper City Municipal Code and appears to be in harmony with the intent of the Draper City General Plan.

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.

Notes:

Plan approval or review shall not be construed to relieve from or lessen the responsibility of any person designing, owning, operating or controlling any building. Damages to persons or property caused by defects, fire, improper installation, or other emergency conditions that occur in or on the building property shall not hold the Draper City Fire Department as assuming any liability.

EXHIBIT B
AERIAL MAP

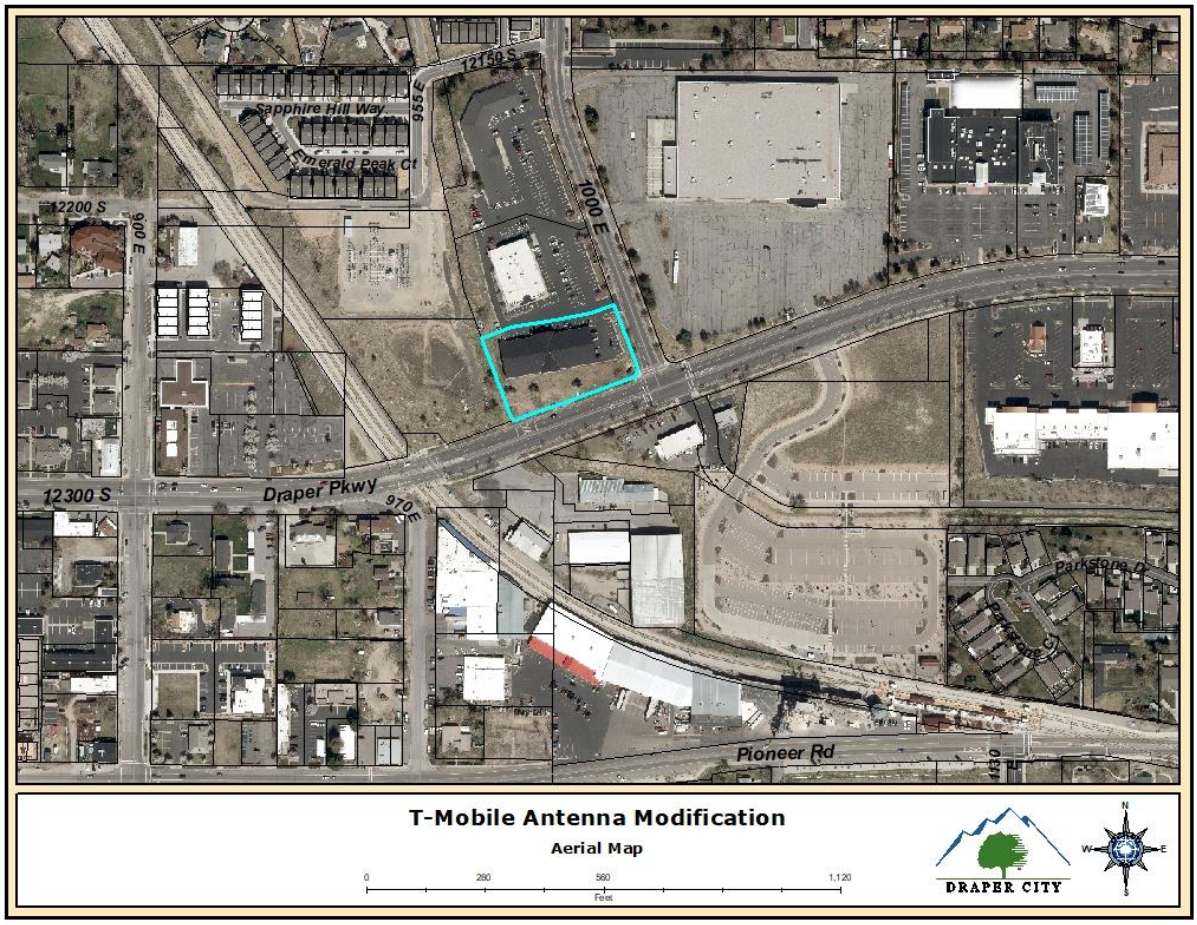


EXHIBIT C
LAND USE MAP

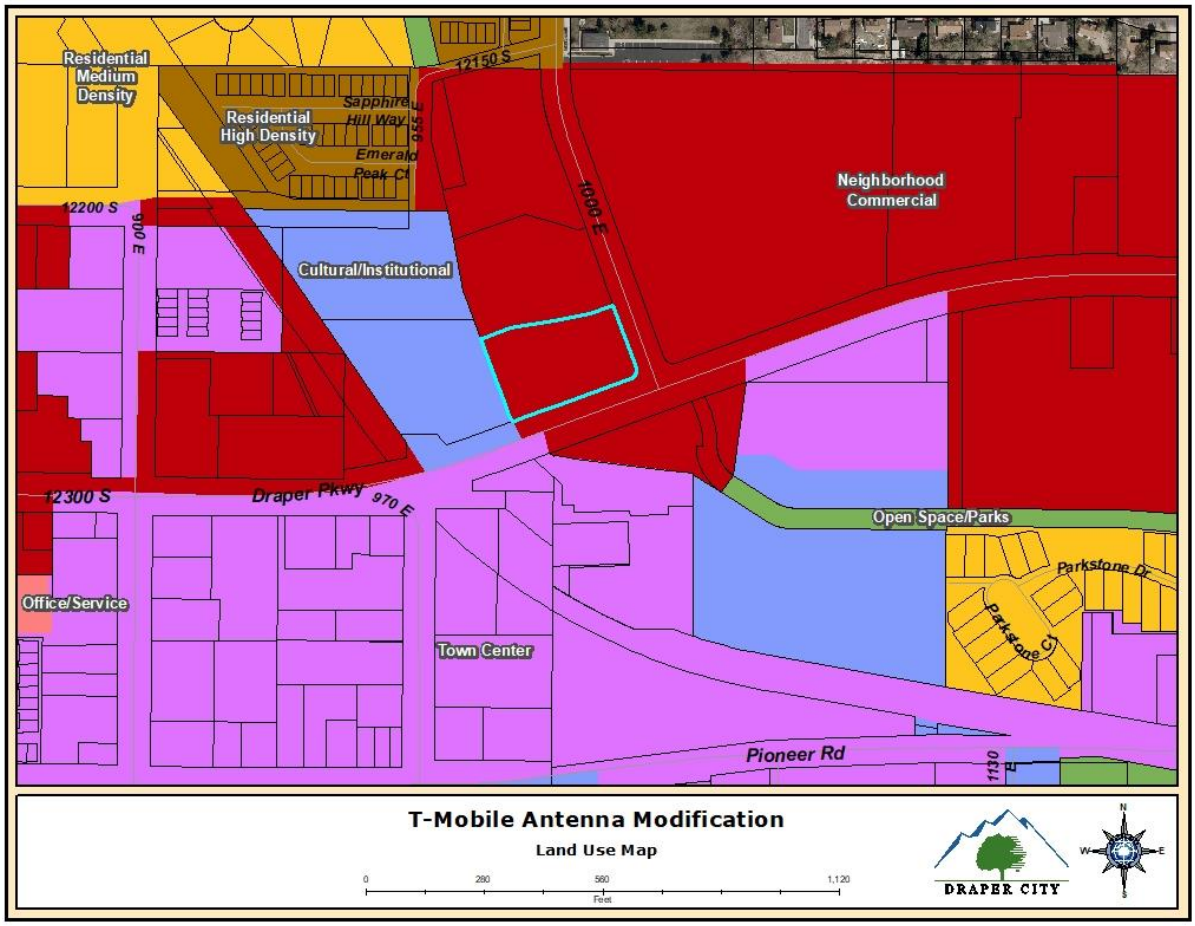


EXHIBIT D
ZONING MAP

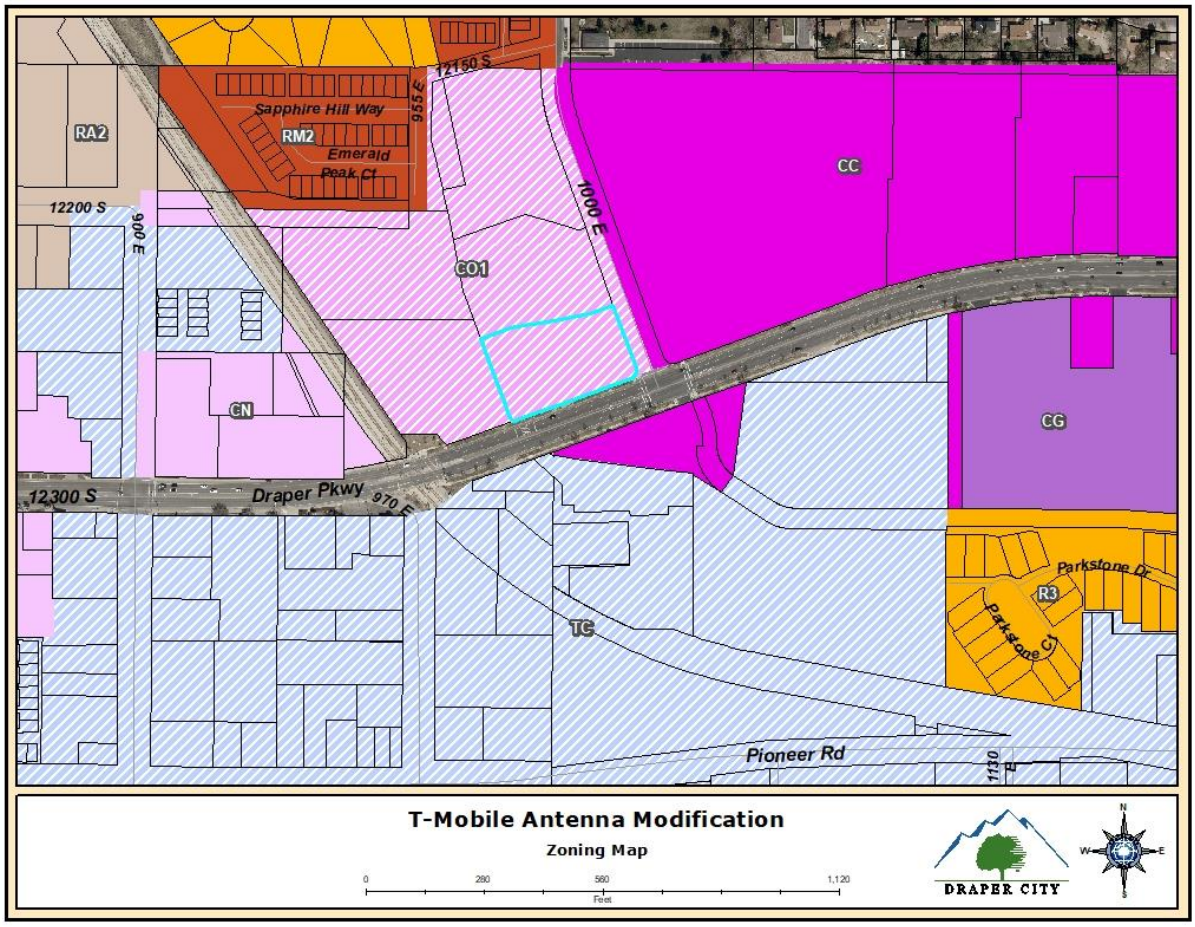


EXHIBIT E
DRAWINGS

T-Mobile

SITE #: SL01116C
SITE NAME: DRAPER DENTAL
STATE: UTAH
COUNTY: SALT LAKE
DESIGN TYPE: ANCHOR

CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE CODES ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

ACCESSIBILITY REQUIREMENTS:

THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE CURRENT INTERNATIONAL BUILDING CODE.

ENGINEERS NOTES:

1. IF A DISCREPANCY ARISES BETWEEN THE DRAWINGS AND FIELD CONDITIONS, OR WHERE A DETAIL IS DOUBTFUL OF INTERPRETATION, OR AN UNANTICIPATED FIELD CONDITION IS ENCOUNTERED, THE ENGINEER SHALL BE CALLED IMMEDIATELY FOR PROCEDURE TO BE FOLLOWED. SUCH INSTRUCTIONS SHALL BE CONFIRMED IN WRITING AND DISTRIBUTED TO ALL AFFECTED PARTIES.

2. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS, OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DRAWING AND/OR DOCUMENTS.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER LAYOUT OF IMPROVEMENTS BASED UPON SETBACKS/ PROPERTY LINE LOCATION. DIMENSIONAL RELATIONSHIPS TO EQUIPMENT ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.

4. CONTRACTOR TO MAINTAIN ALL DRAINAGE PATHS FREE FROM ANY OBSTRUCTIONS (I.E. DEBRIS AND SILT).

5. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM EQUIPMENT.

6. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND ENGINEER OF RECORD.

7. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

UTILITY NOTES:

1. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT BLUESTAKE AT LEAST TWO FULL WORKING DAYS (48 HOURS) PRIOR TO BEGINNING OF ANY EXCAVATING.

2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL STRUCTURES, UNDERGROUND PIPELINES, ELECTRIC AND TELEPHONE CONDUITS, EITHER SHOWN OR NOT SHOWN ON THE PLANS PRIOR TO ANY CONSTRUCTION, AND TO OBSERVE ALL POSSIBLE PRECAUTIONS TO AVOID ANY DAMAGE TO THESE FACILITIES. THE ENGINEERING AND/OR DEVELOPER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.

3. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL UTILITY CONNECTIONS.

PROJECT SUMMARY

SITE ADDRESS:
12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

PROPERTY OWNER:
GORDON CARR IRREVOCABLE TRUST
C/O CAPSTONE PROPERTY
MANAGEMENT LLC
4422 SOUTH CENTURY DRIVE
MURRAY, UTAH 84123
KENT GIBSON
(801)313-0700

APN:	28293300060000
ZONING CLASSIFICATION:	COI
JURISDICTION:	DRAPER CITY
LAT:	40.52788667
LONG:	-111.86285

PROJECT DESCRIPTION

T-MOBILE PROPOSES TO:

REMOVE EXISTING AC BREAKERS IN SUB PANEL
REMOVE (2) EXISTING EQUIPMENT CABINETS
REMOVE (12) EXISTING COAX CABLES, (4) PER SECTOR
REMOVE (6) EXISTING TMA'S (2) PER SECTOR
REMOVE (6) EXISTING T-MOBILE ANTENNAS, (2) PER SECTOR
ADD NEW AC BREAKER IN SUB PANEL
ADD (2) NEW EQUIPMENT CABINETS
ADD (3) HYBRID CABLES UP TO ANTENNA ARRAYS
ADD (6) RADIO MODULES, (2) PER SECTOR
ADD (6) ANTENNAS, (2) PER SECTOR

PROJECT TEAM

PROJECT MANAGER:
T-MOBILE
121 ELECTION RD.
DRAPER, UTAH 84020
CONTACT: RAQUEL ELLIS
PHONE: (425) 279-4286
EMAIL: RAQUEL.COLLINS26@T-MOBILE.COM

CONSTRUCTION MANAGER:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, AZ 85281
CONTACT: IAN WALKER
PHONE (801) 946-8585

SITE ACQ. CONSULTANT:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
CONTACT: JACOB RYNES
PHONE: (480) 204-8226

A&E DESIGN:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, AZ 85281
CONTACT: SHAWN EVANS
PHONE (602) 758-5829

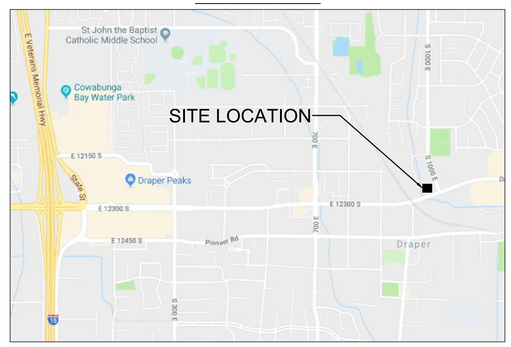
CIVIL ENGINEER:
TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131
PHOENIX, ARIZONA 85028
CONTACT: ROBERT ORLANDO
PHONE (602) 482-1603
EMAIL:ROBERT@TERRADYNAMIC.US

ELECTRICAL ENGINEER:
EXCELLENCE IN ENGINEERING
12005 ANTELOPE TRAIL
PARKER, COLORADO 80138
CONTACT: LOREN PRIEST
PHONE (303) 748-1189

811
KNOW WHAT'S BELOW
CALL BEFORE YOU DIG

SHEET INDEX

VICINITY MAP



DRIVING DIRECTIONS

DIRECTIONS TO THE SITE FROM THE T-MOBILE OFFICE:
TAKE LONE PEAK PKWY SOUTH TO E. 12300 S AND MAKE A LEFT. MAKE ANOTHER LEFT ON S. 1000 E. AND THE BUILDING WILL BE THE FIRST ONE ON YOUR LEFT.

CLIENT
T-Mobile
121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD
TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION
JOB: 13-069-04

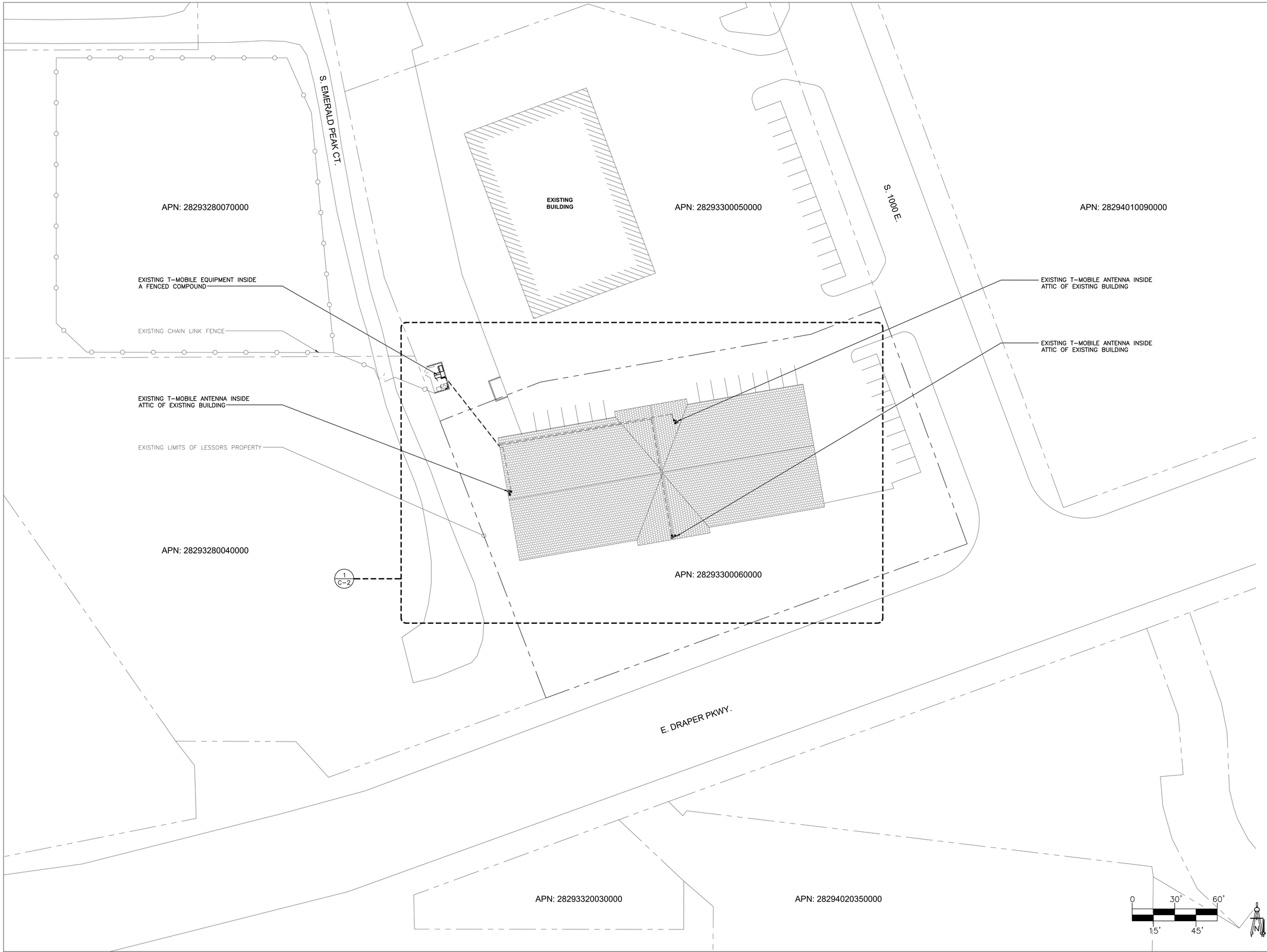
SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE
TITLE SHEET, VICINITY MAP & GENERAL INFORMATION

JURISDICTIONAL APPROVAL

SHEET NUMBER
T-1



SITE PLAN

SCALE: 1" =30'

1

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

SITE PLAN

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-1

EXISTING T-MOBILE EXCESS FIBER MOUNTED TO BLOCK WALL

EXISTING T-MOBILE CHAIN LINK FENCE COMPOUND ACCESS GATE

EXISTING T-MOBILE METER MOUNTED TO EXISTING EQUIPMENT CABINET

EXISTING COMPOUND BLOCK WALL WITH CHAIN LINK FENCE ON TOP

EXISTING (3) T-MOBILE RADIO MODULES MOUNTED TO EXISTING BLOCK WALL

1 C-3 2 C-3

EXISTING LIMITS OF LESSORS PROPERTY

EXISTING ASPHALT PARKING LOT

3 C-3 4 C-3

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING EDGE OF BUILDING

EXISTING COAX CABLES ROUTED UNDERGROUND TO BASE OF BUILDING AND UP TO ANTENNA ARRAYS

SLOPE

EXISTING GRASS LANDSCAPE

EXISTING EDGE OF ROOF

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING RIDGE

SLOPE

EXISTING ROOFTOP

3 C-4 4 C-4

1 C-5

2 C-5

1 C-4 2 C-4

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING EDGE OF BUILDING

EXISTING GRASS LANDSCAPE

EXISTING DIRT ROAD AT LOWER GRADE

SLOPE

0 2' 4' 10'

1' 3' 5'

N

ENLARGED SITE PLAN

SCALE: 3/16" =1'-0"

1

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

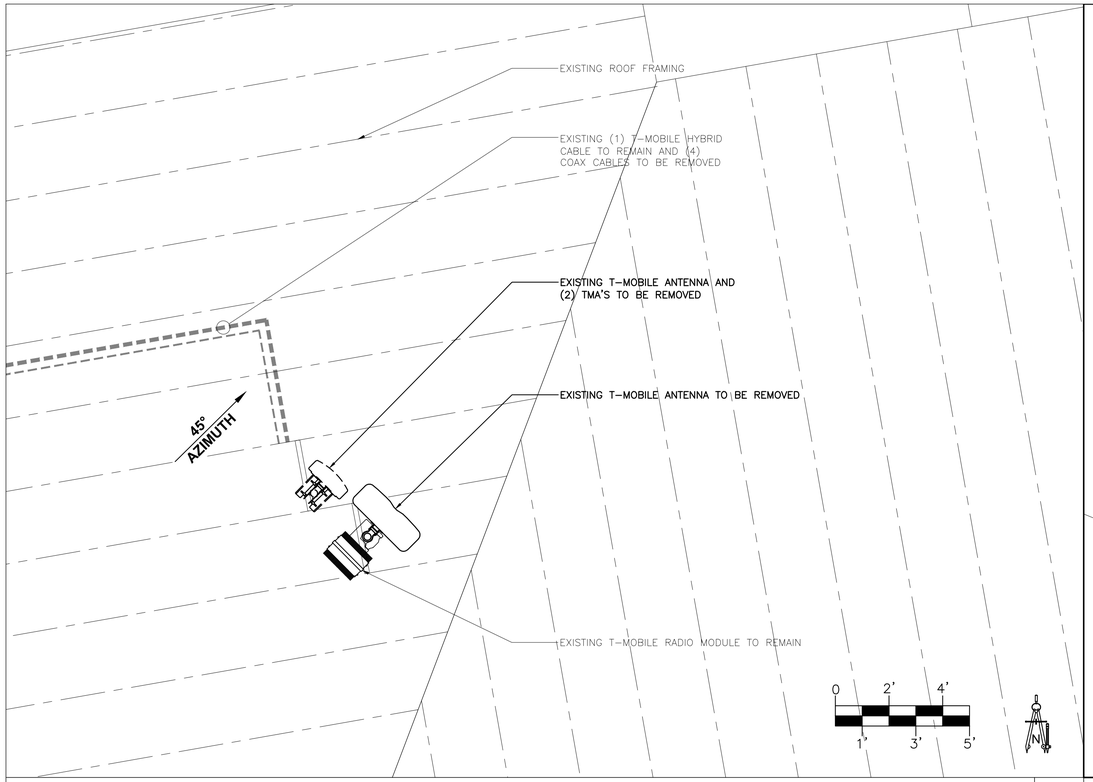
SHEET TITLE

ROOFTOP SITE PLAN

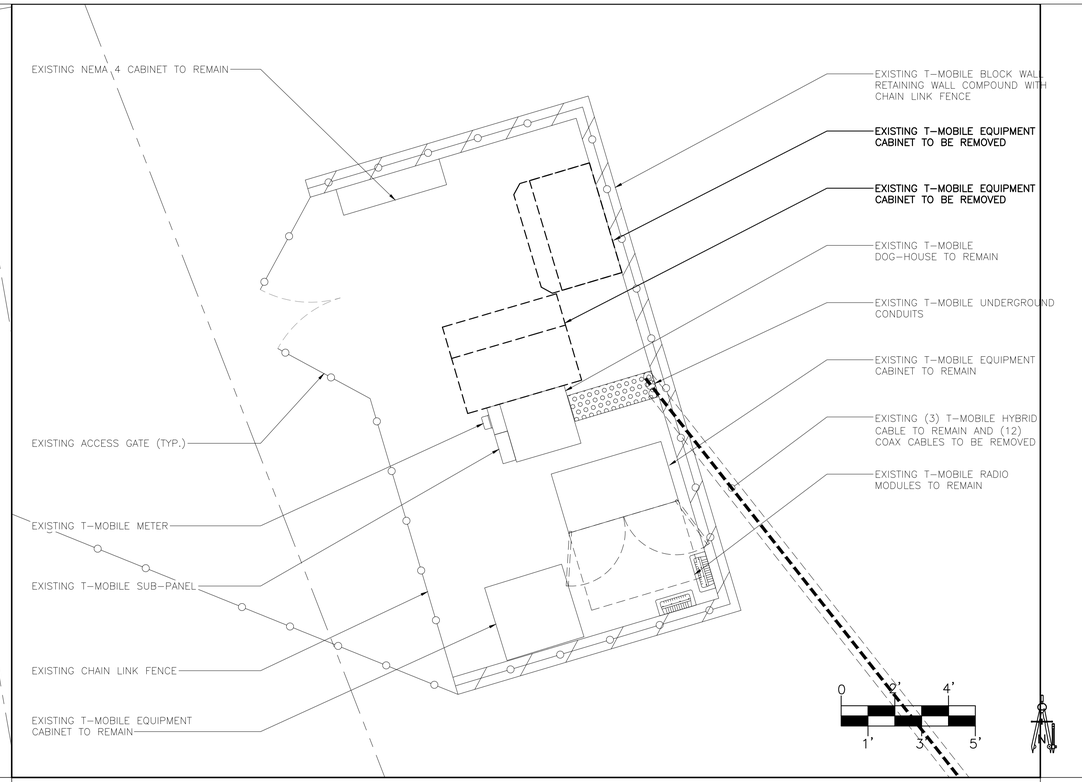
JURISDICTIONAL APPROVAL

SHEET NUMBER

C-2



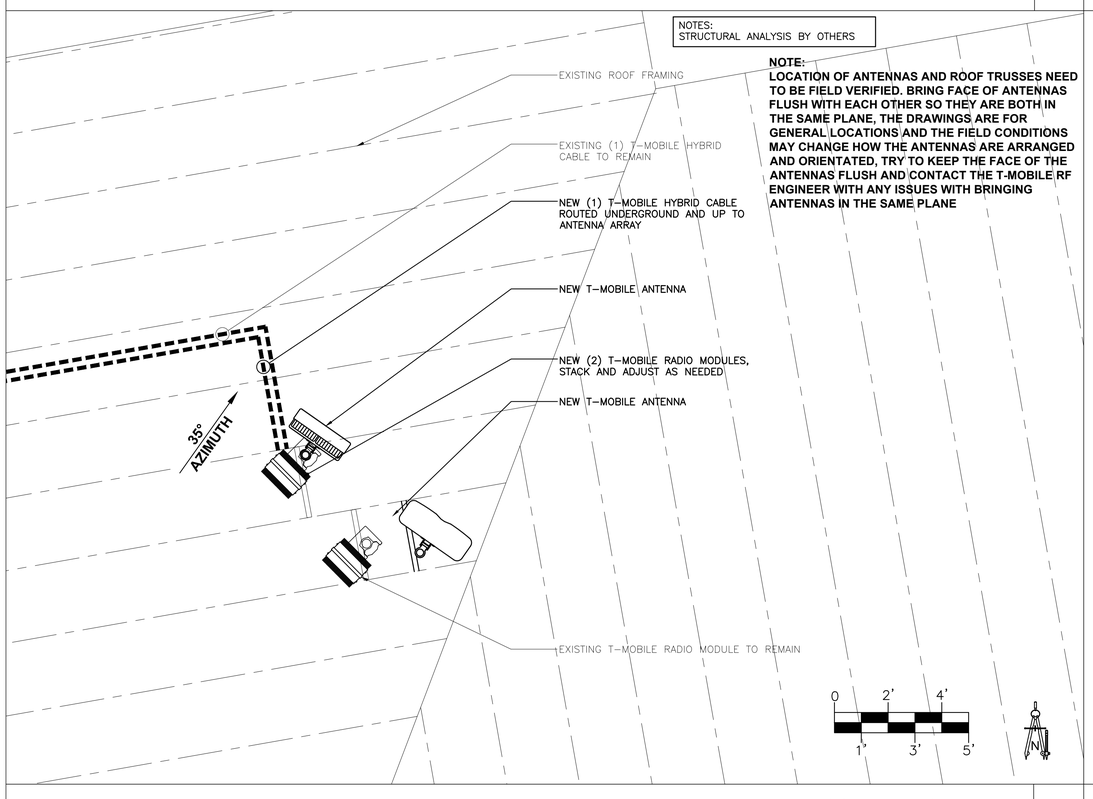
EXISTING ANTENNA PLAN SCALE: 1/2" = 1'-0" 3



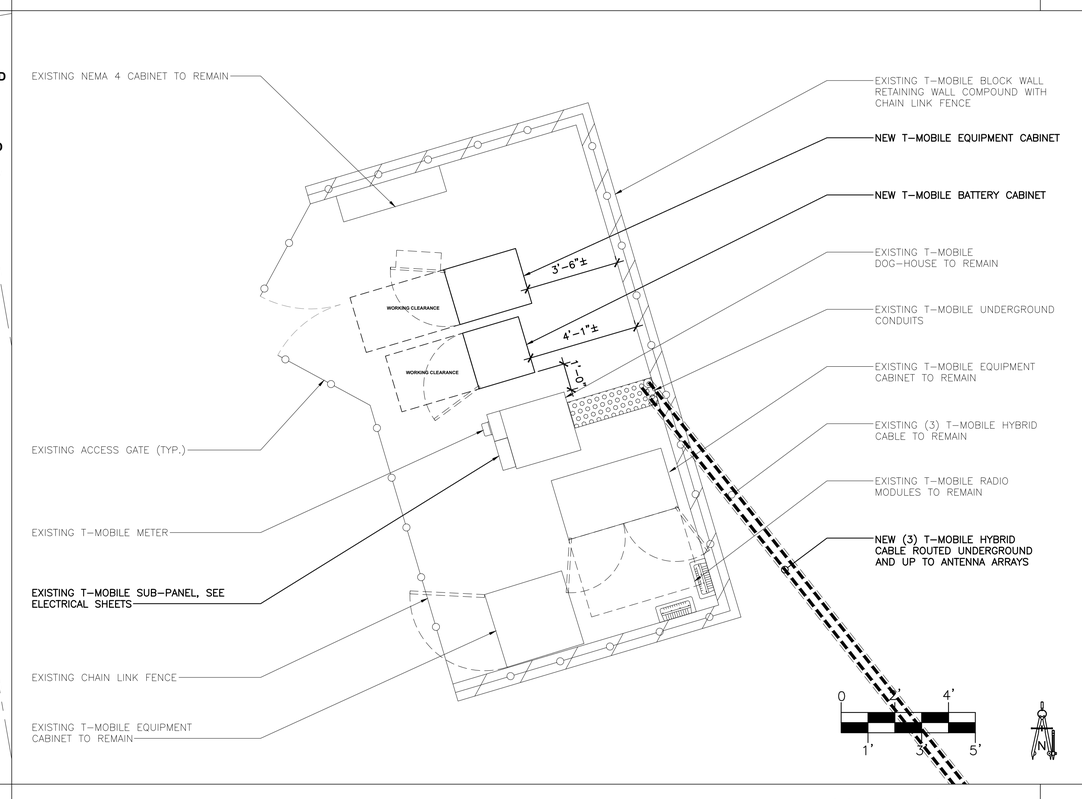
EXISTING ENLARGED EQUIPMENT PLAN SCALE: 3/8" = 1'-0" 1

NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NOTE:
LOCATION OF ANTENNAS AND ROOF TRUSSES NEED TO BE FIELD VERIFIED. BRING FACE OF ANTENNAS FLUSH WITH EACH OTHER SO THEY ARE BOTH IN THE SAME PLANE, THE DRAWINGS ARE FOR GENERAL LOCATIONS AND THE FIELD CONDITIONS MAY CHANGE HOW THE ANTENNAS ARE ARRANGED AND ORIENTATED, TRY TO KEEP THE FACE OF THE ANTENNAS FLUSH AND CONTACT THE T-MOBILE RF ENGINEER WITH ANY ISSUES WITH BRINGING ANTENNAS IN THE SAME PLANE



NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 4



NEW ENLARGED EQUIPMENT PLAN SCALE: 3/8" = 1'-0" 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

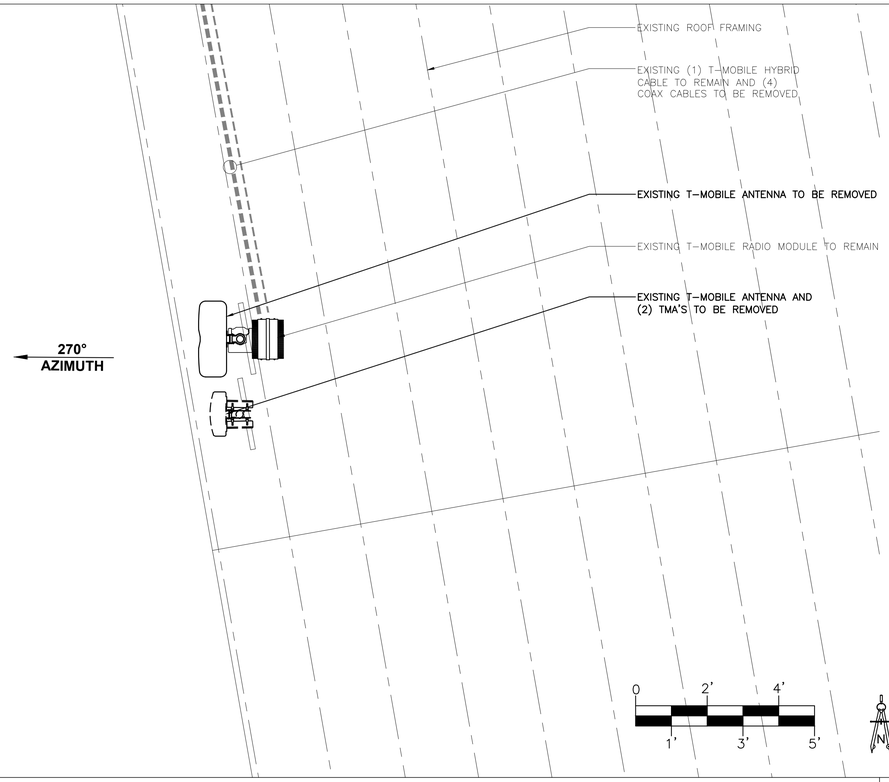
SHEET TITLE

EXISTING/NEW ANTENNA PLANS

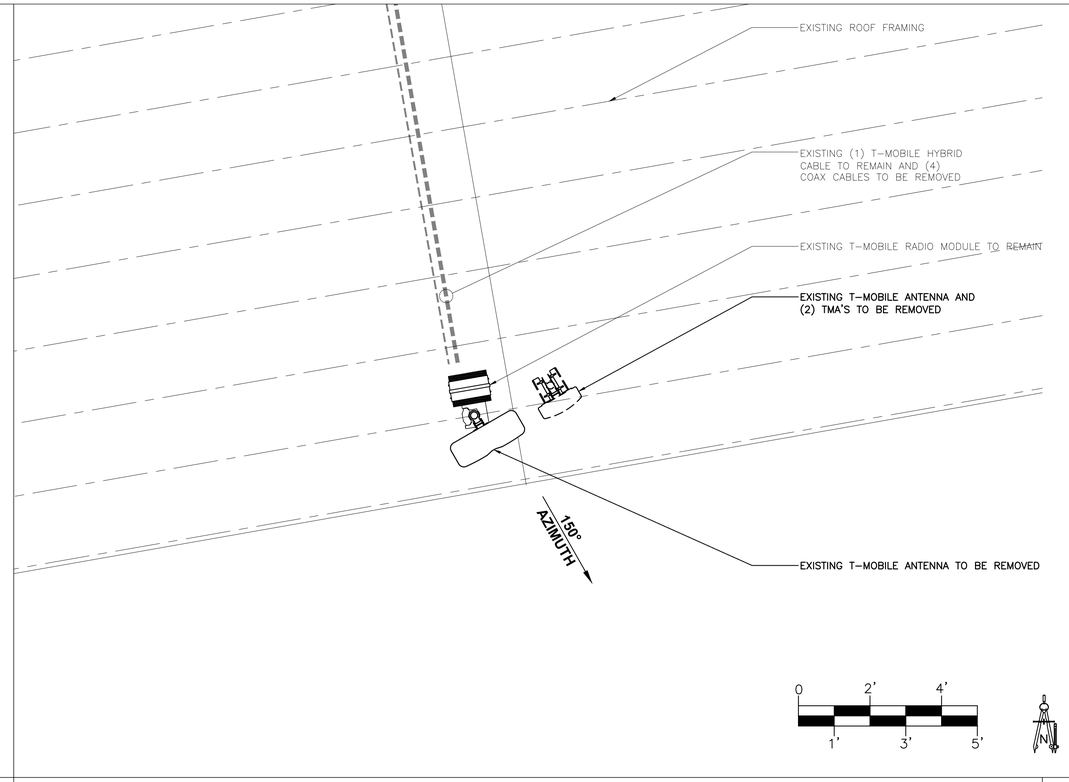
JURISDICTIONAL APPROVAL

SHEET NUMBER

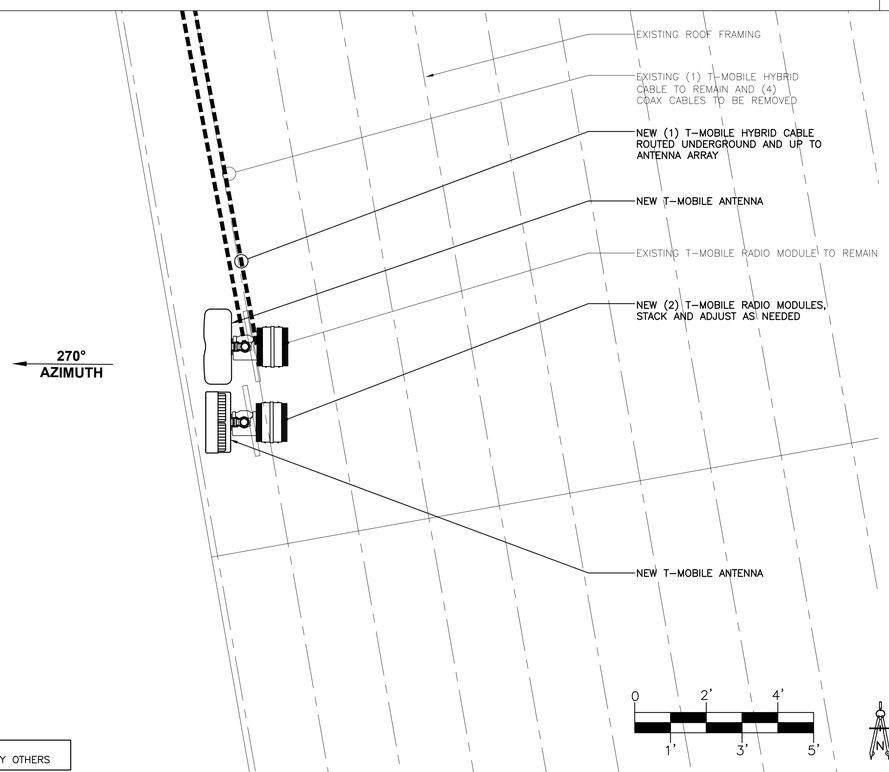
C-3



EXISTING ANTENNA PLAN SCALE: 1/2"= 1'-0" 3

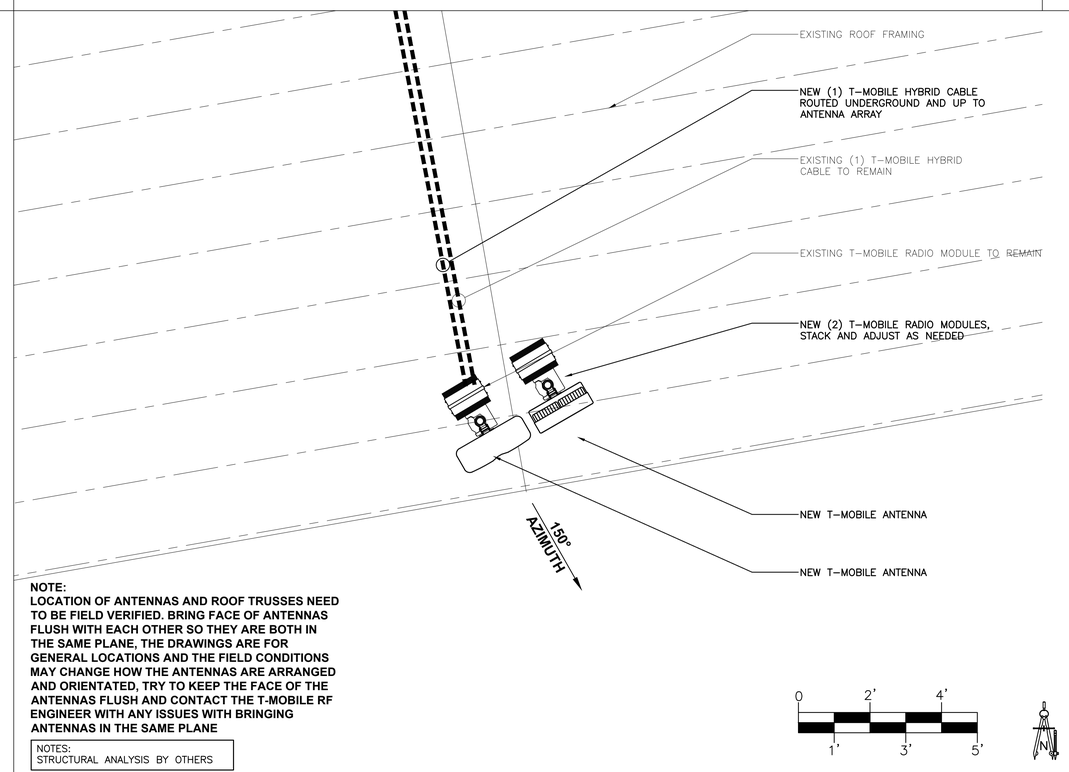


EXISTING ANTENNA PLAN SCALE: 1/2" = 1'-0" 1



NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 4



NOTE:
LOCATION OF ANTENNAS AND ROOF TRUSSES NEED TO BE FIELD VERIFIED. BRING FACE OF ANTENNAS FLUSH WITH EACH OTHER SO THEY ARE BOTH IN THE SAME PLANE, THE DRAWINGS ARE FOR GENERAL LOCATIONS AND THE FIELD CONDITIONS MAY CHANGE HOW THE ANTENNAS ARE ARRANGED AND ORIENTATED, TRY TO KEEP THE FACE OF THE ANTENNAS FLUSH AND CONTACT THE T-MOBILE RF ENGINEER WITH ANY ISSUES WITH BRINGING ANTENNAS IN THE SAME PLANE

NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EXISTING/NEW ANTENNA PLANS

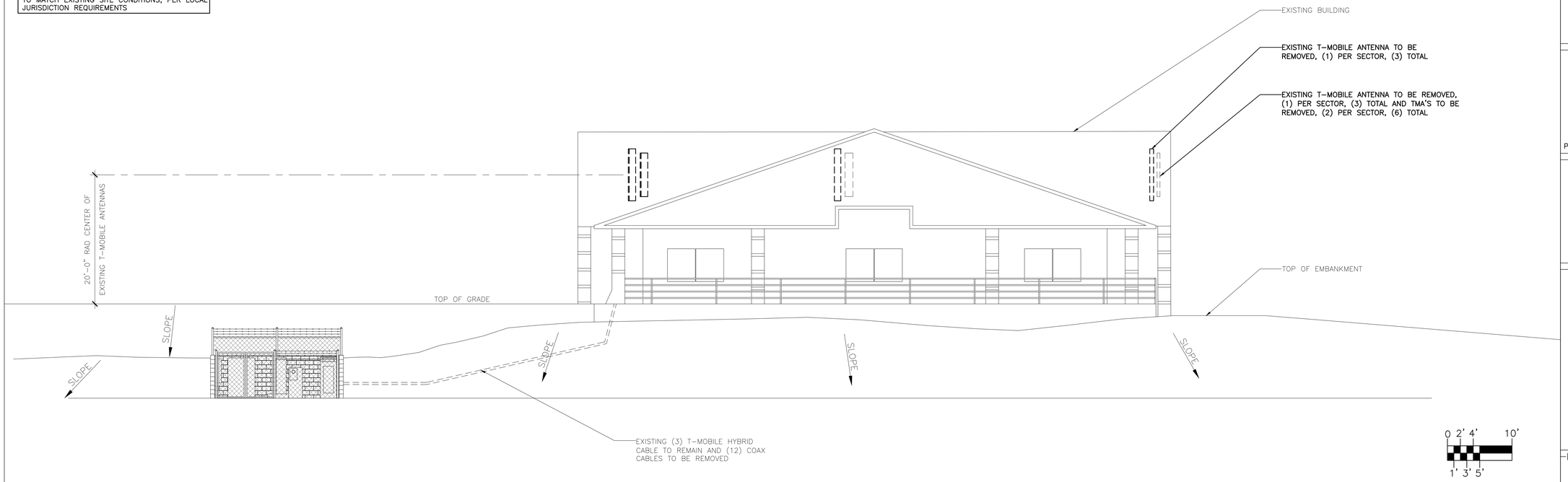
JURISDICTIONAL APPROVAL

SHEET NUMBER

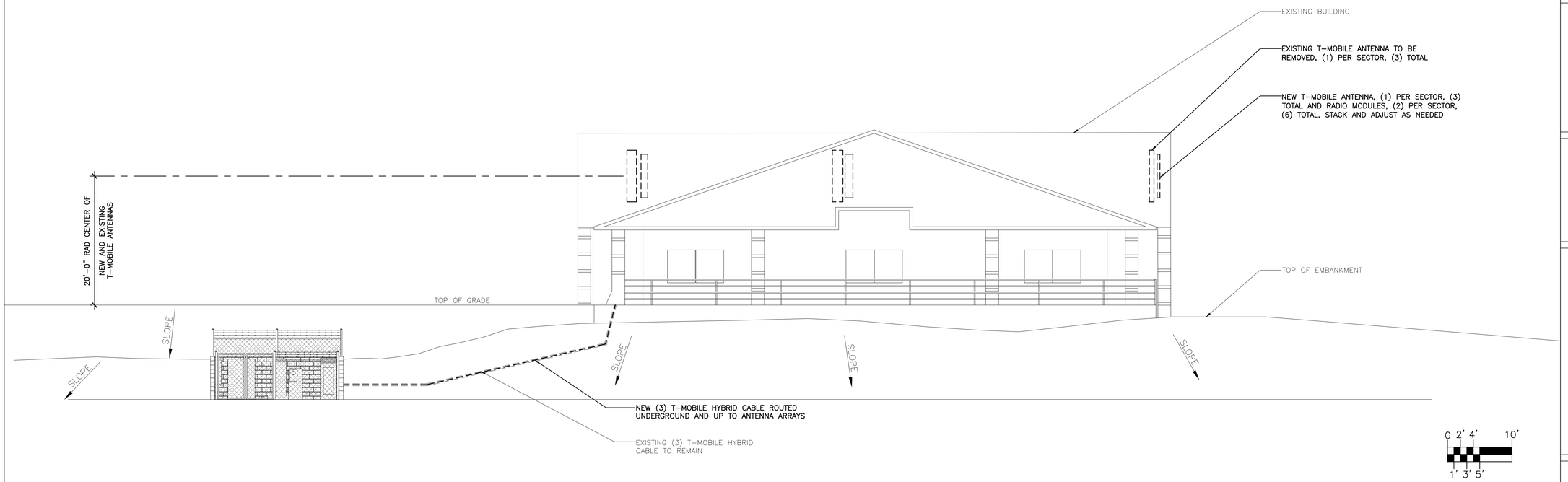
C-4

NOTES:
STRUCTURAL ANALYSIS MUST BE PERFORMED BEFORE INSTALLATION OF ANY NEW ANTENNAS. STRUCTURAL ANALYSIS PROVIDED BY OTHERS.

PAINT ALL NEW ANTENNA AND APPURTENANCES TO MATCH EXISTING SITE CONDITIONS, PER LOCAL JURISDICTION REQUIREMENTS



EXISTING WEST ELEVATION — SCALE: 1/8" = 1'-0" — 1



NEW WEST ELEVATION — SCALE: 1/8" = 1'-0" — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EXISTING/NEW ELEVATIONS

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-5

ANTENNA AND CABLE SCHEDULE

SECTOR	ANT. POS. #	ANTENNA TYPE	RAD CENTER	AZIMUTH	MECHANICAL DOWN TILT	ELECTRICAL DOWN TILT	CABLE TYPE	# OF LINES	LENGTH	RADIO
ALPHA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	35°	-4	4	6X12 4AWG	1	70M	ERICSSON-4449-B71+B85
ALPHA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	35°	-4	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25
BETA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	150°	0	4	6X12 4AWG	1	100M	ERICSSON-4449-B71+B85
BETA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	150°	0	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25
GAMMA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	270°	1	4	6X12 4AWG	1	70M	ERICSSON-4449-B71+B85
GAMMA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	270°	1	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25

ANTENNA SCHEDULE — SCALE: N.T.S. — 1

NOT USED — SCALE: N.T.S. — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

DETAILS

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-6

ELECTRICAL SPECIFICATIONS

1 SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.

2 CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.

3 HEIGHTS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.

4 THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.

5 EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)

6 CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.

7 ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA & NBFU.

8 CONTRACTOR SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND O.S.H.A.

9 CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS

10 COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.

11 ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.

12 PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.

13 ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

14 USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE.

15 ALL CONDUCTORS SHALL BE COPPER.

16 ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.

17 THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES AND DRAWINGS.

18 PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.

19 IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.

20 LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.

21 PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH SECTION NO. 4305 AND NO. 4304 OF THE U.B.C.

22 RECEPTACLES SHALL BE 20 AMPERE, 125 VOLT A.C., WHITE AS REQUIRED BY THE ARCHITECT OR APPROVED EQUAL.

23 WALL SWITCHES SHALL BE SINGLE-POLE, HUBBELL #1201 OR EQUIVELENT, WHITE AS REQUIRED BY THE ARCHITECT.

24 PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE RACO #800, 1/2" RAISED WORK COVERS.

25 WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM, NO BX OR ROMEX CABLE IS PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.

26 GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2.

27 GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8" ROUND AND 10' LONG. COPPERWELD OR APPROVED EQUAL.

28 METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY SQUARE D COMPANY OR APPROVED EQUAL.

29 ALL MATERIALS SHALL BE U.L. LISTED.

30 CONDUIT:
- a. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN COTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR RIGIDCONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
- b. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
- c. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.
- d. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 24" BELOW GRADE.

31 ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.

32 UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

33 CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.

GENERAL ELECTRICAL NOTES

1. CONDUIT LAYOUTS SHOWN ON THE PLANS ARE DIAGRAMMATIC, NOT INDICATING THE EXACT ROUTING REQUIRED. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF INSTALLATION.
2. ALL EQUIPMENT PROVIDED BY THE ELECTRICAL CONTRACTOR SHALL BE LISTED AND LABELED BY A NATIONALLY-RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, FOR THE CONDITIONS OF INSTALLATION.
3. DEVICE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXACT DEVICE LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL PLANS OR AS DIMENSIONED. IF NOT SHOWN ON THE ARCHITECTURAL PLANS OR DIMENSIONED ON THE ELECTRICAL PLANS, VERIFY EXACT LOCATION WITH THE ARCHITECT PRIOR TO ROUGH-IN.
4. ALL WIRE COUNTS ARE TYPICALLY NOT SHOWN BETWEEN LIGHT FIXTURES OR RECEPTACLES. PROVIDE ALL REQUIRED EVEN WHERE NOT SHOWN.
5. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, CIRCUITS SHALL CONSIST OF #12 PHASE AND GROUNDED (NEUTRAL CONDUCTORS) AND A #12 CU GROUND IN 3/4" CONDUIT. MC CABLE SHALL BE ACCEPTACLE IN WALLS. ALL BRANCH CIRCUIT HOME-RUNS SHALL BE IN CONDUIT.
6. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL UTILIZATION EQUIPMENT SHOWN ON THE DRAWINGS. VERIFY THE TYPE OF FINAL CONNECTION AND PROVIDE APPROPRIATE WIRING METHOD.
7. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS, PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEMS TO MATCH UTILIZATION EQUIPMENT, EVEN IF THE ELECTRICAL WORK IS INSTALLED PER THE ELECTRICAL DRAWINGS.
8. INSULATION & WIRE TYPES SHALL BE AS FOLLOWED: PANEL FEEDERS - XHHW COPPER, WIRING ABOVE GRADE - THWN COPPER, WIRING BELOW GRADE - THWN COPPER, UNLESS NOTED OTHERWISE.
9. SOME CONDUCTOR SIZES ARE BASED ON THE USE OF 75 DEGREE C CONDUCTOR RATINGS. THE CONTRACTOR SHALL VERIFY, PRIOR TO INSTALLATION OF CONDUCTORS OR CONDUIT FEEDING ANY EQUIPMENT, THAT ALL ELECTRICAL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C WIRING. IF ANY EQUIPMENT IS RATED FOR USE WITH LESS THAN 75 DEGREE C CONDUCTORS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR EVALUATION/CORRECTION.
10. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. COMPONENTS NOT SHOWN, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE PROJECT.
11. THE CONTRACTOR SHALL PERFORM ALL ACCEPTANCE TESTS REQUIRED OR RECOMMENDED BY EQUIPMENT MANUFACTURERS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SEVEN (7) DAYS PRIOR TO TESTING AND SHALL ALLOW OBSERVATION OF THE TESTING BY THE ENGINEER.
12. ALL RECEPTACLES INSTALLED WITHIN 6 FEET OF A SINK SHALL BE GFI PROTECTED.
13. UNLESS OTHERWISE NOTED, ALL EQUIPMENT DISCONNECTS SHALL BE NEMA TYPE 3R, FUSIBLE, 30A, 3 POLE. FUSE PER EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
14. ALL PENETRATIONS IN WALLS SHALL BE SEALED WITH FLEXIBLE ACOUSTIC CAULKING. CAULKING SHALL BE APPLIED AROUND OUTLET BOXES TO PROVIDE A COMPLETE SEAL BETWEEN THE BOX AND THE WALL.
15. PRIOR TO TRENCHING IN ANY AREA, THE CONTRACTOR SHALL CONTACT ELECTRICAL, COMMUNICATIONS/DATA, CABLE TV, GAS, AND WATER UTILITY PROVIDERS (BLUE STAKE) AND HAVE ALL UTILITIES IN THE AREA IDENTIFIED. IN ADDITION, THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A SUBCONTRACTOR SPECIALIZING IN THE LOCATION OF UNDERGROUND STRUCTURES TO IDENTIFY ANY OBSTACLES IN THE PATH OF TRENCHING (PRIOR TO COMMENCING WORK). DAMAGE TO ANY UNDERGROUND STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
16. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH LOCAL AND STATE CODES INCLUDING THE NEC
17. OVER CURRENT DEVICES SHALL BE LOCATED WHERE THEY WILL NOT BE EXPOSED TO PHYSICAL DAMAGE.
18. HOMERUNS SHALL NOT BE GANGED TOGETHER UNLESS SHOWN GANGED.
19. CONTRACTOR SHALL CONTACT ENGINEER IN WRITING (RFI) PRIOR TO PROCEEDING WITH ANY WORK NOT CLEARLY SHOWN ON THESE CONTRACT DOCUMENTS. ENGINEER WILL NOT ACCEPT ANY RESPONSIBILITY FOR WORK HE HAS NOT EXPLICITLY AUTHORIZED.
20. PROVIDE IDENTIFICATION AT THE DISTRIBUTION PANEL FOR BRANCH CIRCUITS THAT FEED EMERGENCY LIGHTING UNIT EQUIPMENT.
21. ELECTRICAL EQUIPMENT THAT IS LIKELY TO REQUIRE MAINTENANCE WHILE ENERGIZED SHALL BE PROPERLY MARKED TO WARN PERSONNEL OF ARC FLASH HAZARD.
22. PROVIDE A #18 OR LARGER COPPER TRACER WIRE SECURELY ATTACHED TO THE NON-METALLIC CABLE, PIPE OR CONDUIT AT 8'-0" ON CENTER. IT SHALL HAVE A 12" OF TRACER WIRE ACCESSIBLE ABOVE GRADE AT ANY ABOVE GRADE TERMINATION PER ARIZONA STATE STATUTE.
23. UTILITY COORDINATION
    a. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF DRAWINGS TO ELECTRICAL AND TELCO UTILITIES AS REQUIRED FOR DESIGN.
    b. THE CONTRACTOR SHALL NOT TRENCH OR INSTALL CONDUITS (ON THE UTILITY OR LOAD SIDE) TO THE SES OR TO THE UTILITY TRANSFORMER (PRIMARY OR SECONDARY), OR TO THE UTILITY CONNECTION POINT BEFORE RECEIVING A FINAL DESIGN FROM THE UTILITY.
    c. THE CONTRACTOR SHALL NOT INSTALL EQUIPMENT PADS FOR THE SES OR ANY UTILITY EQUIPMENT (TRANSFORMERS, SWITCHING CABINETS, ETC) PRIOR TO RECEIPT OF FINAL PLANS FROM THE UTILITY.
    d. THE CONTRACTOR SHALL NOT BE COMPENSATED FOR ADDITIONAL WORK REQUIRED TO MEET THE REQUIREMENTS OF THE UTILITY WHICH IS THE RESULT OF PROCEEDING PRIOR TO RECEIPT OF A FINAL UTILITY DESIGN.
24. SERIES RATING NOTES:

A. WHERE A CIRCUIT BREAKER IS USED ON A CIRCUIT HAVING AN AVAILABLE FAULT CURRENT HIGHER THAN THE MARKED INTERRUPTING RATING BY BEING CONNECTED ON THE LOAD SIDE OF AN ACCEPTABLE OVERCURRENT PROTECTIVE DEVICE HAVING A HIGHER RATING, THE CIRCUIT BREAKER SHALL MEET THE REQUIREMENTS SPECIFIED IN (1) AND (2).
   (1). TESTED COMBINATIONS. THE COMBINATION OF LINE-SIDE OVERCURRENT DEVICE AND LOAD-SIDE CIRCUIT BREAKER(S) IS TESTED AND MARKED ON THE END USE EQUIPMENT, SUCH AS SWITCHBOARDS AND PANELBOARDS.
   (2). MOTOR CONTRIBUTION. SERIES RATINGS SHALL NOT BE USED WHERE
      a. MOTORS ARE CONNECTED ON THE LOAD SIDE OF THE HIGHER-RATED OVERCURRENT DEVICE AND ON THE LINE SIDE OF THE LOWER-RATED OVERCURRENT DEVICE, AND
      b. THE SUM OF THE MOTOR FULL-LOAD CURRENTS EXCEEDS 1 PERCENT OF THE INTERRUPTING RATING OF THE LOWER-RATED CIRCUIT BREAKER.

B. WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH THE SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURER, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATING. THE MARKING SHALL BE READILY VISIBLE AND STATE THE FOLLOWING:
   CAUTION - SERIES COMBINATION SYSTEM RATED ____ AMPERES.
   IDENTIFIED REPLACEMENT COMPONENTS REQUIRED

C. TESTED COMBINATIONS. THE COMBINATION OF THE LINE-SIDE OVERCURRENT DEVICE AND LOAD SIDE CIRCUIT BREAKER(S) IS TESTED AND MARKED ON THE END USE EQUIPMENT, SUCH AS SWITCHBOARDS AND PANELBOARDS.

SYMBOL LIST
(NOT ALL MAY BE USED)

ELECTRICAL SYMBOLS

- FLUORESCENT STRIP FIXTURE, LENGTH PER PLAN.
- SURFACE WALL-MOUNTED LIGHT FIXTURE.
- SOLID "JBOX" ON ANY FIXTURE INDICATES A FIXTURE WITH AN INTEGRAL EMERGENCY POWER SUPPLY, PER THE SPECIFICATIONS.
- POLE-MOUNTED LIGHT FIXTURE.
- SINGLE POLE TOGGLE SWITCH
- PC — PHOTOCELL , MOUNTED ON ROOF UNLESS NOTED OTHERWISE.
- DUPLEX CONVENIENCE RECEPTACLE
- GFCI — "CROSS SLASH" ON ANY RECEPTACLE INDICATES INTEGRAL GROUND FAULT PROTECTION.
- DOUBLE DUPLEX (FOURPLEX) CONVENIENCE RECEPTACLE
- C / F — JUNCTION BOX. 'C' INDICATES CEILING MOUNTED. 'F' INDICATES FLOOR MOUNTED (SUBSCRIPTS ARE TYPICAL FOR ALL DEVICES)
- VOICE OUTLET
- DATA OUTLET
- COMBINATION TELEPHONE AND DATA OUTLET IN THE SAME BOX
- $_{HP} — HORSEPOWER RATED MANUAL MOTOR SWITCH
- FUSIBLE DISCONNECT SWITCH FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. SIZE AND FUSES AS PER RECOMMENDATIONS OF EQUIPMENT'S MANUFACTURER OR AS NOTED. 30A, 3P, 250V, NEMA 3R UNLESS NOTED OTHERWISE. (N. INDICATES NON-FUSED).
- ELECTRICAL MOTOR. SEE DRAWINGS FOR SIZE.
- DISTRIBUTION PANELBOARD, MOTOR CONTROL CENTER OR SERVICE ENTRANCE SECTION. SEE DRAWINGS FOR EXACT TYPE.
- T — DISTRIBUTION TRANSFORMER
- SURFACE MOUNTED PANEL BOARD.
- FLUSH MOUNTED PANEL BOARD.
- TMB — TELEPHONE MOUNTING BOARD.
- TEST WELL/GROUND ROD
- GROUND ROD - 5/8" x 10' COPPER CLAD
- CADWELD CONNECTION
- MECHANICAL CONNECTION
- GROUNDING WIRE
- GROUND BAR
- SURGE SUPPRESSOR GROUND BAR
- M — METER AND MAIN BREAKER
- MANUAL XFR SWITCH AND GEN. RECPT.
- G — GPS ANTENNA
- ELECTRICAL POWER
- T-1 LINE

WIRE AND CONDUIT

- FLEXIBLE CONDUIT
- CONDUIT CONCEALED IN WALLS OR ABOVE CEILING W/ 2 #12, #12 GND, 3/4" C., UNLESS NOTED OTHERWISE.
- CONDUIT ROUTED UNDER FLOOR OR BELOW GRADE W/ 2 #12, #12 GRD., 3/4" C., UNLESS NOTED OTHERWISE.
- CONDUIT TURNING UP.
- CONDUIT TURNING DOWN.

1-LINE DIAGRAM

- CIRCUIT BREAKER, FIXED MOUNTED.
- CIRCUIT BREAKER, DRAWOUT MOUNTING.
- FUSIBLE SWITCH. SIZE AS INDICATED ON DRAWINGS.
- TRANSFORMER. SEE ONE-LINE FOR TYPE AND SPECIFICATION.
- CURRENT TRANSFORMER
- M — METERING DEVICE
- PANELBOARD, MAIN LUG ONLY
- PANELBOARD, MAIN CIRCUIT BREAKER
- TRANSFER SWITCH - MANUAL OR AUTOMATIC
- F/T — INDICATES A FEED-THROUGH LUG CONNECTION
- UNINTERRUPTIBLE POWER SUPPLY
- G — GENERATOR WITH INTEGRAL PROTECTION
- WEATHERHEAD

SHEET INDEX

ABBREVIATIONS

C.O.	= CONDUIT ONLY
PVC.	= SCHEDULE 40 PLASTIC CONDUIT
GRC.	= GALVANIZED RIGID CONDUIT
MTD.	= MOUNTED
W.P.	= WEATHERPROOF
U.O.N.	= UNLESS OTHERWISE NOTED
G. OR GRD.	= GROUND
N. OR NEUT.	= NEUTRAL
A. OR AMP.	= AMPERE
KW.	= KILOWATTS
W.	= WATTS
~	= PHASE
DIA	= DIAMETER
H.P. OR HP	= HORSEPOWER
XFMR	= TRANSFORMER
C.B.	= CIRCUIT BREAKER
CKT.	= CIRCUIT
SW.	= SWITCH
MTS	= MANUAL TRANSFORMER SWITCH
F.A.	= FIRE ALARM
RECPT.	= RECEPTACLE
E.C.	= ELECTRIC CONTRACTOR
G.C.	= GENERAL CONTRACTOR
1P, 2P, & 3P	= SINGLE POLE, TWO POLE, & THREE POLE
EGB	= EQUIPMENT GROUND BUS
MGB	= MAIN GROUND BUS
AFC	= AVAILABLE FAULT CURRENT
AWG	= AMERICAN WIRE GAUGE
BTCW	= BARE TINNED COPPER WIRE
GPS	= GLOBAL POSITIONING SYSTEM
PPC	= POWER PROTECTION CABINET
TYP.	= TYPICAL
RGS	= RIGID GALVANIZED STEEL
EMT	= ELECTRICAL METALLIC TUBING
DWG	= DRAWING
BTS	= BASE TRANSMISSION SYSTEM
GEN	= GENERATOR
BSCW	= BARE STRANDED COPPER WIRE
ISCW	= INSULATED STRANDED COPPER WIRE

CLIENT
T-Mobile
121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD
ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

SPECS / GENERAL NOTES / LEGENDS / SHEET INDEX

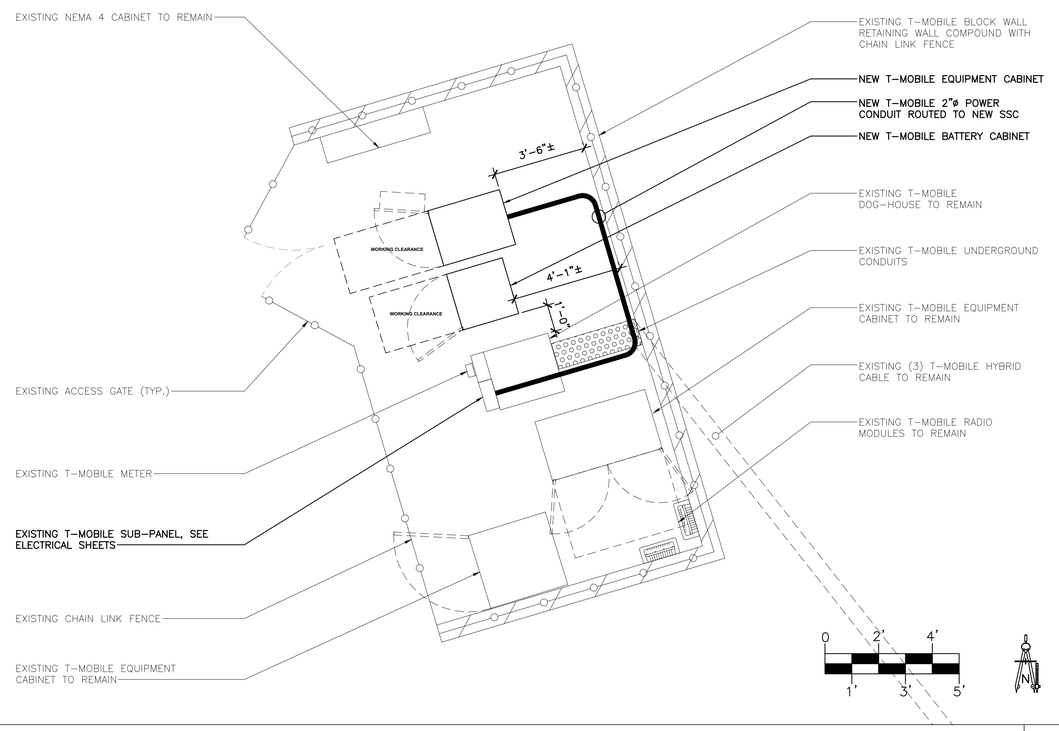
JURISDICTIONAL APPROVAL

SHEET NUMBER

E-1

NOT USED

SCALE: N.T.S. | 3



ENLARGED POWER PLAN

SCALE: 3/8" = 1'-0" | 1

NOT USED

SCALE: N.T.S. | 4

NOT USED

SCALE: N.T.S. | 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

ENLARGED POWER PLAN

JURISDICTIONAL APPROVAL

SHEET NUMBER

E-2

EXISTING 100 AMP SUB PANEL — ELECTRICAL PANEL SCHEDULE

PANEL — 65/10KAIC SERIES RATED

LOCATION: SUB PANEL
MOUNTING: SURFACE — NEMA RATING:3R

VOLTAGE: 208 / 120 V 1ø,3W
MAINS: 100 A MCB
BUS: 100 A CU

LOAD DESCRIPTION	EMT COND	CU GRND	PHASE NEUT	CKT BRKR	CIR NO.	LOAD AMPS PHASE A	LOAD AMPS PHASE B	CIR NO.	CKT BRKR	PHASE NEUT	CU GRND	EMT COND	LOAD DESCRIPTION
MECH	2"	6	1	100	1	0.0			50	1	6	1"	MECH
GENERATOR SUPPLY						1.5		2					NORTH BTS
MECH			1		3		0.0			1			MECH
Cont.				2			1.8	4	2				Cont.
MECH	2"	6	1	100	5	12.0			80	1	6	1-1/2"	MECH
UTILITY SUPPLY						3.0		6					SOUTH BTS
MECH			1		7		12.0			1			MECH
Cont.				2			1.5	8	2				Cont.
MECH	2"	6	1	100	9	1.5			20	12	12	3/4"	MECH
6102						15.0		10					NOT LABELED
MECH			1		11		15.0			12			MECH
Cont.				2			15.0	12	2				Cont.
MECH	3/4"	12	12	15	13	15.0			50	1	6	1-1/2"	MECH
6102				1		5.0		14					NOT LABELED
BUSSED SPACE					15		15.0			1			MECH
							5.0	16	2				Cont.
BUSSED SPACE					17	15.0							BUSSED SPACE
						1.5		18					
BUSSED SPACE					19		45.0						BUSSED SPACE
							0.0	20					
BUSSED SPACE					21	45.0							BUSSED SPACE
						0.0		22					
BUSSED SPACE					23		0.0						BUSSED SPACE
							0.0	24					
BUSSED SPACE					25	15.0							BUSSED SPACE
						1.5		26					
BUSSED SPACE					27		45.0						BUSSED SPACE
							0.0	28					
BUSSED SPACE					29	45.0							BUSSED SPACE
						0.0		30					
						118.3	118.0						

CONTRACTOR TO INSTALL APPROVED HANDLE TIE ON ALL SHARED NEUTRAL CIRCUITS.

1 PHASE DEMAND (VA)	
LIGHTING	216.0
25% OF LIGHTING	54.0
RECEPTACLES	540.0
MECHANICAL	3600.0
25% LARGEST MOTOR	900.0
MISCELLANEOUS	24000.0
	0.0
	0.0
	0.0
	0.0
	0.0
	29,310.0

29.3 KVA @ 240 V 1ø
122.1 A @ 240 V 1ø

SYMBOL LIST

CODE LOAD SUMMARY
PANEL 'PPC' @ 240V = 101.0 A

UPDATED 200 AMP SUB PANEL — ELECTRICAL PANEL SCHEDULE

PANEL — 65/10KAIC SERIES RATED

LOCATION: SUB PANEL
MOUNTING: SURFACE — NEMA RATING:3R

VOLTAGE: 208 / 120 V 1ø,3W
MAINS: 100 A MCB
BUS: 100 A CU

LOAD DESCRIPTION	EMT COND	CU GRND	PHASE NEUT	CKT BRKR	CIR NO.	LOAD AMPS PHASE A	LOAD AMPS PHASE B	CIR NO.	CKT BRKR	PHASE NEUT	CU GRND	EMT COND	LOAD DESCRIPTION
MECH	2"	6	1	100	1	**0.0**			**100**	**3/0**	**6**	**2"**	**MECH**
GENERATOR SUPPLY						**1.5**		2					**6160 SSC**
MECH			1		3		**0.0**		**2**	**3/0**			**MECH**
Cont.				2			**1.8**	4					**Cont.**
MECH	2"	6	1	100	5	**12.0**							**BUSSED SPACE**
UTILITY SUPPLY						**3.0**		6					
MECH			1		7		**12.0**						**BUSSED SPACE**
Cont.				2			**1.5**	8					
MECH	2"	6	1	100	9	**1.5**							**BUSSED SPACE**
6102						**15.0**		10					
MECH			1		11		**15.0**						**BUSSED SPACE**
Cont.				2			**15.0**	12					
MECH	3/4"	12	12	15	13	**15.0**							**BUSSED SPACE**
6102				1		**5.0**		14					
BUSSED SPACE					15		**15.0**						**BUSSED SPACE**
							5.0	16					
BUSSED SPACE					17	**15.0**							**BUSSED SPACE**
						1.5		18					
BUSSED SPACE					19		**45.0**						BUSSED SPACE
							0.0	20					
BUSSED SPACE					21	**45.0**							BUSSED SPACE
						0.0		22					
BUSSED SPACE					23		**0.0**						BUSSED SPACE
							0.0	24					
BUSSED SPACE					25	**15.0**							BUSSED SPACE
						1.5		26					
BUSSED SPACE					27		**45.0**						BUSSED SPACE
							0.0	28					
BUSSED SPACE					29	**45.0**							BUSSED SPACE
						0.0		30					
						118.3	**118.0**						

CONTRACTOR TO INSTALL APPROVED HANDLE TIE ON ALL SHARED NEUTRAL CIRCUITS.

1 PHASE DEMAND (VA)	
LIGHTING	**216.0**
25% OF LIGHTING	**54.0**
RECEPTACLES	**540.0**
MECHANICAL	**3600.0**
25% LARGEST MOTOR	**900.0**
MISCELLANEOUS	**24000.0**
	0.0
	0.0
	0.0
	0.0
	0.0
	29,310.0

29.3 KVA @ 240 V 1ø
122.1 A @ 240 V 1ø

SYMBOL LIST

CODE LOAD SUMMARY
PANEL 'PPC' @ 240V **= 198.1 A**

DC -48V FEEDER CABLING CHART

CALCULATIONS ARE BASED ON WORST CASE FULL LOAD AMPS AT 104A -48VDC, NOT EXCEDING 3% VOLTAGE DROP. IF FIELD CONDITIONS ARE DIFFERENT THAN INDICATED, CONTACT ENGINEER FOR REVISED CALCULATIONS.

DISTANCE FROM FUEL CELL TO EQUIP. CABINET.	-48V, DC SINGLE CABLE	-48V, DC PARALLEL CABLE	CONDUIT SIZE
1'-70'	1-#1/0 CU. AWG		1-1/4"
71-90'	1-#2/0 CU. AWG		1-1/2"
91'-110'	1-#3/0 CU. AWG		1-1/2"
111'-140'	1-#4/0 CU. AWG		2"
141'-175'		2-#2/0 CU. AWG	2"

FAULT CALCULATIONS

FAULT AVAILABLE AT THE SERVICE:	12,076 AMPS RMS SYMM PER POWER COORDINATION
SERVICE VOLTAGE:	277/480V, 3PH
TRANSFORMER PRIMARY:	
DISTANCE	15 Feet
CONDUIT TYPE	Conductive
CONDUCTOR	#2
Fault Available L-L:	10,708A
TRANSFORMER SECONDARY:	
Fault Available L-L:	2,322A

NOTE:
#6 COPPER WIRE AND GREATER SHALL BE (COPPER) THWN WIRE OR (COPPER) XHHW.

NOTE:
PRIOR TO RUNNING CONDUIT ROUTE - CONTRACTOR SHALL CONTACT THE T-MOBILE PROJECT MANAGER AND VERIFY THE EQUIPMENT CABINET LAYOUT CONFIGURATION AND ROUTE CONDUITS ACCORDINGLY.

NOTE:
PRE-CONSTRUCTION MEETING AND ELECTRICAL EASEMENT REQUIRED.

CONTRACTOR SHALL TAG EACH CIRCUIT CONDUCTOR AT EACH J-BOX, OUTLET, SWITCH, ETC. WITH THE CIRCUITS IDENTIFICATION.

CALL 4-7 WORKING DAYS BEFORE YOU DIG
263-1100 INSIDE MARICOPA COUNTY
1-800-STAKE-IT OUTSIDE MARICOPA COUNTY

Power Company: APS
Representative: -
Telephone #: -

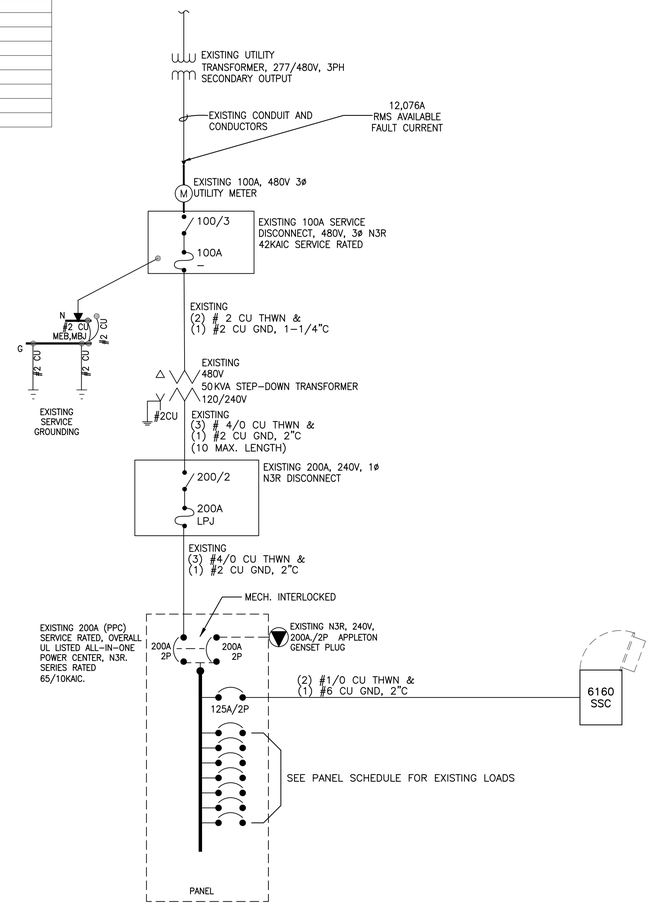
Telephone Company:
Representative:
Telephone #:

Submit drawings to Utility Company representative as required in the General Notes included in the Electrical Drawings.

PANEL 'PPC' SHALL BE SERIES RATED WITH THEIR RESPECTIVE UPSTREAM REMOTE MAIN PROTECTIVE DEVICES. IF ANY DISCREPANCY OCCURS, REPORT THE ISSUE TO THE ARCHITECT.

A TWO TIER (65KA/10KA) SYSTEM IS SPECIFIED.

SEE THE SERIES RATING NOTES, SHEET E-1.



ONE-LINE DIAGRAM
N.T.S.

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION
JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

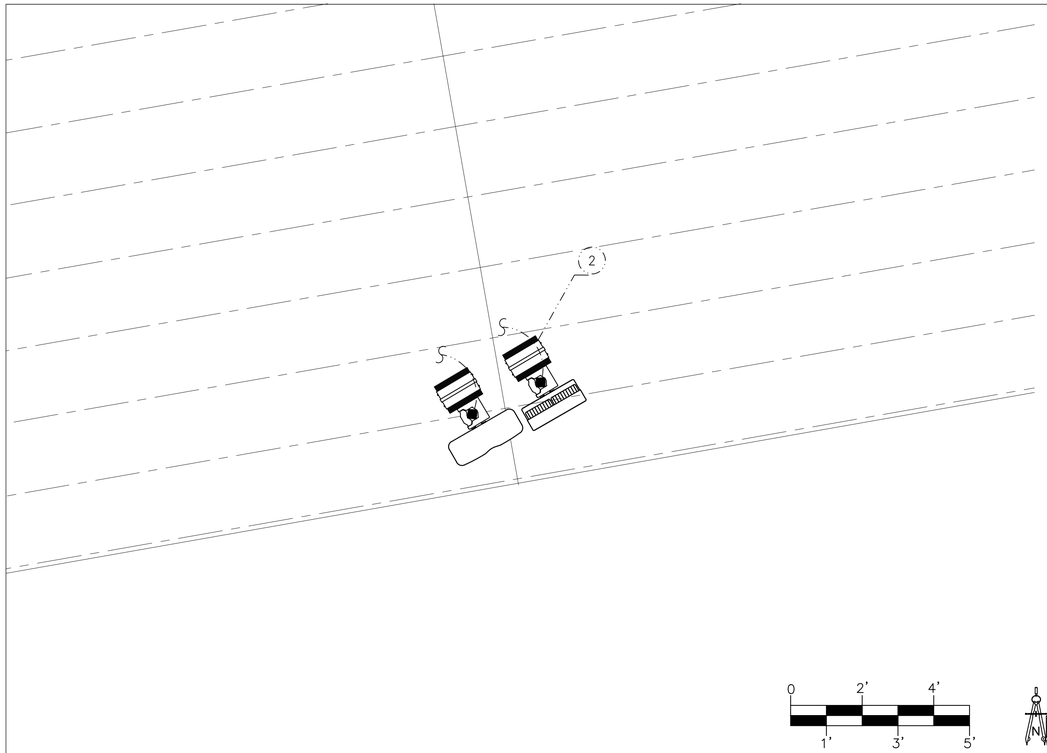
SHEET TITLE

ONE-LINE AND EXISTING/NEW PANEL SCHEDULE

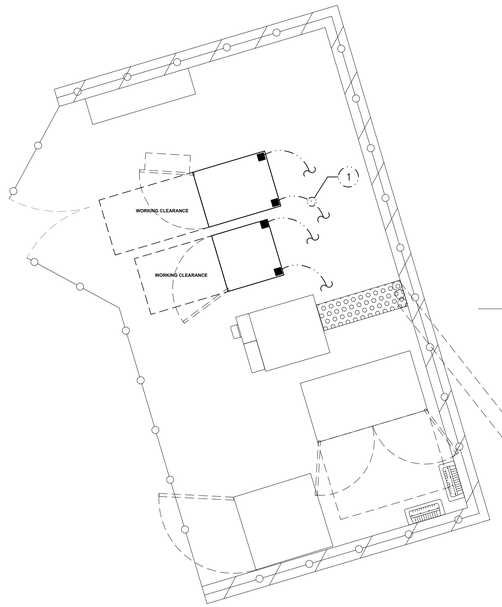
JURISDICTIONAL APPROVAL

SHEET NUMBER

E-3



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 3



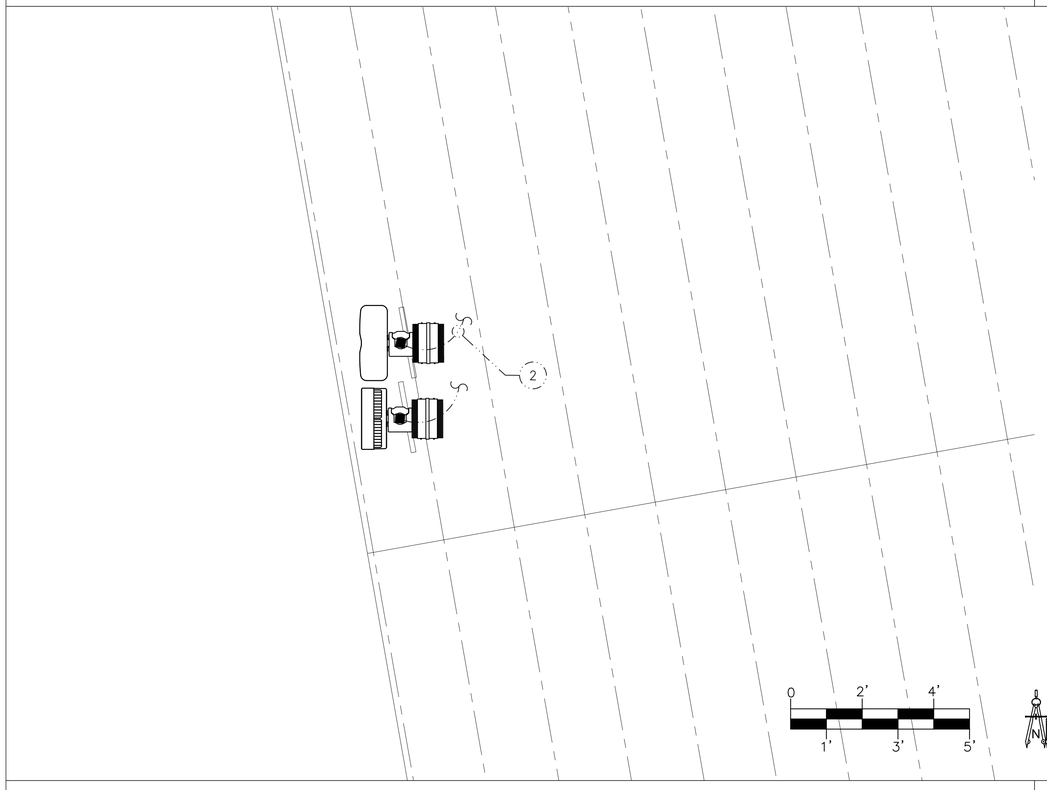
GENERAL GROUNDING NOTES

1) ALL GROUNDING LEADS INSTALLED TO ENSURE A SMOOTH PATH TO COUNTERPOISE WITHOUT KINKS OR SHARP BENDS OR RETURN UPWARDS.
2) CONTRACTOR WILL UTILIZE THE "FALL OF POTENTIAL MEASUREMENT METHOD" PER NETA STANDARDS, UTILIZING THE AEMC-4500 MEASURING DEVICE OR APPROVED T-MOBILE EQUAL. ALL GROUND TESTING TO BE PERFORMED BEFORE CONNECTING TO POWER UTILITY GROUND AND PRIOR TO ANY BACKFILL OF GROUNDING TRENCHES. ELECTRICAL CONTRACTOR WILL PROVIDE A MINIMUM OF ONE (1) INSPECTION PORT FOR TESTING GROUNDING RESISTANCE. CONTRACTOR WILL INSTALL THE MINIMUM NUMBER OF GROUND PLATES INDICATED, SEE GROUNDING PLAN FOR APPROX. LOCATIONS. CONTRACTOR WILL INSTALL ADDITIONAL GROUNDING AS REQUIRED TO ACHIEVE 5 OHMS OR LESS TO GROUND.
3) IT IS THE INTENT THAT AT NO TIME ARE THE GROUND LEADS TO BE INSTALLED BELOW THE SURFACE OF THOSE AREAS DESIGNATED FOR FUTURE DISASSOCIATED PADS OR SHELTERS
4) THE CONTRACTOR WILL DOCUMENT MEGGER TEST RESULTS, REDLINE THE DRAWINGS FOR THE LOCATION OF ALL UNDERGROUND GROUNDING COMPONENTS AND PHOTOGRAPH WITH A DIGITAL CAMERA THE ENTIRE NEWLY INSTALLED GROUNDING SYSTEM PRIOR TO BACKFILL OF ANY OPEN TRENCHES.
5)ANY EXCEPTIONS TO THIS BASIC GROUNDING DESIGN GUIDELINE, ROUTING DESIGN, OR MODIFICATIONS, WILL BE DOCUMENTED AND DIMENSIONED BY WAY OF RED LINE DRAWINGS. IT IS THE RESPONSIBILITY OF THE SELECTED CONTRACTOR TO ENSURE THE NEWLY INSTALLED GROUNDING SYSTEM MEETS THE T-MOBILE STANDARD OF 5 OHMS OR LESS.
6) ELECTRICAL CONTRACTOR SHALL COORDINATE TELCO AND POWER ROUTING WITH BUILDING MANAGER PRIOR TO ROUGH-IN.
7) PRIOR TO RUNNING CONDUIT ROUTE – CONTRACTOR SHALL CONTACT THE T-MOBILE PROJECT MANAGER AND VERIFY THE EQUIPMENT CABINET LAYOUT CONFIGURATION AND ROUTE CONDUITS ACCORDINGLY.
8) ALL EXOTHERMIC CONNECTIONS INCLUDING THOSE TO GATE POST, FENCES AND ICE BRIDGE POSTS SHALL BE MADE BELOW GRADE.

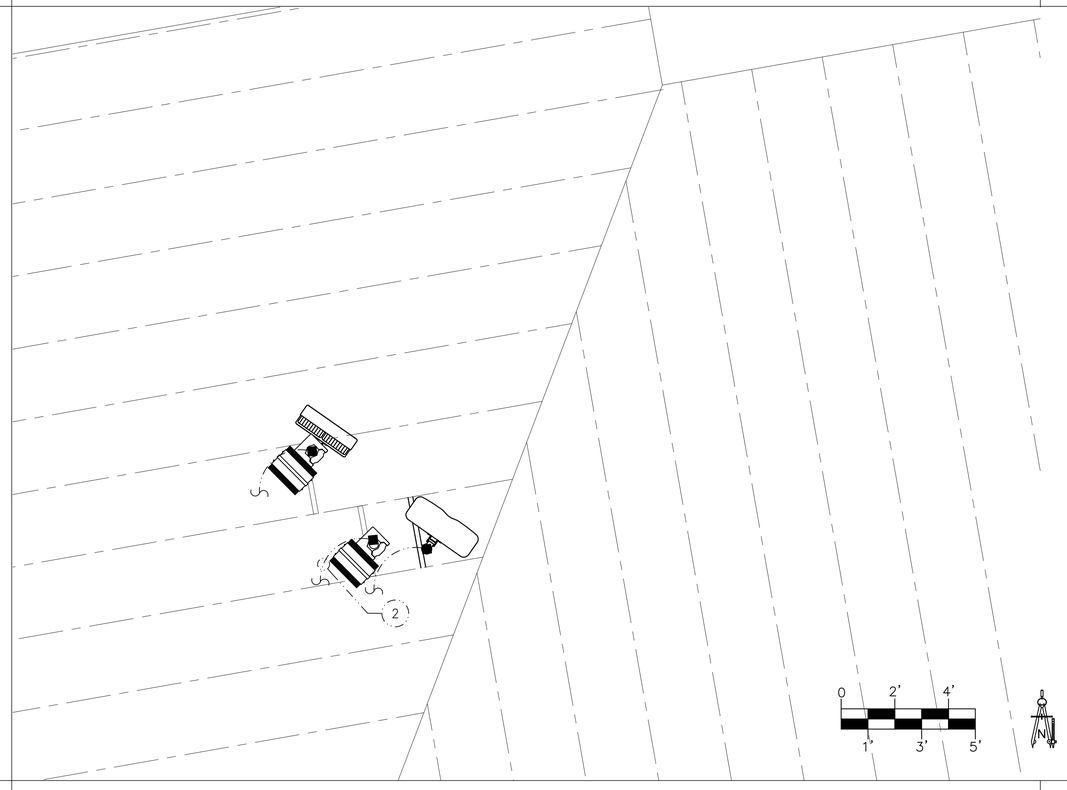
GROUNDING KEY NOTES

1. #2 TBCW, FROM EXISTING EQUIPMENT GROUND RING TO ALL EQUIPMENT. TYPICAL
2. GROUND TO EXISTING SECTOR GROUND BAR WITH #2 TBCW, TYPICAL

EQUIPMENT GROUNDING PLAN & NOTES — SCALE: 3/8" = 1'-0" — 1



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 4



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

EE LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EQUIPMENT/ANTENNA GROUNDING PLAN AND NOTES

JURISDICTIONAL APPROVAL

SHEET NUMBER

E-4

T-Mobile

SITE #: SL01116C
SITE NAME: DRAPER DENTAL
STATE: UTAH
COUNTY: SALT LAKE
DESIGN TYPE: ANCHOR

CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE CODES ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

ACCESSIBILITY REQUIREMENTS:

THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH THE CURRENT INTERNATIONAL BUILDING CODE.

ENGINEERS NOTES:

1. IF A DISCREPANCY ARISES BETWEEN THE DRAWINGS AND FIELD CONDITIONS, OR WHERE A DETAIL IS DOUBTFUL OF INTERPRETATION, OR AN UNANTICIPATED FIELD CONDITION IS ENCOUNTERED, THE ENGINEER SHALL BE CALLED IMMEDIATELY FOR PROCEDURE TO BE FOLLOWED. SUCH INSTRUCTIONS SHALL BE CONFIRMED IN WRITING AND DISTRIBUTED TO ALL AFFECTED PARTIES.

2. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS, OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DRAWING AND/OR DOCUMENTS.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER LAYOUT OF IMPROVEMENTS BASED UPON SETBACKS/ PROPERTY LINE LOCATION. DIMENSIONAL RELATIONSHIPS TO EQUIPMENT ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.

4. CONTRACTOR TO MAINTAIN ALL DRAINAGE PATHS FREE FROM ANY OBSTRUCTIONS (I.E. DEBRIS AND SILT).

5. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM EQUIPMENT.

6. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND ENGINEER OF RECORD.

7. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

UTILITY NOTES:

1. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONTACT BLUESTAKE AT LEAST TWO FULL WORKING DAYS (48 HOURS) PRIOR TO BEGINNING OF ANY EXCAVATING.

2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL STRUCTURES, UNDERGROUND PIPELINES, ELECTRIC AND TELEPHONE CONDUITS, EITHER SHOWN OR NOT SHOWN ON THE PLANS PRIOR TO ANY CONSTRUCTION, AND TO OBSERVE ALL POSSIBLE PRECAUTIONS TO AVOID ANY DAMAGE TO THESE FACILITIES. THE ENGINEERING AND/OR DEVELOPER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.

3. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL UTILITY CONNECTIONS.

PROJECT SUMMARY

SITE ADDRESS:
12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

PROPERTY OWNER:
GORDON CARR IRREVOCABLE TRUST
C/O CAPSTONE PROPERTY
MANAGEMENT LLC
4422 SOUTH CENTURY DRIVE
MURRAY, UTAH 84123
KENT GIBSON
(801)313-0700

APN:	28293300060000
ZONING CLASSIFICATION:	COI
JURISDICTION:	DRAPER CITY
LAT:	40.52788667
LONG:	-111.86285

PROJECT DESCRIPTION

T-MOBILE PROPOSES TO:

REMOVE EXISTING AC BREAKERS IN SUB PANEL
REMOVE (2) EXISTING EQUIPMENT CABINETS
REMOVE (12) EXISTING COAX CABLES, (4) PER SECTOR
REMOVE (6) EXISTING TMA'S (2) PER SECTOR
REMOVE (6) EXISTING T-MOBILE ANTENNAS, (2) PER SECTOR
ADD NEW AC BREAKER IN SUB PANEL
ADD (2) NEW EQUIPMENT CABINETS
ADD (3) HYBRID CABLES UP TO ANTENNA ARRAYS
ADD (6) RADIO MODULES, (2) PER SECTOR
ADD (6) ANTENNAS, (2) PER SECTOR

PROJECT TEAM

PROJECT MANAGER:
T-MOBILE
121 ELECTION RD.
DRAPER, UTAH 84020
CONTACT: RAQUEL ELLIS
PHONE: (425) 279-4286
EMAIL: RAQUEL.COLLINS26@T-MOBILE.COM

CONSTRUCTION MANAGER:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, AZ 85281
CONTACT: IAN WALKER
PHONE (801) 946-8585

SITE ACQ. CONSULTANT:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
CONTACT: JACOB RYNES
PHONE: (480) 204-8226

A&E DESIGN:
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, AZ 85281
CONTACT: SHAWN EVANS
PHONE (602) 758-5829

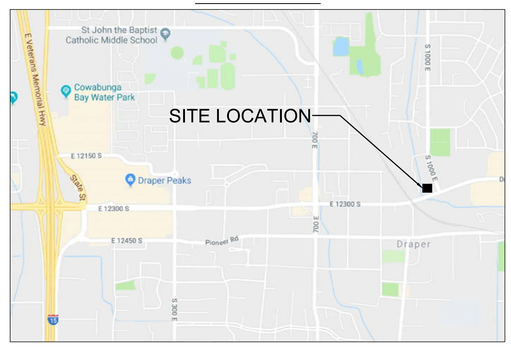
CIVIL ENGINEER:
TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131
PHOENIX, ARIZONA 85028
CONTACT: ROBERT ORLANDO
PHONE (602) 482-1603
EMAIL:ROBERT@TERRADYNAMIC.US

ELECTRICAL ENGINEER:
EXCELLENCE IN ENGINEERING
12005 ANTELOPE TRAIL
PARKER, COLORADO 80138
CONTACT: LOREN PRIEST
PHONE (303) 748-1189

811
KNOW WHAT'S BELOW
CALL BEFORE YOU DIG

SHEET INDEX

VICINITY MAP



DRIVING DIRECTIONS

DIRECTIONS TO THE SITE FROM THE T-MOBILE OFFICE:
TAKE LONE PEAK PKWY SOUTH TO E. 12300 S AND MAKE A LEFT. MAKE ANOTHER LEFT ON S. 1000 E. AND THE BUILDING WILL BE THE FIRST ONE ON YOUR LEFT.

CLIENT
T-Mobile
121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD
TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION
JOB: 13-069-04

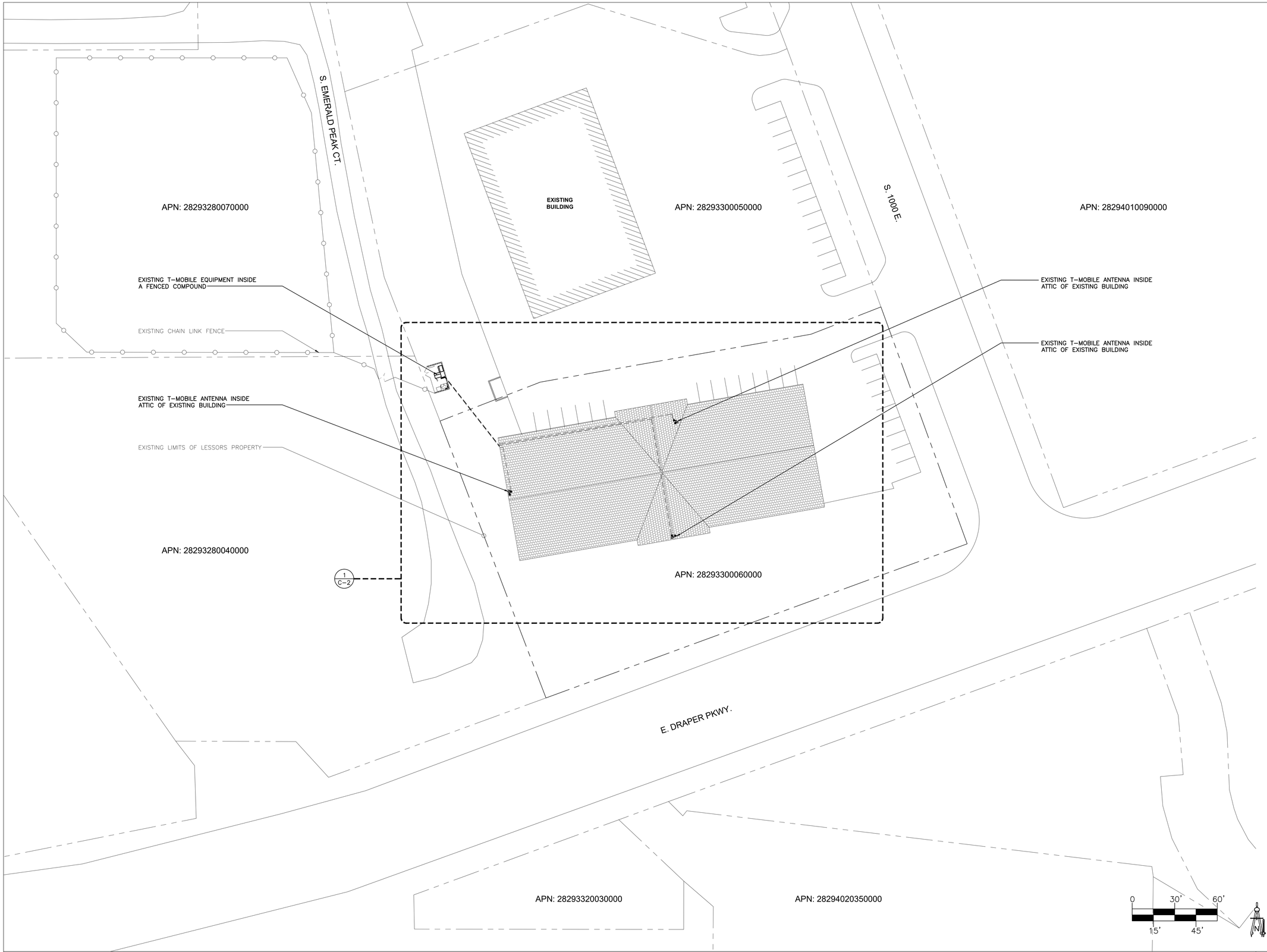
SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE
TITLE SHEET, VICINITY MAP & GENERAL INFORMATION

JURISDICTIONAL APPROVAL

SHEET NUMBER
T-1



SITE PLAN

SCALE: 1" =30'

1

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

SITE PLAN

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-1

EXISTING T-MOBILE EXCESS FIBER MOUNTED TO BLOCK WALL

EXISTING T-MOBILE CHAIN LINK FENCE COMPOUND ACCESS GATE

EXISTING T-MOBILE METER MOUNTED TO EXISTING EQUIPMENT CABINET

EXISTING COMPOUND BLOCK WALL WITH CHAIN LINK FENCE ON TOP

EXISTING (3) T-MOBILE RADIO MODULES MOUNTED TO EXISTING BLOCK WALL

1 C-3 2 C-3

EXISTING LIMITS OF LESSORS PROPERTY

EXISTING ASPHALT PARKING LOT

3 C-3 4 C-3

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING EDGE OF BUILDING

EXISTING COAX CABLES ROUTED UNDERGROUND TO BASE OF BUILDING AND UP TO ANTENNA ARRAYS

SLOPE

EXISTING GRASS LANDSCAPE

EXISTING EDGE OF ROOF

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING RIDGE

SLOPE

EXISTING ROOFTOP

3 C-4 4 C-4

1 C-5

2 C-5

1 C-4 2 C-4

EXISTING T-MOBILE ANTENNAS MOUNTED INSIDE ATTIC OF EXISTING BUILDING

EXISTING EDGE OF BUILDING

EXISTING GRASS LANDSCAPE

EXISTING DIRT ROAD AT LOWER GRADE

SLOPE

0 2' 4' 10'

1' 3' 5'

N

ENLARGED SITE PLAN

SCALE: 3/16" =1'-0"

1

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

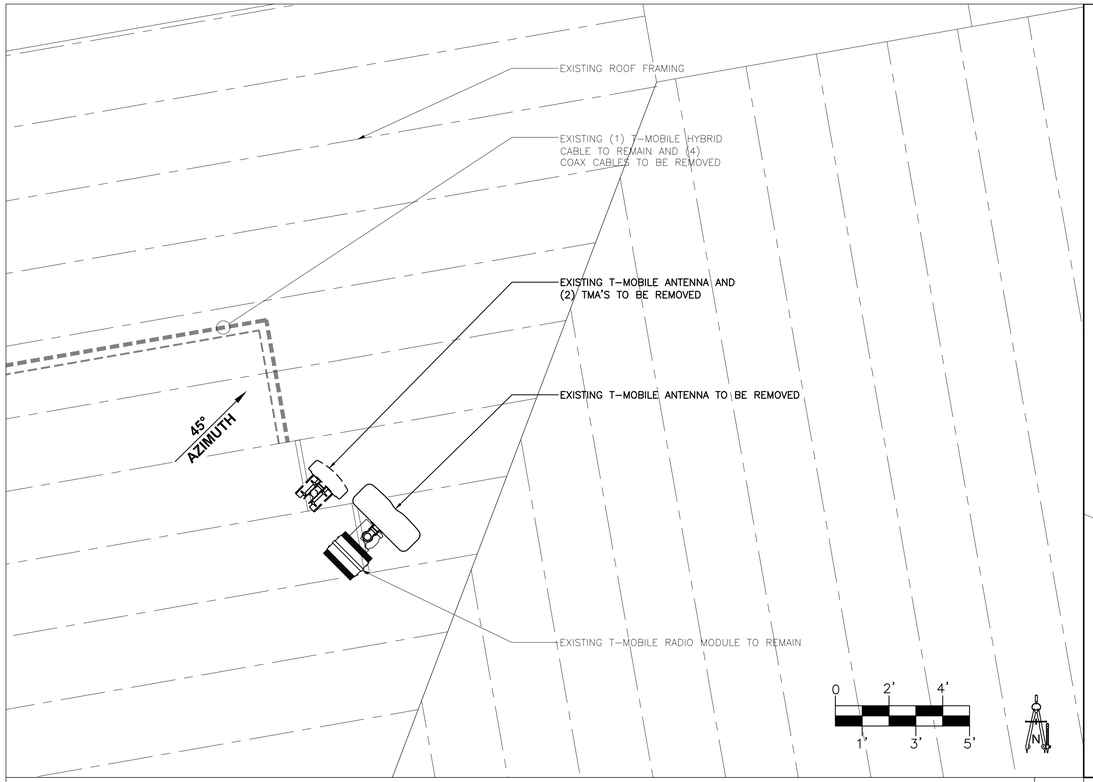
SHEET TITLE

ROOFTOP SITE PLAN

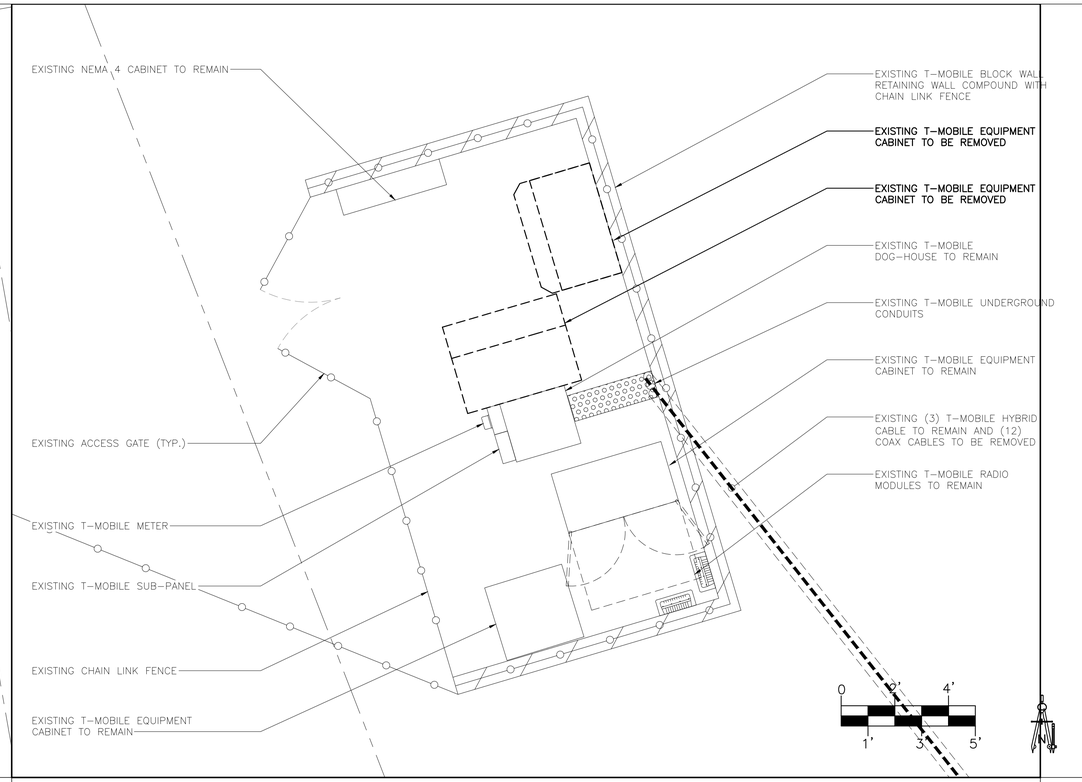
JURISDICTIONAL APPROVAL

SHEET NUMBER

C-2



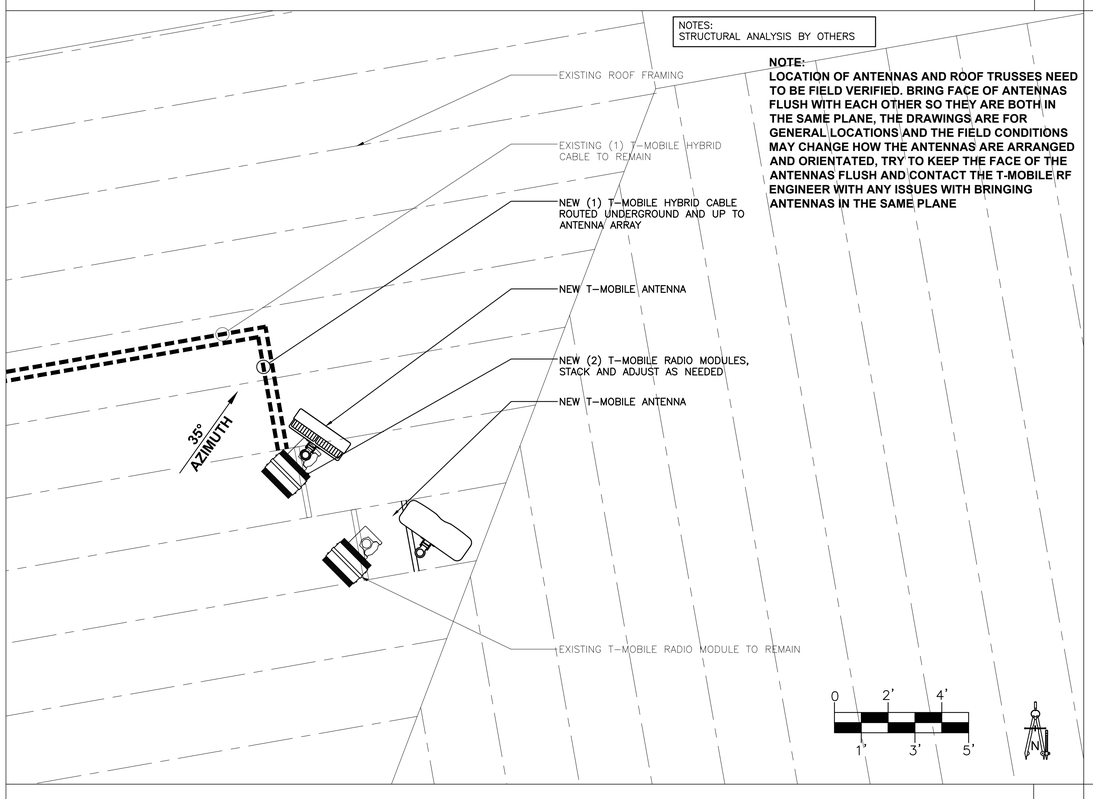
EXISTING ANTENNA PLAN SCALE: 1/2" = 1'-0" 3



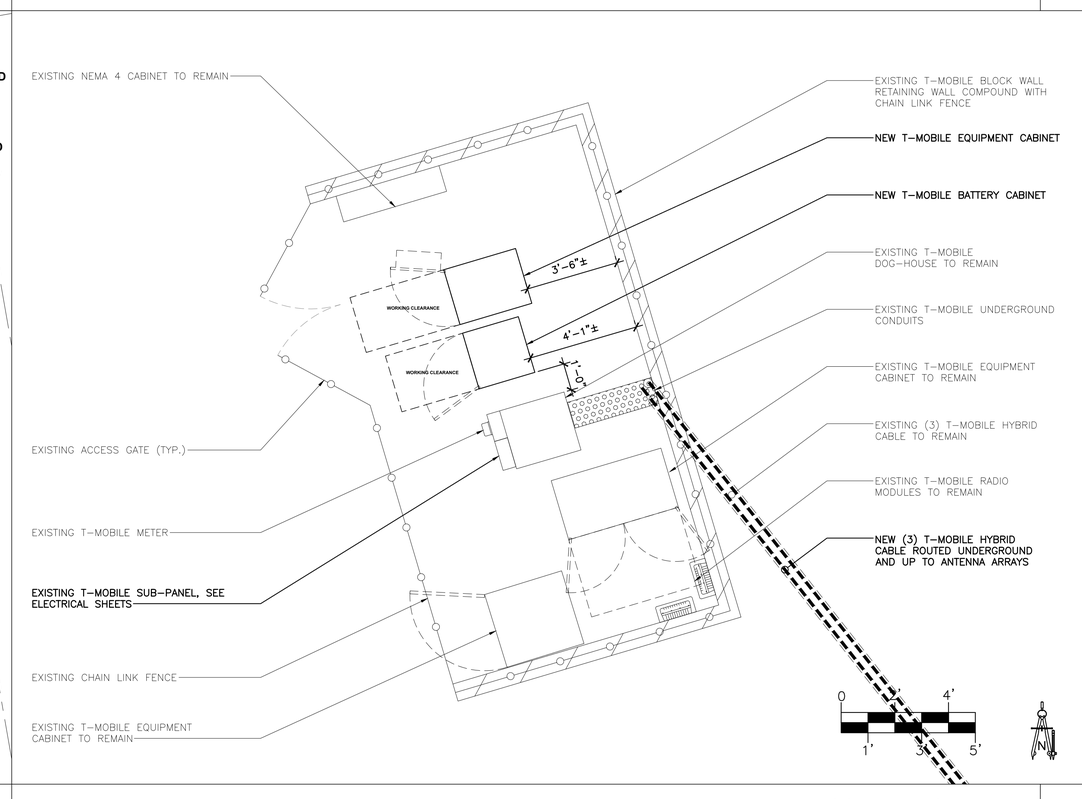
EXISTING ENLARGED EQUIPMENT PLAN SCALE: 3/8" = 1'-0" 1

NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NOTE:
LOCATION OF ANTENNAS AND ROOF TRUSSES NEED TO BE FIELD VERIFIED. BRING FACE OF ANTENNAS FLUSH WITH EACH OTHER SO THEY ARE BOTH IN THE SAME PLANE, THE DRAWINGS ARE FOR GENERAL LOCATIONS AND THE FIELD CONDITIONS MAY CHANGE HOW THE ANTENNAS ARE ARRANGED AND ORIENTATED, TRY TO KEEP THE FACE OF THE ANTENNAS FLUSH AND CONTACT THE T-MOBILE RF ENGINEER WITH ANY ISSUES WITH BRINGING ANTENNAS IN THE SAME PLANE



NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 4



NEW ENLARGED EQUIPMENT PLAN SCALE: 3/8" = 1'-0" 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

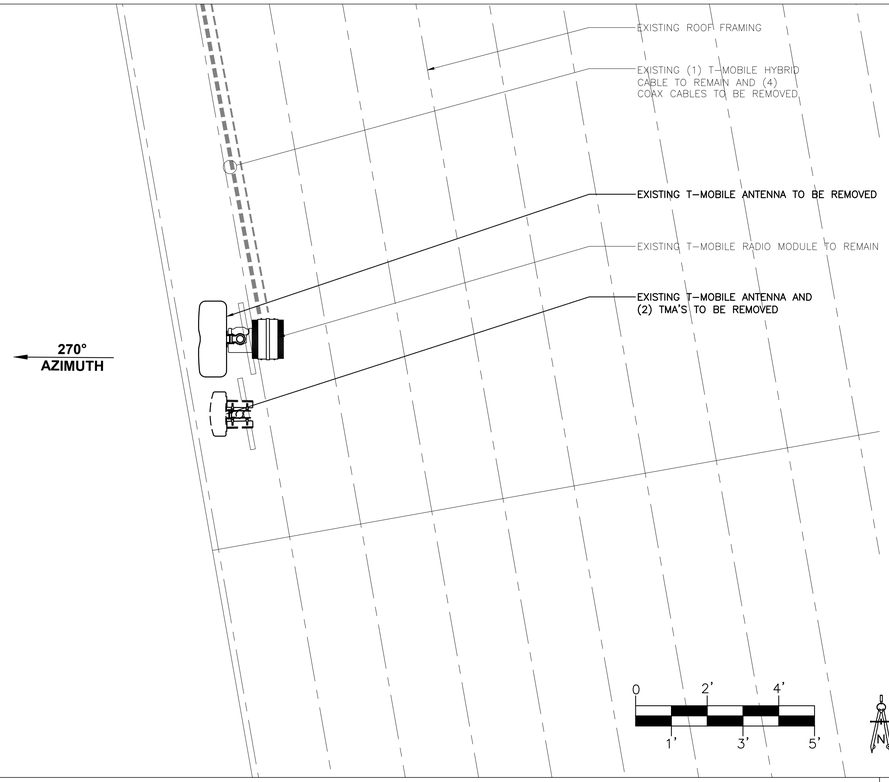
SHEET TITLE

EXISTING/NEW ANTENNA PLANS

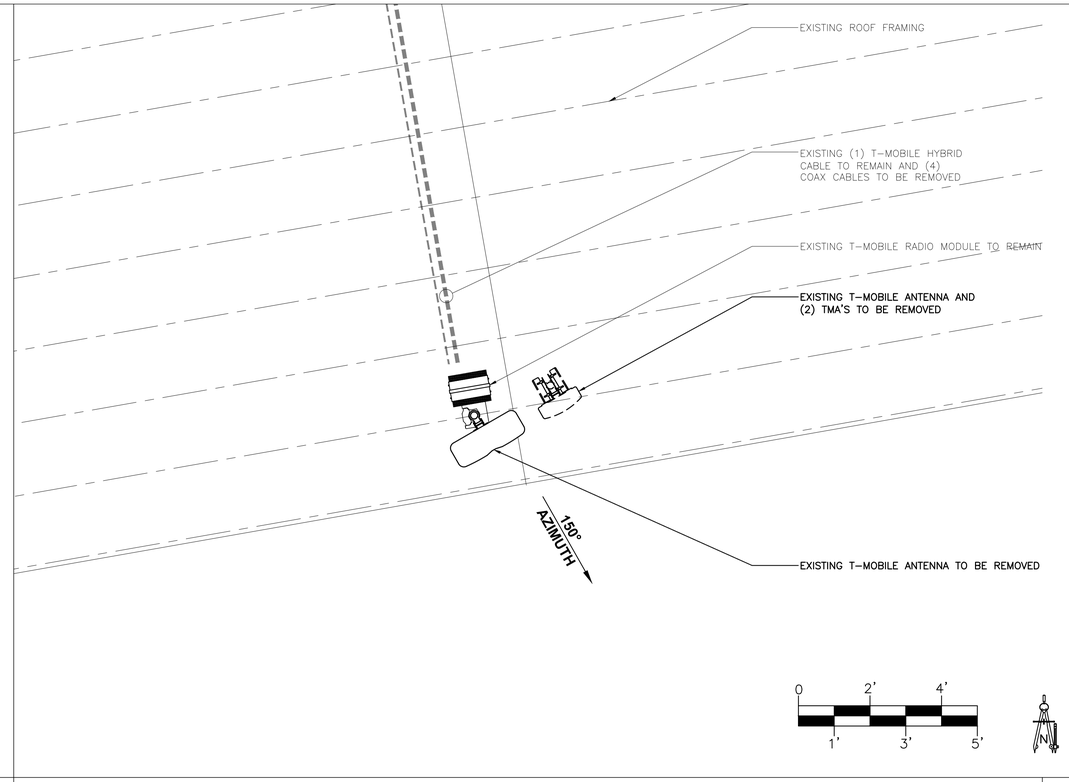
JURISDICTIONAL APPROVAL

SHEET NUMBER

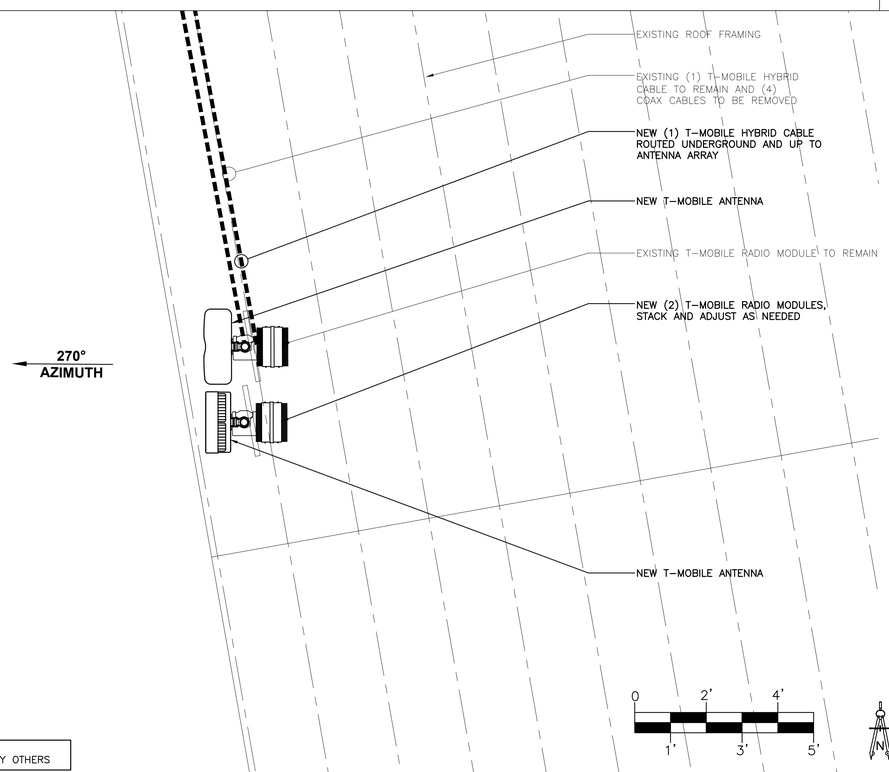
C-3



EXISTING ANTENNA PLAN SCALE: 1/2"= 1'-0" 3

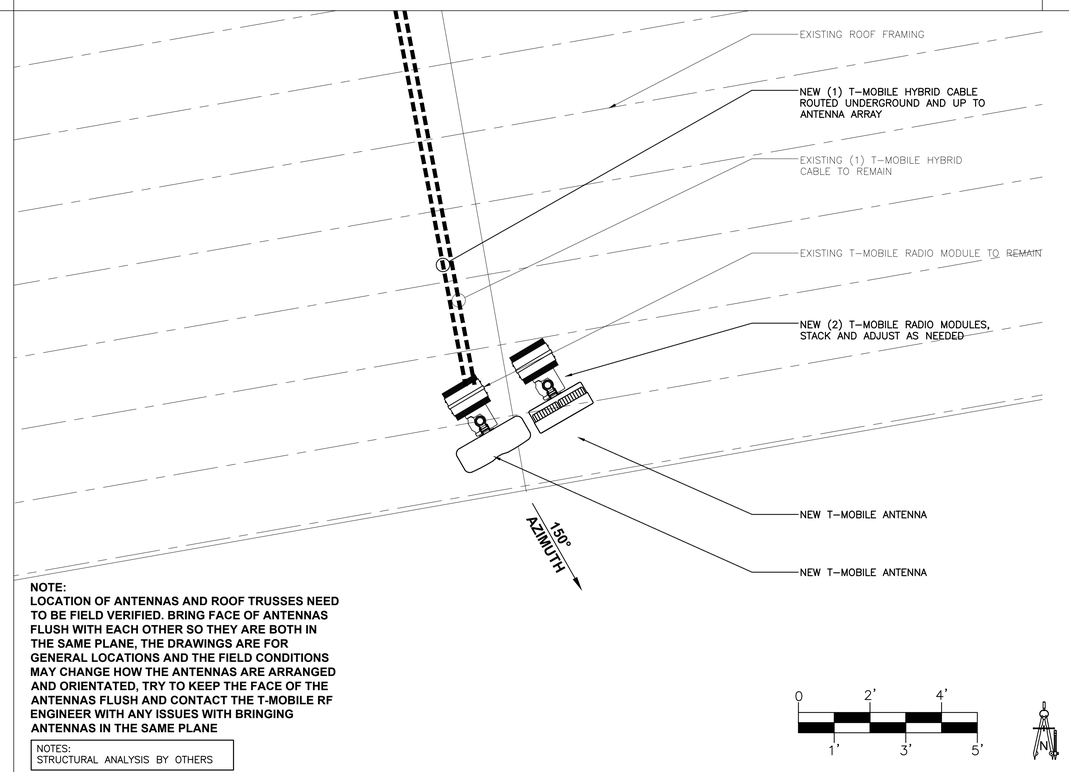


EXISTING ANTENNA PLAN SCALE: 1/2" = 1'-0" 1



NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 4



NOTE:
LOCATION OF ANTENNAS AND ROOF TRUSSES NEED TO BE FIELD VERIFIED. BRING FACE OF ANTENNAS FLUSH WITH EACH OTHER SO THEY ARE BOTH IN THE SAME PLANE, THE DRAWINGS ARE FOR GENERAL LOCATIONS AND THE FIELD CONDITIONS MAY CHANGE HOW THE ANTENNAS ARE ARRANGED AND ORIENTATED, TRY TO KEEP THE FACE OF THE ANTENNAS FLUSH AND CONTACT THE T-MOBILE RF ENGINEER WITH ANY ISSUES WITH BRINGING ANTENNAS IN THE SAME PLANE

NOTES:
STRUCTURAL ANALYSIS BY OTHERS

NEW ANTENNA PLAN SCALE: 1/2" = 1'-0" 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EXISTING/NEW ANTENNA PLANS

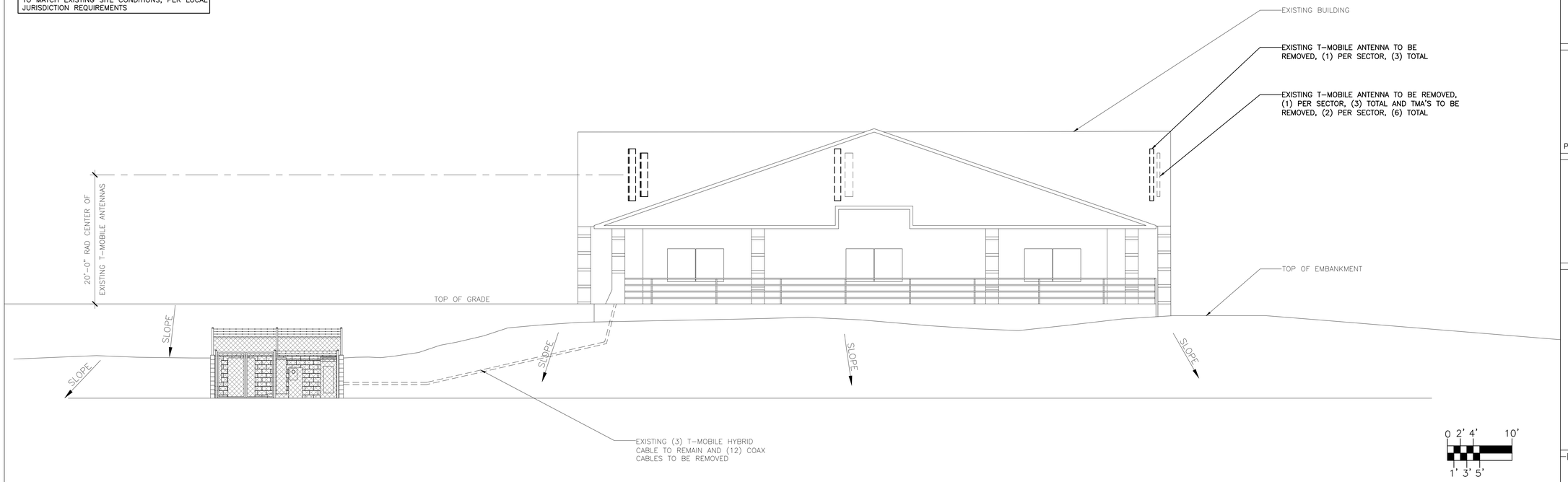
JURISDICTIONAL APPROVAL

SHEET NUMBER

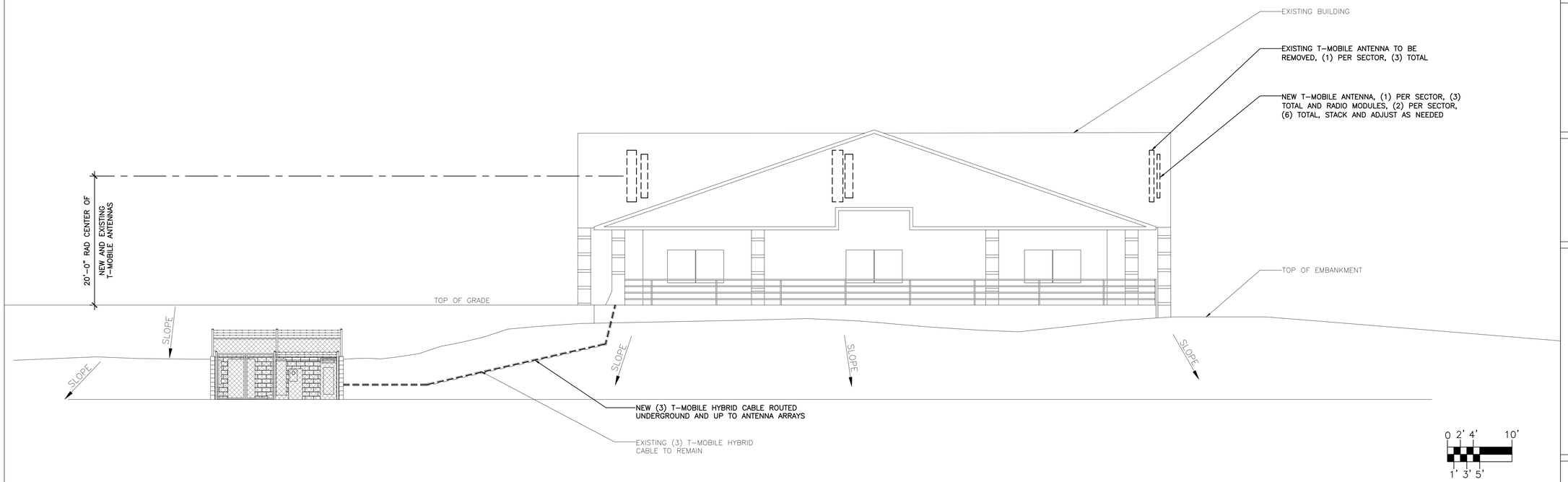
C-4

NOTES:
STRUCTURAL ANALYSIS MUST BE PERFORMED BEFORE INSTALLATION OF ANY NEW ANTENNAS. STRUCTURAL ANALYSIS PROVIDED BY OTHERS.

PAINT ALL NEW ANTENNA AND APPURTENANCES TO MATCH EXISTING SITE CONDITIONS, PER LOCAL JURISDICTION REQUIREMENTS



EXISTING WEST ELEVATION — SCALE: 1/8" = 1'-0" — 1



NEW WEST ELEVATION — SCALE: 1/8" = 1'-0" — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING

2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC

P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EXISTING/NEW ELEVATIONS

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-5

ANTENNA AND CABLE SCHEDULE

SECTOR	ANT. POS. #	ANTENNA TYPE	RAD CENTER	AZIMUTH	MECHANICAL DOWN TILT	ELECTRICAL DOWN TILT	CABLE TYPE	# OF LINES	LENGTH	RADIO
ALPHA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	35°	-4	4	6X12 4AWG	1	70M	ERICSSON-4449-B71+B85
ALPHA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	35°	-4	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25
BETA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	150°	0	4	6X12 4AWG	1	100M	ERICSSON-4449-B71+B85
BETA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	150°	0	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25
GAMMA	1	COMMSCOPE FFV4-65A-R3-V1 (DODECA)	20'±	270°	1	4	6X12 4AWG	1	70M	ERICSSON-4449-B71+B85
GAMMA	2	ERICSSON AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	20'±	270°	1	2 AND 2	6X12 6AWG	1	70M	ERICSSON-4424-B25 ERICSSON-4415-B25

ANTENNA SCHEDULE — SCALE: N.T.S. — 1

NOT USED — SCALE: N.T.S. — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

TERRA DYNAMIC ENGINEERING, LLC
P.O. BOX 22131, PHOENIX, AZ 85028
PHONE: (602) 482-1603
EMAIL: ROBERT@TERRADYNAMIC.US

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	SPE
2	10/02/20	REVISION 1	REW
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

DETAILS

JURISDICTIONAL APPROVAL

SHEET NUMBER

C-6

ELECTRICAL SPECIFICATIONS

1 SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.

2 CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.

3 HEIGHTS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.

4 THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.

5 EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)

6 CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.

7 ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA & NBFU.

8 CONTRACTOR SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES AND O.S.H.A.

9 CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS

10 COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.

11 ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.

12 PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.

13 ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

14 USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE.

15 ALL CONDUCTORS SHALL BE COPPER.

16 ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.

17 THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES AND DRAWINGS.

18 PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.

19 IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.

20 LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.

21 PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH SECTION NO. 4305 AND NO. 4304 OF THE U.B.C.

22 RECEPTACLES SHALL BE 20 AMPERE, 125 VOLT A.C., WHITE AS REQUIRED BY THE ARCHITECT OR APPROVED EQUAL.

23 WALL SWITCHES SHALL BE SINGLE-POLE, HUBBELL #1201 OR EQUIVELENT, WHITE AS REQUIRED BY THE ARCHITECT.

24 PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS, SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE RACO #800, 1/2" RAISED WORK COVERS.

25 WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM, NO BX OR ROMEX CABLE IS PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.

26 GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2.

27 GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8" ROUND AND 10' LONG. COPPERWELD OR APPROVED EQUAL.

28 METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY SQUARE D COMPANY OR APPROVED EQUAL.

29 ALL MATERIALS SHALL BE U.L. LISTED.

30 CONDUIT:
- a. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN COTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR RIGIDCONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
- b. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
- c. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.
- d. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 24" BELOW GRADE.

31 ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.

32 UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

33 CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS TO BE PAID BY CONTRACTOR.

GENERAL ELECTRICAL NOTES

1. CONDUIT LAYOUTS SHOWN ON THE PLANS ARE DIAGRAMMATIC, NOT INDICATING THE EXACT ROUTING REQUIRED. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF INSTALLATION.
2. ALL EQUIPMENT PROVIDED BY THE ELECTRICAL CONTRACTOR SHALL BE LISTED AND LABELED BY A NATIONALLY-RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, FOR THE CONDITIONS OF INSTALLATION.
3. DEVICE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXACT DEVICE LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL PLANS OR AS DIMENSIONED. IF NOT SHOWN ON THE ARCHITECTURAL PLANS OR DIMENSIONED ON THE ELECTRICAL PLANS, VERIFY EXACT LOCATION WITH THE ARCHITECT PRIOR TO ROUGH-IN.
4. ALL WIRE COUNTS ARE TYPICALLY NOT SHOWN BETWEEN LIGHT FIXTURES OR RECEPTACLES. PROVIDE ALL REQUIRED EVEN WHERE NOT SHOWN.
5. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, CIRCUITS SHALL CONSIST OF #12 PHASE AND GROUNDED (NEUTRAL CONDUCTORS) AND A #12 CU GROUND IN 3/4" CONDUIT. MC CABLE SHALL BE ACCEPTACLE IN WALLS. ALL BRANCH CIRCUIT HOME-RUNS SHALL BE IN CONDUIT.
6. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL UTILIZATION EQUIPMENT SHOWN ON THE DRAWINGS. VERIFY THE TYPE OF FINAL CONNECTION AND PROVIDE APPROPRIATE WIRING METHOD.
7. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS, PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEMS TO MATCH UTILIZATION EQUIPMENT, EVEN IF THE ELECTRICAL WORK IS INSTALLED PER THE ELECTRICAL DRAWINGS.
8. INSULATION & WIRE TYPES SHALL BE AS FOLLOWED: PANEL FEEDERS - XHHW COPPER, WIRING ABOVE GRADE - THWN COPPER, WIRING BELOW GRADE - THWN COPPER, UNLESS NOTED OTHERWISE.
9. SOME CONDUCTOR SIZES ARE BASED ON THE USE OF 75 DEGREE C CONDUCTOR RATINGS. THE CONTRACTOR SHALL VERIFY, PRIOR TO INSTALLATION OF CONDUCTORS OR CONDUIT FEEDING ANY EQUIPMENT, THAT ALL ELECTRICAL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C WIRING. IF ANY EQUIPMENT IS RATED FOR USE WITH LESS THAN 75 DEGREE C CONDUCTORS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR EVALUATION/CORRECTION.
10. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. COMPONENTS NOT SHOWN, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE PROJECT.
11. THE CONTRACTOR SHALL PERFORM ALL ACCEPTANCE TESTS REQUIRED OR RECOMMENDED BY EQUIPMENT MANUFACTURERS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SEVEN (7) DAYS PRIOR TO TESTING AND SHALL ALLOW OBSERVATION OF THE TESTING BY THE ENGINEER.
12. ALL RECEPTACLES INSTALLED WITHIN 6 FEET OF A SINK SHALL BE GFI PROTECTED.
13. UNLESS OTHERWISE NOTED, ALL EQUIPMENT DISCONNECTS SHALL BE NEMA TYPE 3R, FUSIBLE, 30A, 3 POLE. FUSE PER EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
14. ALL PENETRATIONS IN WALLS SHALL BE SEALED WITH FLEXIBLE ACOUSTIC CAULKING. CAULKING SHALL BE APPLIED AROUND OUTLET BOXES TO PROVIDE A COMPLETE SEAL BETWEEN THE BOX AND THE WALL.
15. PRIOR TO TRENCHING IN ANY AREA, THE CONTRACTOR SHALL CONTACT ELECTRICAL, COMMUNICATIONS/DATA, CABLE TV, GAS, AND WATER UTILITY PROVIDERS (BLUE STAKE) AND HAVE ALL UTILITIES IN THE AREA IDENTIFIED. IN ADDITION, THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A SUBCONTRACTOR SPECIALIZING IN THE LOCATION OF UNDERGROUND STRUCTURES TO IDENTIFY ANY OBSTACLES IN THE PATH OF TRENCHING (PRIOR TO COMMENCING WORK). DAMAGE TO ANY UNDERGROUND STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
16. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH LOCAL AND STATE CODES INCLUDING THE NEC
17. OVER CURRENT DEVICES SHALL BE LOCATED WHERE THEY WILL NOT BE EXPOSED TO PHYSICAL DAMAGE.
18. HOMERUNS SHALL NOT BE GANGED TOGETHER UNLESS SHOWN GANGED.
19. CONTRACTOR SHALL CONTACT ENGINEER IN WRITING (RFI) PRIOR TO PROCEEDING WITH ANY WORK NOT CLEARLY SHOWN ON THESE CONTRACT DOCUMENTS. ENGINEER WILL NOT ACCEPT ANY RESPONSIBILITY FOR WORK HE HAS NOT EXPLICITLY AUTHORIZED.
20. PROVIDE IDENTIFICATION AT THE DISTRIBUTION PANEL FOR BRANCH CIRCUITS THAT FEED EMERGENCY LIGHTING UNIT EQUIPMENT.
21. ELECTRICAL EQUIPMENT THAT IS LIKELY TO REQUIRE MAINTENANCE WHILE ENERGIZED SHALL BE PROPERLY MARKED TO WARN PERSONNEL OF ARC FLASH HAZARD.
22. PROVIDE A #18 OR LARGER COPPER TRACER WIRE SECURELY ATTACHED TO THE NON-METALLIC CABLE, PIPE OR CONDUIT AT 8'-0" ON CENTER. IT SHALL HAVE A 12" OF TRACER WIRE ACCESSIBLE ABOVE GRADE AT ANY ABOVE GRADE TERMINATION PER ARIZONA STATE STATUTE.
23. UTILITY COORDINATION
    a. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF DRAWINGS TO ELECTRICAL AND TELCO UTILITIES AS REQUIRED FOR DESIGN.
    b. THE CONTRACTOR SHALL NOT TRENCH OR INSTALL CONDUITS (ON THE UTILITY OR LOAD SIDE) TO THE SES OR TO THE UTILITY TRANSFORMER (PRIMARY OR SECONDARY), OR TO THE UTILITY CONNECTION POINT BEFORE RECEIVING A FINAL DESIGN FROM THE UTILITY.
    c. THE CONTRACTOR SHALL NOT INSTALL EQUIPMENT PADS FOR THE SES OR ANY UTILITY EQUIPMENT (TRANSFORMERS, SWITCHING CABINETS, ETC) PRIOR TO RECEIPT OF FINAL PLANS FROM THE UTILITY.
    d. THE CONTRACTOR SHALL NOT BE COMPENSATED FOR ADDITIONAL WORK REQUIRED TO MEET THE REQUIREMENTS OF THE UTILITY WHICH IS THE RESULT OF PROCEEDING PRIOR TO RECEIPT OF A FINAL UTILITY DESIGN.
24. SERIES RATING NOTES:

A. WHERE A CIRCUIT BREAKER IS USED ON A CIRCUIT HAVING AN AVAILABLE FAULT CURRENT HIGHER THAN THE MARKED INTERRUPTING RATING BY BEING CONNECTED ON THE LOAD SIDE OF AN ACCEPTABLE OVERCURRENT PROTECTIVE DEVICE HAVING A HIGHER RATING, THE CIRCUIT BREAKER SHALL MEET THE REQUIREMENTS SPECIFIED IN (1) AND (2).
   (1). TESTED COMBINATIONS. THE COMBINATION OF LINE-SIDE OVERCURRENT DEVICE AND LOAD-SIDE CIRCUIT BREAKER(S) IS TESTED AND MARKED ON THE END USE EQUIPMENT, SUCH AS SWITCHBOARDS AND PANELBOARDS.
   (2). MOTOR CONTRIBUTION. SERIES RATINGS SHALL NOT BE USED WHERE
      a. MOTORS ARE CONNECTED ON THE LOAD SIDE OF THE HIGHER-RATED OVERCURRENT DEVICE AND ON THE LINE SIDE OF THE LOWER-RATED OVERCURRENT DEVICE, AND
      b. THE SUM OF THE MOTOR FULL-LOAD CURRENTS EXCEEDS 1 PERCENT OF THE INTERRUPTING RATING OF THE LOWER-RATED CIRCUIT BREAKER.

B. WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH THE SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURER, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATING. THE MARKING SHALL BE READILY VISIBLE AND STATE THE FOLLOWING:
   CAUTION - SERIES COMBINATION SYSTEM RATED ____ AMPERES.
   IDENTIFIED REPLACEMENT COMPONENTS REQUIRED

C. TESTED COMBINATIONS. THE COMBINATION OF THE LINE-SIDE OVERCURRENT DEVICE AND LOAD SIDE CIRCUIT BREAKER(S) IS TESTED AND MARKED ON THE END USE EQUIPMENT, SUCH AS SWITCHBOARDS AND PANELBOARDS.

SYMBOL LIST
(NOT ALL MAY BE USED)

ELECTRICAL SYMBOLS

- FLUORESCENT STRIP FIXTURE, LENGTH PER PLAN.
- SURFACE WALL-MOUNTED LIGHT FIXTURE.
- SOLID "JBOX" ON ANY FIXTURE INDICATES A FIXTURE WITH AN INTEGRAL EMERGENCY POWER SUPPLY, PER THE SPECIFICATIONS.
- POLE-MOUNTED LIGHT FIXTURE.
- SINGLE POLE TOGGLE SWITCH
- PC — PHOTOCELL , MOUNTED ON ROOF UNLESS NOTED OTHERWISE.
- DUPLEX CONVENIENCE RECEPTACLE
- GFCI — "CROSS SLASH" ON ANY RECEPTACLE INDICATES INTEGRAL GROUND FAULT PROTECTION.
- DOUBLE DUPLEX (FOURPLEX) CONVENIENCE RECEPTACLE
- C / F — JUNCTION BOX. 'C' INDICATES CEILING MOUNTED. 'F' INDICATES FLOOR MOUNTED (SUBSCRIPTS ARE TYPICAL FOR ALL DEVICES)
- VOICE OUTLET
- DATA OUTLET
- COMBINATION TELEPHONE AND DATA OUTLET IN THE SAME BOX
- $_{HP} — HORSEPOWER RATED MANUAL MOTOR SWITCH
- FUSIBLE DISCONNECT SWITCH FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. SIZE AND FUSES AS PER RECOMMENDATIONS OF EQUIPMENT'S MANUFACTURER OR AS NOTED. 30A, 3P, 250V, NEMA 3R UNLESS NOTED OTHERWISE. (N. INDICATES NON-FUSED).
- ELECTRICAL MOTOR. SEE DRAWINGS FOR SIZE.
- DISTRIBUTION PANELBOARD, MOTOR CONTROL CENTER OR SERVICE ENTRANCE SECTION. SEE DRAWINGS FOR EXACT TYPE.
- T — DISTRIBUTION TRANSFORMER
- SURFACE MOUNTED PANEL BOARD.
- FLUSH MOUNTED PANEL BOARD.
- TMB — TELEPHONE MOUNTING BOARD.
- TEST WELL/GROUND ROD
- GROUND ROD - 5/8" x 10' COPPER CLAD
- CADWELD CONNECTION
- MECHANICAL CONNECTION
- GROUNDING WIRE
- GROUND BAR
- SURGE SUPPRESSOR GROUND BAR
- M — METER AND MAIN BREAKER
- MANUAL XFR SWITCH AND GEN. RECPT.
- G — GPS ANTENNA
- ELECTRICAL POWER
- T-1 LINE

WIRE AND CONDUIT

- FLEXIBLE CONDUIT
- CONDUIT CONCEALED IN WALLS OR ABOVE CEILING W/ 2 #12, #12 GND, 3/4" C., UNLESS NOTED OTHERWISE.
- CONDUIT ROUTED UNDER FLOOR OR BELOW GRADE W/ 2 #12, #12 GRD., 3/4" C., UNLESS NOTED OTHERWISE.
- CONDUIT TURNING UP.
- CONDUIT TURNING DOWN.

1-LINE DIAGRAM

- CIRCUIT BREAKER, FIXED MOUNTED.
- CIRCUIT BREAKER, DRAWOUT MOUNTING.
- FUSIBLE SWITCH. SIZE AS INDICATED ON DRAWINGS.
- TRANSFORMER. SEE ONE-LINE FOR TYPE AND SPECIFICATION.
- CURRENT TRANSFORMER
- M — METERING DEVICE
- PANELBOARD, MAIN LUG ONLY
- PANELBOARD, MAIN CIRCUIT BREAKER
- TRANSFER SWITCH - MANUAL OR AUTOMATIC
- F/T — INDICATES A FEED-THROUGH LUG CONNECTION
- UNINTERRUPTIBLE POWER SUPPLY
- G — GENERATOR WITH INTEGRAL PROTECTION
- WEATHERHEAD

SHEET INDEX

ABBREVIATIONS

C.O.	= CONDUIT ONLY
PVC.	= SCHEDULE 40 PLASTIC CONDUIT
GRC.	= GALVANIZED RIGID CONDUIT
MTD.	= MOUNTED
W.P.	= WEATHERPROOF
U.O.N.	= UNLESS OTHERWISE NOTED
G. OR GRD.	= GROUND
N. OR NEUT.	= NEUTRAL
A. OR AMP.	= AMPERE
KW.	= KILOWATTS
W.	= WATTS
~	= PHASE
DIA	= DIAMETER
H.P. OR HP	= HORSEPOWER
XFMR	= TRANSFORMER
C.B.	= CIRCUIT BREAKER
CKT.	= CIRCUIT
SW.	= SWITCH
MTS	= MANUAL TRANSFORMER SWITCH
F.A.	= FIRE ALARM
RECPT.	= RECEPTACLE
E.C.	= ELECTRIC CONTRACTOR
G.C.	= GENERAL CONTRACTOR
1P, 2P, & 3P	= SINGLE POLE, TWO POLE, & THREE POLE
EGB	= EQUIPMENT GROUND BUS
MGB	= MAIN GROUND BUS
AFC	= AVAILABLE FAULT CURRENT
AWG	= AMERICAN WIRE GAUGE
BTCW	= BARE TINNED COPPER WIRE
GPS	= GLOBAL POSITIONING SYSTEM
PPC	= POWER PROTECTION CABINET
TYP.	= TYPICAL
RGS	= RIGID GALVANIZED STEEL
EMT	= ELECTRICAL METALLIC TUBING
DWG	= DRAWING
BTS	= BASE TRANSMISSION SYSTEM
GEN	= GENERATOR
BSCW	= BARE STRANDED COPPER WIRE
ISCW	= INSULATED STRANDED COPPER WIRE

CLIENT
T-Mobile
121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT
COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD
ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

SPECS / GENERAL NOTES / LEGENDS / SHEET INDEX

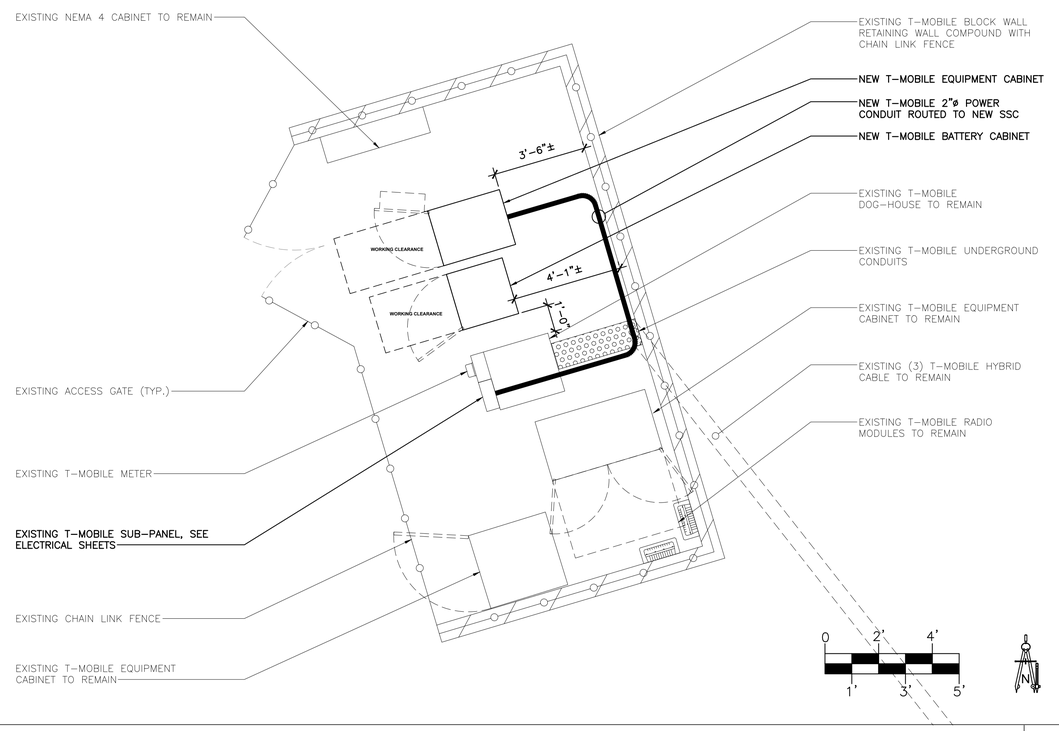
JURISDICTIONAL APPROVAL

SHEET NUMBER

E-1

NOT USED

SCALE: N.T.S. | 3



ENLARGED POWER PLAN

SCALE: 3/8" = 1'-0" | 1

NOT USED

SCALE: N.T.S. | 4

NOT USED

SCALE: N.T.S. | 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

ENLARGED POWER PLAN

JURISDICTIONAL APPROVAL

SHEET NUMBER

E-2

EXISTING 100 AMP SUB PANEL — ELECTRICAL PANEL SCHEDULE

PANEL — 65/10KAIC SERIES RATED

LOCATION: SUB PANEL
MOUNTING: SURFACE — NEMA RATING:3R

VOLTAGE: 208 / 120 V 1ø,3W
MAINS: 100 A MCB
BUS: 100 A CU

LOAD DESCRIPTION	EMT COND	CU GRND	PHASE NEUT	CKT BRKR	CIR NO.	LOAD AMPS PHASE A	LOAD AMPS PHASE B	CIR NO.	CKT BRKR	PHASE NEUT	CU GRND	EMT COND	LOAD DESCRIPTION
MECH	2"	6	1	100	1	0.0			50	1	6	1"	MECH
GENERATOR SUPPLY						1.5		2					NORTH BTS
MECH			1		3		0.0			1			MECH
Cont.				2			1.8	4	2				Cont.
MECH	2"	6	1	100	5	12.0			80	1	6	1-1/2"	MECH
UTILITY SUPPLY						3.0		6					SOUTH BTS
MECH			1		7		12.0			1			MECH
Cont.				2			1.5	8	2				Cont.
MECH	2"	6	1	100	9	1.5			20	12	12	3/4"	MECH
6102						15.0		10					NOT LABELED
MECH			1		11		15.0			12			MECH
Cont.				2			15.0	12	2				Cont.
MECH	3/4"	12	12	15	13	15.0			50	1	6	1-1/2"	MECH
6102				1		5.0		14					NOT LABELED
BUSSED SPACE					15		15.0			1			MECH
							5.0	16	2				Cont.
BUSSED SPACE					17	15.0							BUSSED SPACE
						1.5		18					
BUSSED SPACE					19		45.0						BUSSED SPACE
							0.0	20					
BUSSED SPACE					21	45.0							BUSSED SPACE
						0.0		22					
BUSSED SPACE					23		0.0						BUSSED SPACE
							0.0	24					
BUSSED SPACE					25	15.0							BUSSED SPACE
						1.5		26					
BUSSED SPACE					27		45.0						BUSSED SPACE
							0.0	28					
BUSSED SPACE					29	45.0							BUSSED SPACE
						0.0		30					
						118.3	118.0						

CONTRACTOR TO INSTALL APPROVED HANDLE TIE ON ALL SHARED NEUTRAL CIRCUITS.

1 PHASE DEMAND (VA)	
LIGHTING	216.0
25% OF LIGHTING	54.0
RECEPTACLES	540.0
MECHANICAL	3600.0
25% LARGEST MOTOR	900.0
MISCELLANEOUS	24000.0
	0.0
	0.0
	0.0
	0.0
	0.0
	29,310.0

29.3 KVA @ 240 V 1ø
122.1 A @ 240 V 1ø

SYMBOL LIST

CODE LOAD SUMMARY
PANEL 'PPC' @ 240V = 101.0 A

UPDATED 200 AMP SUB PANEL — ELECTRICAL PANEL SCHEDULE

PANEL — 65/10KAIC SERIES RATED

LOCATION: SUB PANEL
MOUNTING: SURFACE — NEMA RATING:3R

VOLTAGE: 208 / 120 V 1ø,3W
MAINS: 100 A MCB
BUS: 100 A CU

LOAD DESCRIPTION	EMT COND	CU GRND	PHASE NEUT	CKT BRKR	CIR NO.	LOAD AMPS PHASE A	LOAD AMPS PHASE B	CIR NO.	CKT BRKR	PHASE NEUT	CU GRND	EMT COND	LOAD DESCRIPTION
MECH	2"	6	1	100	1	**0.0**			**100**	**3/0**	**6**	**2"**	**MECH**
GENERATOR SUPPLY						**1.5**		2					**6160 SSC**
MECH			1		3		**0.0**		**2**	**3/0**			**MECH**
Cont.				2			**1.8**	4					**Cont.**
MECH	2"	6	1	100	5	**12.0**							**BUSSED SPACE**
UTILITY SUPPLY						**3.0**		6					
MECH			1		7		**12.0**						**BUSSED SPACE**
Cont.				2			**1.5**	8					
MECH	2"	6	1	100	9	**1.5**							**BUSSED SPACE**
6102						**15.0**		10					
MECH			1		11		**15.0**						**BUSSED SPACE**
Cont.				2			**15.0**	12					
MECH	3/4"	12	12	15	13	**15.0**							**BUSSED SPACE**
6102				1		**5.0**		14					
BUSSED SPACE					15		**15.0**						**BUSSED SPACE**
							5.0	16					
BUSSED SPACE					17	**15.0**							**BUSSED SPACE**
						1.5		18					
BUSSED SPACE					19		**45.0**						BUSSED SPACE
							0.0	20					
BUSSED SPACE					21	**45.0**							BUSSED SPACE
						0.0		22					
BUSSED SPACE					23		**0.0**						BUSSED SPACE
							0.0	24					
BUSSED SPACE					25	**15.0**							BUSSED SPACE
						1.5		26					
BUSSED SPACE					27		**45.0**						BUSSED SPACE
							0.0	28					
BUSSED SPACE					29	**45.0**							BUSSED SPACE
						0.0		30					
						118.3	**118.0**						

CONTRACTOR TO INSTALL APPROVED HANDLE TIE ON ALL SHARED NEUTRAL CIRCUITS.

1 PHASE DEMAND (VA)	
LIGHTING	**216.0**
25% OF LIGHTING	**54.0**
RECEPTACLES	**540.0**
MECHANICAL	**3600.0**
25% LARGEST MOTOR	**900.0**
MISCELLANEOUS	**24000.0**
	0.0
	0.0
	0.0
	0.0
	0.0
	29,310.0

29.3 KVA @ 240 V 1ø
122.1 A @ 240 V 1ø

SYMBOL LIST

CODE LOAD SUMMARY
PANEL 'PPC' @ 240V **= 198.1 A**

DC -48V FEEDER CABLING CHART

CALCULATIONS ARE BASED ON WORST CASE FULL LOAD AMPS AT 104A -48VDC, NOT EXCEDING 3% VOLTAGE DROP. IF FIELD CONDITIONS ARE DIFFERENT THAN INDICATED, CONTACT ENGINEER FOR REVISED CALCULATIONS.

DISTANCE FROM FUEL CELL TO EQUIP. CABINET.	-48V, DC SINGLE CABLE	-48V, DC PARALLEL CABLE	CONDUIT SIZE
1'-70'	1-#1/0 CU. AWG		1-1/4"
71-90'	1-#2/0 CU. AWG		1-1/2"
91'-110'	1-#3/0 CU. AWG		1-1/2"
111'-140'	1-#4/0 CU. AWG		2"
141'-175'		2-#2/0 CU. AWG	2"

FAULT CALCULATIONS

FAULT AVAILABLE AT THE SERVICE:	12,076 AMPS RMS SYMM PER POWER COORDINATION
SERVICE VOLTAGE:	277/480V, 3PH
TRANSFORMER PRIMARY:	
DISTANCE	15 Feet
CONDUIT TYPE	Conductive
CONDUCTOR	#2
Fault Available L-L:	10,708A
TRANSFORMER SECONDARY:	
Fault Available L-L:	2,322A

NOTE:
#6 COPPER WIRE AND GREATER SHALL BE (COPPER) THWN WIRE OR (COPPER) XHHW.

NOTE:
PRIOR TO RUNNING CONDUIT ROUTE - CONTRACTOR SHALL CONTACT THE T-MOBILE PROJECT MANAGER AND VERIFY THE EQUIPMENT CABINET LAYOUT CONFIGURATION AND ROUTE CONDUITS ACCORDINGLY.

NOTE:
PRE-CONSTRUCTION MEETING AND ELECTRICAL EASEMENT REQUIRED.

CONTRACTOR SHALL TAG EACH CIRCUIT CONDUCTOR AT EACH J-BOX, OUTLET, SWITCH, ETC. WITH THE CIRCUITS IDENTIFICATION.

CALL 4-7 WORKING DAYS BEFORE YOU DIG
263-1100 INSIDE MARICOPA COUNTY
1-800-STAKE-IT OUTSIDE MARICOPA COUNTY

Power Company: APS
Representative: -
Telephone #: -

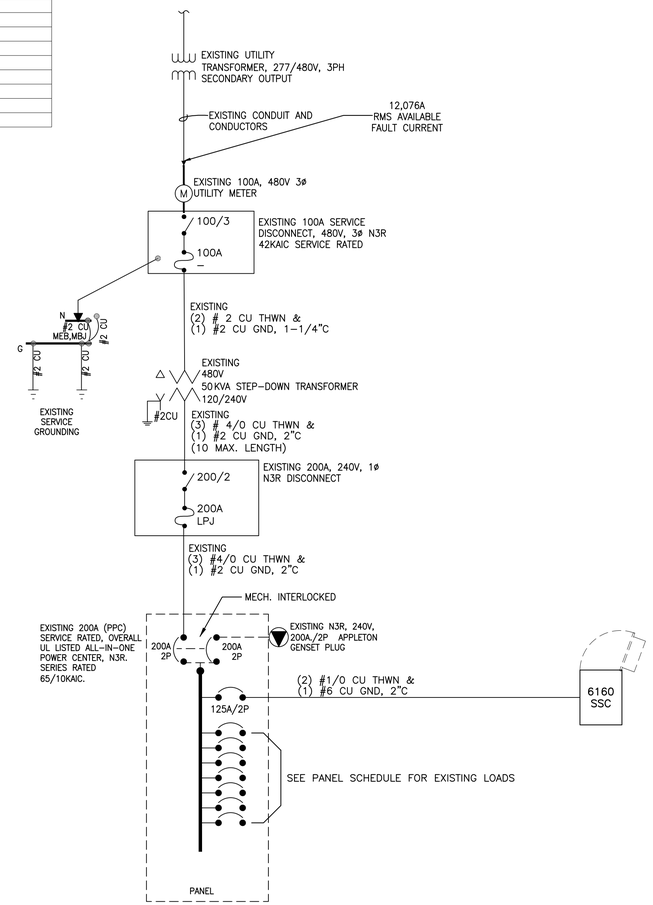
Telephone Company:
Representative:
Telephone #:

Submit drawings to Utility Company representative as required in the General Notes included in the Electrical Drawings.

PANEL 'PPC' SHALL BE SERIES RATED WITH THEIR RESPECTIVE UPSTREAM REMOTE MAIN PROTECTIVE DEVICES. IF ANY DISCREPANCY OCCURS, REPORT THE ISSUE TO THE ARCHITECT.

A TWO TIER (65KA/10KA) SYSTEM IS SPECIFIED.

SEE THE SERIES RATING NOTES, SHEET E-1.



ONE-LINE DIAGRAM
N.T.S.

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

ee LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION
JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

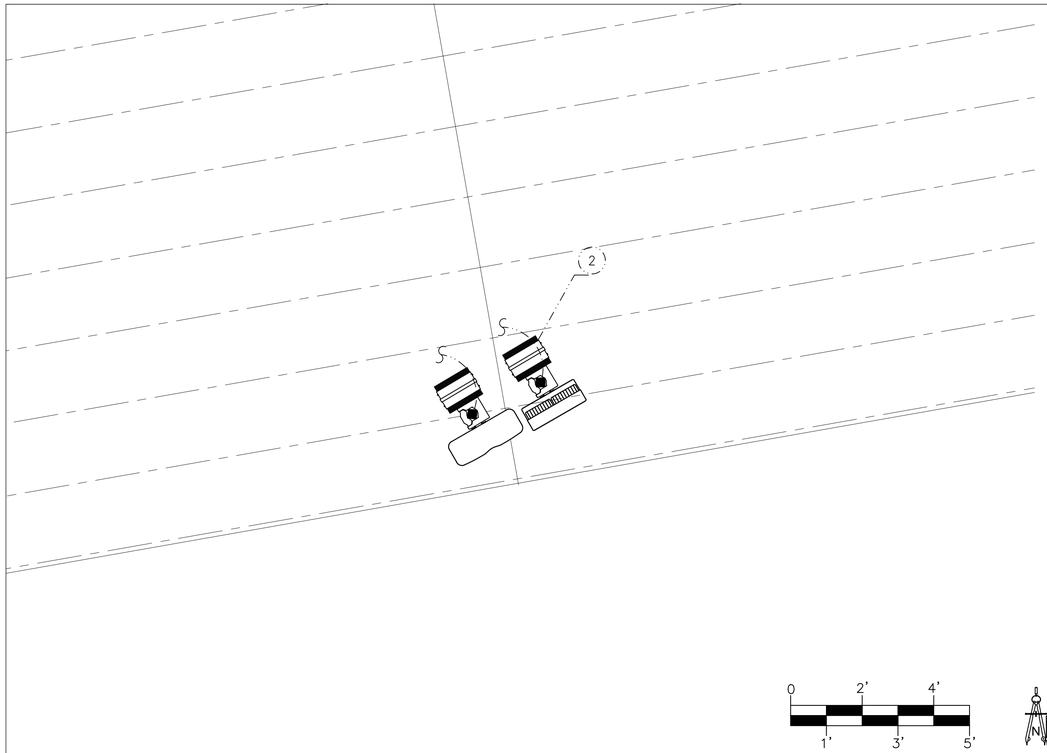
SHEET TITLE

ONE-LINE AND EXISTING/NEW PANEL SCHEDULE

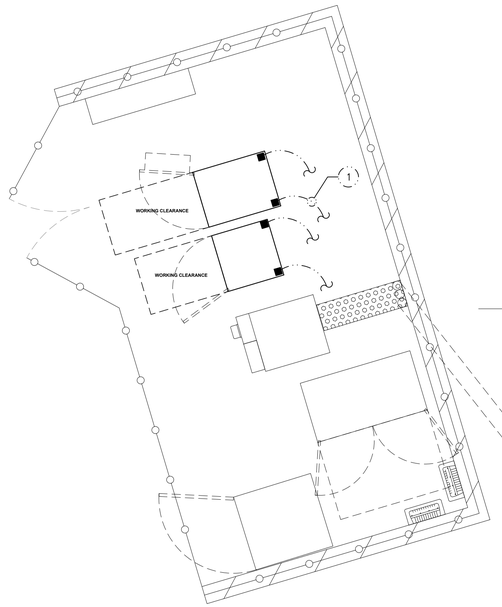
JURISDICTIONAL APPROVAL

SHEET NUMBER

E-3



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 3



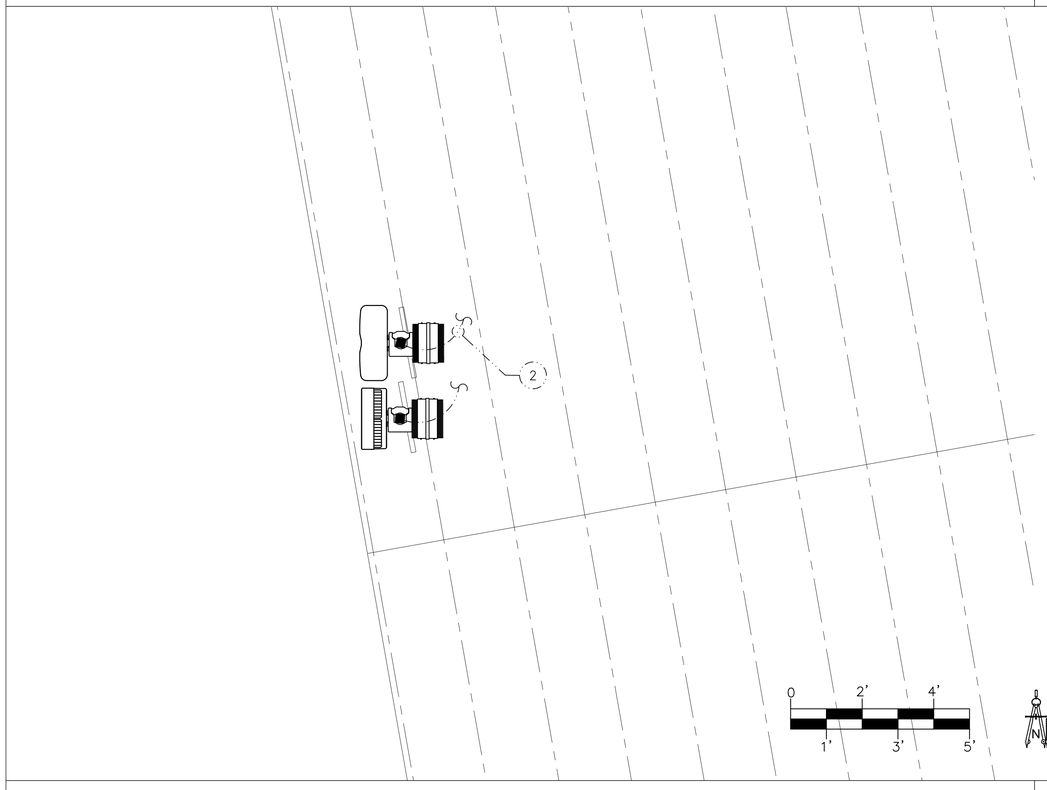
GENERAL GROUNDING NOTES

1) ALL GROUNDING LEADS INSTALLED TO ENSURE A SMOOTH PATH TO COUNTERPOISE WITHOUT KINKS OR SHARP BENDS OR RETURN UPWARDS.
2) CONTRACTOR WILL UTILIZE THE "FALL OF POTENTIAL MEASUREMENT METHOD" PER NETA STANDARDS, UTILIZING THE AEMC-4500 MEASURING DEVICE OR APPROVED T-MOBILE EQUAL. ALL GROUND TESTING TO BE PERFORMED BEFORE CONNECTING TO POWER UTILITY GROUND AND PRIOR TO ANY BACKFILL OF GROUNDING TRENCHES. ELECTRICAL CONTRACTOR WILL PROVIDE A MINIMUM OF ONE (1) INSPECTION PORT FOR TESTING GROUNDING RESISTANCE. CONTRACTOR WILL INSTALL THE MINIMUM NUMBER OF GROUND PLATES INDICATED, SEE GROUNDING PLAN FOR APPROX. LOCATIONS. CONTRACTOR WILL INSTALL ADDITIONAL GROUNDING AS REQUIRED TO ACHIEVE 5 OHMS OR LESS TO GROUND.
3) IT IS THE INTENT THAT AT NO TIME ARE THE GROUND LEADS TO BE INSTALLED BELOW THE SURFACE OF THOSE AREAS DESIGNATED FOR FUTURE DISASSOCIATED PADS OR SHELTERS
4) THE CONTRACTOR WILL DOCUMENT MEGGER TEST RESULTS, REDLINE THE DRAWINGS FOR THE LOCATION OF ALL UNDERGROUND GROUNDING COMPONENTS AND PHOTOGRAPH WITH A DIGITAL CAMERA THE ENTIRE NEWLY INSTALLED GROUNDING SYSTEM PRIOR TO BACKFILL OF ANY OPEN TRENCHES.
5)ANY EXCEPTIONS TO THIS BASIC GROUNDING DESIGN GUIDELINE, ROUTING DESIGN, OR MODIFICATIONS, WILL BE DOCUMENTED AND DIMENSIONED BY WAY OF RED LINE DRAWINGS. IT IS THE RESPONSIBILITY OF THE SELECTED CONTRACTOR TO ENSURE THE NEWLY INSTALLED GROUNDING SYSTEM MEETS THE T-MOBILE STANDARD OF 5 OHMS OR LESS.
6) ELECTRICAL CONTRACTOR SHALL COORDINATE TELCO AND POWER ROUTING WITH BUILDING MANAGER PRIOR TO ROUGH-IN.
7) PRIOR TO RUNNING CONDUIT ROUTE – CONTRACTOR SHALL CONTACT THE T-MOBILE PROJECT MANAGER AND VERIFY THE EQUIPMENT CABINET LAYOUT CONFIGURATION AND ROUTE CONDUITS ACCORDINGLY.
8) ALL EXOTHERMIC CONNECTIONS INCLUDING THOSE TO GATE POST, FENCES AND ICE BRIDGE POSTS SHALL BE MADE BELOW GRADE.

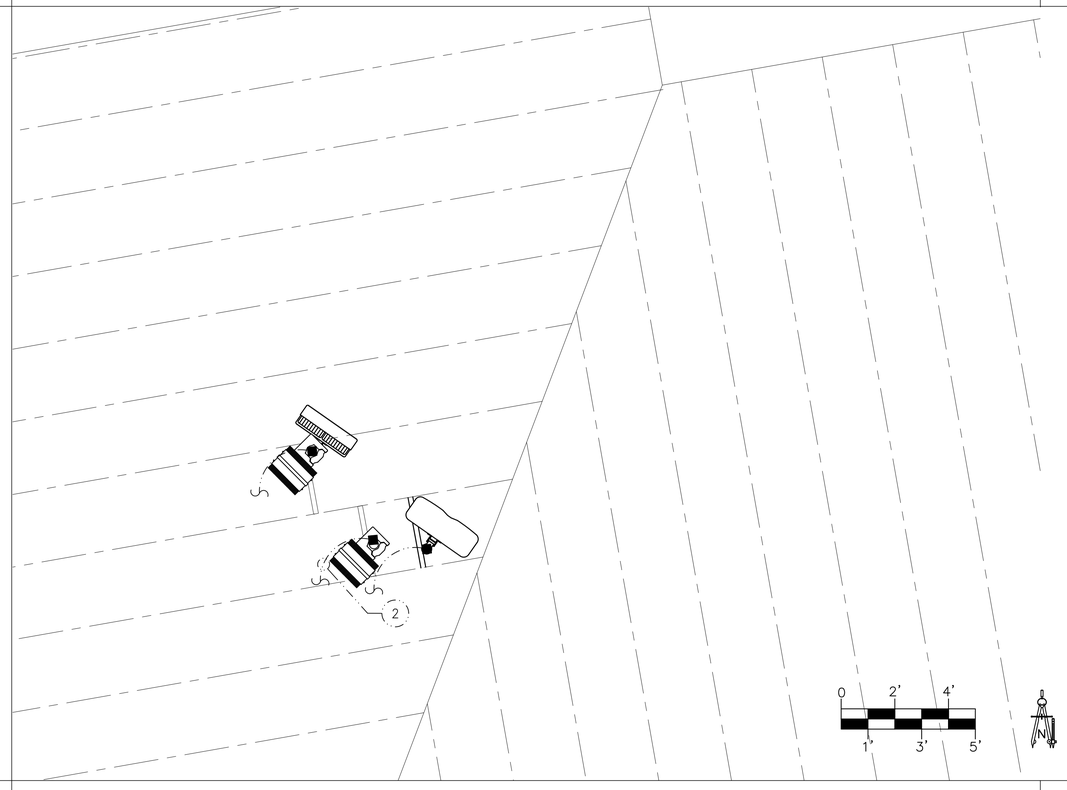
GROUNDING KEY NOTES

1. #2 TBCW, FROM EXISTING EQUIPMENT GROUND RING TO ALL EQUIPMENT. TYPICAL
2. GROUND TO EXISTING SECTOR GROUND BAR WITH #2 TBCW, TYPICAL

EQUIPMENT GROUNDING PLAN & NOTES — SCALE: 3/8" = 1'-0" — 1



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 4



ANTENNA GROUNDING PLAN — SCALE: 1/2" = 1'-0" — 2

CLIENT

T-Mobile

121 ELECTION RD.
DRAPER, UTAH 84020

CONSULTANT

COAL CREEK CONSULTING
2166 E. UNIVERSITY DR., STE 201
TEMPE, ARIZONA 85281
PHONE: (602) 429-0533 FAX: (480) 638-2852

ENGINEER OF RECORD

EE LLC
EXCELLENCE IN ENGINEERING
12005 Antelope Trail
Parker, Colorado 80138
303-748-1189
info@eeparker.com

SEAL

NO.	DATE	DESCRIPTION	BY
1	09/29/20	REVIEW	REW
2	10/02/20	REVISION 1	SPE
3	10/12/20	REVISION 2	SPE

PROJECT INFORMATION

JOB: 13-069-04

SL01116C
DRAPER DENTAL

12226 SOUTH 1000 EAST
DRAPER, UTAH 84020

SHEET TITLE

EQUIPMENT/ANTENNA GROUNDING PLAN AND NOTES

JURISDICTIONAL APPROVAL

SHEET NUMBER

E-4