MEMORANDUM

TO: **Laramie County Board of County Commissioners**

FROM: **Cate Cundall, Associate Planner**

DATE: **June 17, 2025**

TITLE: **PUBLIC HEARING regarding the Powderhouse Mountain Cell Tower Site Plan, on the West 1/2 of Section 4, T14N, R66W, Laramie County, WY.**

EXECUTIVE SUMMARY

Rocky Mountain Towers, on behalf of Mike and Lorinda Zumo applied for approval of the Powderhouse Mountain Cell Tower Site Plan located on a portion of Section 4, Township 14 North, Range 66 West, Laramie County. The proposed site is located at 2409 Iron Mountain Road. Cheyenne, Wyoming.

The project is the construction of a multi-carrier wireless communication facility and proposes a 150-foot-tall monopole and ground mounted telecommunications equipment within a 60' x 60' fenced leased area. The fenced area will accommodate the ground equipment cabinets and utilities of its anchor tenant and other future subtenants.

BACKGROUND

The subject parcels are situated in the A-1 – Agricultural and Rural Residential Zone District. The Laramie County Comprehensive Plan identifies the area as Urban Rural Interface (URI). This area is intended to accommodate a mix of more intensive land uses than other areas. It is anticipated there are more service-oriented uses. The property lies within the PlanCheyenne Rural Residential (RR) area.

Pertinent Statutes and Regulations include:
Section 2-2-123 governing Wireless Telecommunication Services (WTS).
Section 2-2-133 governing the Site Plan process.
Section 4-2-101 governing the A-1 – Agricultural and Rural Residential Zone District.

DISCUSSION

The monopole tower will be designed to accommodate up to four wireless carriers, with the goal of reducing the number of towers required in this area by bringing multiple carriers to the same site. Rocky Mountain Tower has determined that most if not all wireless carriers are lacking in this region of Laramie County. The facility will improve the ability of residents, first responders and emergency service providers to make calls.

No marking or lighting will be required at the site. The tower will not emit any noise or odor.

The site will be set back at a 1:1 Ratio from the nearest right of way. The tower is designed with breakpoint technology which has the tower collapsing down on itself within the subject property in the event of a tower failure.

Access to the site will be off Iron Mountain Road. Traffic and drainage waivers were approved by the engineer since impacts will be minimal.

Agency reviews are being completed. A development sign was posted, adjacent property owners notified, and a legal advertisement was placed in the Wyoming Tribune Eagle. Numerous public comments in opposition have been received.

Section 2-2-123 (C) of the Laramie County Land Use Regulations specifies the in order to grant approval the Board shall find the following:

(i) The proposed tower location has been selected to protect residential areas and adjacent land uses from potential impacts of towers and antennas.

(ii) The applicant has located the proposed antennas on an existing tower or has demonstrated to the satisfaction of the Board that locating the proposed antenna on an existing tower is not feasible.

(iii) The towers and proposed tower and antenna will be located, to the extent possible, in areas where the impact on the community is minimal.

RECOMMENDATION and FINDINGS

Based upon evidence provided, staff recommend the Laramie County Board of Commissioners find that:

- **a.** This application is in conformance with Section 2-2-123 of the Laramie County Land Use Regulations governing Wireless Telecommunication Services (WTS); and,
- **b.** This application meets the criteria for Site Plans pursuant to section 2-2-133 of the Laramie County Land Use Regulations; and,

c. This application is in conformance with Section 4-2-101 of the Laramie County Land Use Regulations governing the A-1 – Agricultural and Rural Residential Zone District.

and that the Board may approve the Powderhouse Mountain Cell Tower Site Plan on the condition that:

1. All agency comments must be addressed and corrections made to the Site Plan before a Certificate of Review is issued.

PROPOSED MOTION

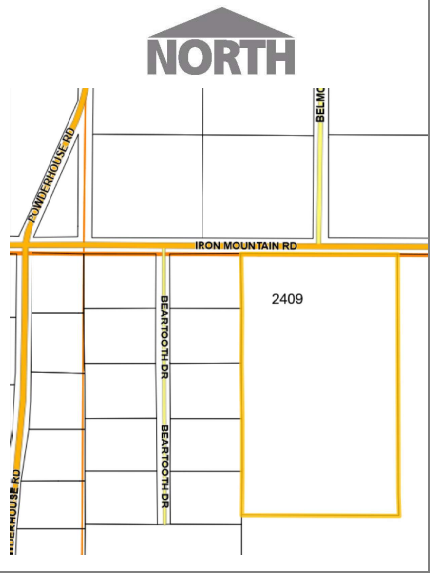
I move to approve the Powderhouse Mountain Cell Tower Site Plan with one condition and adopt the findings of fact a, b, and c of the staff report.

ATTACHMENTS

Attachment 1: Location Map
Attachment 2: Applicant Justification Letter
Attachment 3: Agency Review Comments and Applicant Response
Attachment 4: Lease Agreement
Attachment 5: Traffic & Drainage Study Waiver Request
Attachment 6: Landscape Waiver Request
Attachment 7: Construction Plans
Attachment 8: Tower Wind Load and Fall Zone Letter
Attachment 9: Public Comments
Attachment 10: Resolution
Attachment 9: Site Plan Exhibit

Powderhouse Mountain Cell Tower Site Plan

PZ-25-00033



April 24, 2025

Laramie County
Planning Department
Via Email

Re: Project Proposed at 2409 Iron Mountain Rd, Cheyenne, WY 82009

Project Narrative Letter

On behalf of Rocky Mountain Towers and property owners, Mike and Lorinda Zumo, this letter is provided as part of the Laramie County Application for Communication Towers and Wireless Facilities. The proposal is for approval of installation of a 150' tall monopole and ground mounted telecommunications equipment within a 60' x 60' fenced lease area at 2409 Iron Mountain Rd in Cheyenne.

As part of our application, please find attached the following:
(1) Signed Application
(2) Zoning Drawings
(3) Proof of Ownership or Lease Rights (signed Lease)
(4) Project Description- *included below*
(5) RF Analysis Report
(6) Warranty Deed- included in attached Title Report
(7) Tower Wind Load and Fall Zone letter

Project Description: Rocky Mountain Towers (RMT) is in the business of constructing and owning towers to provide infrastructure to wireless carriers for placement of their antennas and equipment (such as Verizon, AT&T, T-Mobile, and others). As such, this tower will be designed to accommodate up to four wireless carriers, with the goal of reducing the number of towers required in this area overall by bringing multiple carriers to the same site. The fenced ground compound will measure 60' x60' or 3600 SF total, to accommodate the ground equipment cabinets and utilities of its anchor tenant and other future subtenants.

Through RF engineering analysis, RMT has determined that most if not all wireless carriers are lacking in this region of Laramie County. Crucially, first responders and emergency service providers will benefit from having increased network coverage, and the facility will improve the ability of residents of the area to make calls, including in the event of emergencies. Verizon Wireless has request a height of 145 feet on the monopole for their antennas to reduce their coverage gap. They initially requested 200', but we did not feel that such a height would be supported by the community, so are proposing the reduced height of 150' feet.

Compatibility Statement
The subject parcel is zoned A-1 and the surrounding parcels are also Zoned A-1. The proposed facility will not generate any noise, waste, odors, or increase in traffic. The only impact of potential concern to surrounding properties is visual impact. Due to the topography of the area and the coverage objective, it is impossible to place a tower in this area that will not be visible from surrounding properties, but we've kept the tower to a minimum of 150 feet needed for RF coverage in this area for up to 4 carriers.

Design

Minimum Setbacks for all Towers from Property Lines

The site will be set back at a 1:1 Ratio from the nearest right of way and we are asking relief from the Residential setbacks to the North and West as the size of the parcel does not allow us to meet the minimum 2 :1 setbacks. The tower will be designed with "breakpoint Technology" by a licensed tower Engineer which has the tower collapsing down on itself within the subject property in the highly rare event of a tower failure. I have attached a letter from the tower manufacturer to this effect as well as showing that the tower meets all wind loading requirements for this region.

Design Standards for Towers.

The subject property is located in A-1 Agriculture Zone and a monopole is being proposed at 150feet to best support collocation and optimal propagation for up to four Wireless Carriers. This height is requested to meet coverage needs of the carriers, and coverage plots are included in this submittal under the enclosed RF Analysis.

Collocation. As noted above, the tower will be structurally designed to support up to 4 major wireless carriers, which we have shown on the drawings to reflect the 3 three national carriers. Our initial build will be the TOWER ONLY and our first anchor tenant will separately file for building permit for their antennas and zoning for any additional equipment, such as a standby generator that they may request to install.

Lighting. No marking or lighting will be required at the site as identified via the enclosed Towair Report.

Noise. The tower doesn't emit any noise or odor. Any future tenants wishing to install a standby generator will need to submit a separate request with the County and meet all noise requirements for this zone.

Adjacent to Residential Uses. The proposed tower will be setback 100 feet from North residential property line and 50 feet from the East property line. RMT will utilize breakpoint technology to ensure that the 100 foot tower collapses in on itself in a westerly direction to ensure that in the unlikely event of a tower failure, that it will not fall across neighboring property line or existing structure to the west.

Local, State, and Federal Required Permits- NEPA

This proposal remains in compliance with local, state and federal requirements. We are required to seek separate approvals and/or remain in compliance with FAA and FCC regulations. In the course of our due diligence, we will also order PHASE 1 and a NEPA/SHPO report to confirm that we are not located in any sensitive environmental impact zone.

Please do not hesitate to contact me if you any questions or need additional information.

Thank you!
Shannon Morrelli

213-787-5655
shannon@rockymtntowers.com

AGENCY REVIEW #1

Permit Notes

Permit Number: PZ-25-00033
Parcel Number: 14660420000200
Site Address: 2409 IRON MOUNTAIN RD
Cheyenne, WY 82009
Applicant: Morrelli, Shannon
Owner: ZUMO, MICHAEL J ET UX
Project Description: installation and operation of a 150' multi carrier cell tower.
Submitted: 04/28/2025
Technically Complete: 04/29/2025
Approved:
Issued:

Begin Date	End Date	Permit Area	Subject	Note Type	Note Text	Created By
04/29/2025		Application	PZ-25-00033	GENERAL	Approval of the site plan will be done administratively following the 30 day public comment period ending June 6, 2025, and all agency comments being addressed. Neighbor letters sent 4.30.25	CATHERINE.CUNDALL@LARAMIECOUNTYWY.GOV
05/06/2025		Application	PZ-25-00033	GENERAL	No comments	MANUEL.MUZQUIZ@LARAMIECOUNTYWY.GOV
05/07/2025		Application	PZ-25-00033	GENERAL	No Comments	MATTHEW.BUTLER@LARAMIECOUNTYWY.GOV
05/12/2025		Application	PZ-25-00033	GENERAL	1st Review - 1.On Sheet C-2B, the note for the access needs to be modified. The access shall be paved from the existing pavement to the ROW. 2.For emergency vehicle access, it requires a 20 wide access road. 3.There needs to be an official letter requesting a waiver of a detailed Drainage Study and justification for the waiver for the file. 4.I agree that a detailed Traffic Study or Drainage Study is warranted.	SCOTT.LARSON@LARAMIECOUNTYWY.GOV
05/12/2025		Workflow	PLAN REVIEW BY BUILDING	GENERAL	Premises identification shall be in accordance with 2024 IFC section 505 and 2024 IRC section 319, and 2024 IBC section 502.1. Fire Apparatus Roads required per 2024 IFC section 503. Fire protection water Supplies required per 2024 IFC section 507 Building permits shall be required for all new building construction. Laramie County has adopted the 2024 I-codes and the 2023 NEC.	DANIEL.PETERS@LARAMIECOUNTYWY.GOV
05/13/2025		Application	PZ-25-00033	GENERAL	First Review [JB] Project doesnt meet the criteria per LCLUR 2-2-123 (c). BOCC approval will be required.	LARAMIECOUNTYATTORNEY@LARAMIECOUNTYWY.GOV

Permit Notes

05/13/2025	Workflow	PUBLIC WORKS REVIEW	GENERAL	1. A separate access permit application through Public Works will be required for this tract. Please apply for your Public Works access permit on the SmartGov Portal. Call (307-633-4302) or email (permits@laramiecountywy.gov) Public Works with any questions. 1a. As mentioned by the review engineer, the access approach for this site will have to be paved (from the edge of pavement to the right-of-way line or 20 foot back, whichever is greater) to meet the access road condition (Iron Mountain Road). 2. All comments from the review engineer and County Attorney's Office shall be acknowledged and/or addressed appropriatley.	MOLLY.BENNETT@LARAMIECOUNTYWY.GOV
05/14/2025	Application	PZ-25-00033	GENERAL	WAPA has no conflict with this project.	ROGERS@LARAMIECOUNTYWY.GOV
05/14/2025	Application	PZ-25-00033	GENERAL	A BOCC Public Hearing will be held on June 17, 2025. Neighbor notices sent May 15, 2025 and legal ad published 5.23.25	CATHERINE.CUNDALL@LARAMIECOUNTYWY.GOV

Catherine Cundall

From: Shannon Morrelli <shannon@rockymtntowers.com>
Sent: Friday, June 6, 2025 10:53 AM
To: Catherine Cundall
Subject: RE: PZ-25-00033 Agency Review #1
Attachments: We sent you safe versions of your files; WY001 _POWDERHOUSE_MOUNTAIN_[RANCHETTES]_CD-REVe.pdf

Hi Cate,

Sorry for the late response. Just got these in today. CDs updated to address Fire comments.

Regards,

Shannon Morrelli
Infrastructure Development
Rocky Mountain Towers
213-787-5655

From: Catherine Cundall <catherine.cundall@laramiecountywy.gov>
Sent: Wednesday, May 21, 2025 10:10 AM
To: Shannon Morrelli <shannon@rockymtntowers.com>
Subject: PZ-25-00033 Agency Review #1

Good morning,

Attached are the comments from the agency review. Please send your response and updated site plan to me when completed and I will attach to the permit and schedule another round of reviews. If you have any questions, please give me a call.

Thank you,

Cate

Cate Cundall

Associate Planner
Laramie County Planning & Development
3966 Archer Parkway
Cheyenne, WY 82009
Direct Line 307-633-4618
Main Line 307-633-4303

SITE NO.: WY___
SITE NAME: Powderhouse Mountain
LESSOR: Zumo
LEASE NO.:

OPTION AND GROUND LEASE AGREEMENT

THIS OPTION AND GROUND LEASE AGREEMENT ("Agreement") is made and entered into as of this 4th day of July, 2024 (the "Effective Date") by and between **MICHAEL J. ZUMO** and **LORINDA R. ZUMO**, husband and wife, ("LESSOR"), and **SUPERA TECHNICAL SERVICES, INC., d/b/a Rocky Mountain Towers**, a California corporation, ("LESSEE"). LESSOR and LESSEE are individually referred to herein as a "Party" and collectively as the "Parties."

Recitals

A. WHEREAS, LESSOR is the owner of certain real property located on 2409 Iron Mountain Road, Cheyenne, Laramie County, State of Wyoming bearing APN 14660420000200, (the "Property"). A legal description of the Property is set forth in **Exhibit "A"** hereto; and

B. WHEREAS, LESSEE desires to lease certain ground space on the Property for the placement of LESSEE's equipment, building(s) and tower (the "Tower") for the purpose of constructing, establishing, and maintaining a radio transmission tower facility for LESSEE's use and that of its subtenants, licensees and customers (collectively, "Customers"), which facility includes the Tower, building(s), radio transmitting and receiving antennas, communications equipment, and related cables, wires, conduits, air conditioning equipment and other appurtenances (the "Telecommunications Facilities"); and

C. WHEREAS, LESSOR understands and accepts that LESSEE's primary business is the leasing, subleasing, and licensing portions of the Telecommunications Facilities to its Customers.

Agreement

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, LESSOR and LESSEE agree as follows.

1. Option to Lease. (a) In consideration of the payment of [redacted] (the "Option Fee") by LESSEE to LESSOR, LESSOR hereby grants to LESSEE an option to lease the Leased Premises (as defined in Section 2 below), on the terms and conditions set forth herein (the "Option"). The Option shall be for a term of twenty-four (24) months, commencing upon the date of mutual execution of this Agreement and ending twenty-four (24) months from such date (the "Initial Option Period"). LESSEE shall have the right to extend the Option for one (1) additional twenty-four (24) month period (the "Extension Period") by giving written notice to LESSOR prior to the end of the then-current Option Period, which notice shall be accompanied by an additional option fee payment of [redacted] (the "Additional Option Fee"). As used herein, "Option Period" means the Initial Option Period and, if applicable, the Extension Period.

(b) During the Option Period and any applicable extension thereof, LESSEE may exercise the Option by so notifying LESSOR in writing.

(c) The provisions of Sections 3(b) and 3(c) of this Agreement shall apply with equal force during the Option Period and, to the extent that LESSEE exercises the Option, the Term of this Agreement.

2. Premises. Subject to the following terms and conditions, LESSOR leases to LESSEE and LESSEE leases from LESSOR certain ground space located on the Property sufficient for the construction, operation and maintenance of LESSEE's Telecommunications Facilities, together with all necessary easements for access, egress and utilities, as generally described in this Agreement (the "Leased Premises") and depicted on the site plan/drawing attached hereto and incorporated herein as **Exhibit "B"** (the "Site Plan"). The Leased Premises is comprised of approximately six thousand four hundred (6,400) square feet of ground space exclusive of easements. If, as a result of the conditions placed upon the issuance of the Governmental Approvals (as defined in Section 3(b) below) required for the construction and/or operation of the Telecommunications Facilities, it is necessary to modify the dimension and/or location of the Leased Premises and/or the configuration of the Site Plan (the "Leased Premises/Site Plan Changes"), LESSEE shall promptly so notify

LESSOR in writing and the Parties will promptly execute an amendment to this Agreement to reflect the Leased Premises/Site Plan Changes.

3. Permitted Use. (a) The Leased Premises may be used by LESSEE for, among other things, the construction, operation, maintenance, repair and/or replacement of related facilities, towers, buildings, antennas, equipment, and related activities for the transmission and reception of radio communication signals by LESSEE and its Customers (the "Permitted Use").

(b) LESSEE shall, at its expense, obtain any and all certifications, licenses, variances, permits, conditional use permits or authorizations required for LESSEE's use of the Leased Premises from all applicable federal, state, local government and/or regulatory entities (the "Governmental Approvals"). LESSOR agrees to cooperate with LESSEE, at LESSEE's expense, in obtaining Governmental Approvals by: (i) allowing LESSEE to obtain Governmental Approvals and file such applications, letters and/or documents for zoning and/or building permits as are deemed necessary or appropriate by LESSEE in connection with its use of the Leased Premises; (ii) promptly executing any documents or applications as requested by LESSEE to apply for permits for the use of the Property and Leased Premises; (iii) appointing LESSEE as its agent for all conditional use permit and variance applications, including executing any documents or applications reasonably necessary thereto; (iv) authorizing LESSEE as its agent with respect to signing any zoning or building permit applications for LESSEE's use of the Property; and (v) undertaking any other steps reasonably necessary to obtain any Governmental Approval(s) deemed necessary or appropriate by LESSEE. LESSOR shall take no action during the Option Period or, in the event that the Option is exercised, during the Term of this Agreement (as defined in Section 4 below) that would adversely affect the status of the Leased Premises with respect to the proposed use thereof by LESSEE, including, without limitation, initiating, imposing, or consenting to (A) any change in the zoning of the Property, or (B) the placement of any restriction(s) or limitation(s) on the Property that would restrict, limit, or prevent LESSEE's ability to use the Property in the manner set forth in this Section 3.

(c) LESSEE shall perform, at LESSEE's expense, title reports, RF engineering studies, surveys, soil tests, engineering procedures, environmental investigations and such other tests and reports as deemed necessary by LESSEE to determine that LESSEE's use of the Leased Premises will be compatible with LESSEE's engineering specifications, permitted use, system design, operations and Government Approvals (the "Investigations"). LESSOR agrees to cooperate with LESSEE, at LESSEE's expense for reasonable out-of-pocket costs actually incurred by LESSOR, with respect to the Investigations by: (i) granting LESSEE a license to enter the Property and conduct the Investigations on, under and over the Property; (ii) allowing LESSEE to perform the Investigations; and (iii) undertaking any other steps as are reasonably necessary in support of such Investigations; including, but not limited to, the execution and delivery of an owner's affidavit of title and related documents reasonably satisfactory to LESSEE's title insurer.

(d) In addition to the provisions of Section 10 below, prior to LESSEE's construction of the Telecommunications Facilities, LESSEE shall have the right to immediately terminate this Agreement upon written notice to LESSOR if LESSEE deems the results of any of the studies, reports, and/or Governmental Approvals referenced in this Section 3 to be unacceptable to LESSEE in its sole discretion.

4. Term. (a) The initial term of this Agreement ("Initial Term") shall be five (5) years, commencing on the date of LESSEE's exercise of the Option (the "Commencement Date"). LESSEE shall have the right to extend this Agreement (including all terms and conditions set forth herein) for nine (9) additional five (5) year renewal terms (each, a "Renewal Term" and collectively, the "Renewal Terms"). Each such renewal shall occur automatically unless LESSEE sends written notice to LESSOR of its intent not to renew this Agreement at least thirty (30) days prior to the expiration of the Initial Term or then-applicable Renewal Term, as the case may be. As used herein, "Term" means the Initial Term and any applicable Renewal Term(s).

(b) In the event that LESSEE exercises all of the Renewal Terms set forth in the preceding paragraph, LESSEE shall have the exclusive right for the period commencing on the last day of the final Renewal Term through the date which is six (6) months thereafter, to negotiate with LESSOR for a new lease at then-current fair market rental rates ("LESSEE's Limited First Right To Negotiate"). If, at the end of such six (6) month period, the parties have not reached agreement as to all of the material terms of such new lease (including, without limitation, the rent payable thereunder), then LESSEE's Limited First Right To Negotiate shall be of no further force or effect.

5. Rent. (a) Commencing on the Rent Commencement Date, as defined in this paragraph, LESSEE shall pay LESSOR as monthly "Rent" an amount equal to [redacted] As used herein, "Rent" means the Minimum Rent and, if and to the extent applicable, the Additional Rent defined in Section 5(b) below. The Rent shall be payable in equal monthly installments in advance on the first day of each month to LESSOR; rent for any partial month will be prorated. Rent shall be sent to LESSOR at the following address, which address may be changed from time to time during the Term by written notice to LESSEE given pursuant to Section 17: 2409 Iron Mountain Road, Cheyenne, WY 82009. As used herein, "Rent Commencement

Date" means the earlier of: (i) six (6) months after the Commencement Date, and (ii) the date on which LESSEE completes construction at the Leased Premises.

(b) It is understood and agreed that the Minimum Rent of [redacted] Subparagraph 5(a) above is the Rent, subject to any applicable increase set forth in Section 5(c), in accordance with the terms thereof, if and for so long as no more than one (1) broadband wireless communications (Cellular or PCS) sublessee, licensee or customer (each, a "Carrier") is operating from the Telecommunications Facilities located on the Leased Premises and paying rent/license/other use fees to LESSEE for use of the Tower on the Leased Premises. [redacted] In the event a Communications License Agreement is terminated, LESSEE shall cease to pay LESSOR the additional sum associated with such terminated Agreement. In the event the Communications License Agreement with the first-installed Carrier is terminated and there are other Carriers operating from the Telecommunications Facilities located on the Leased Premises, LESSEE will select a Carrier as a substitute for the first-installed Carrier, and shall cease to pay LESSOR the Additional Rent associated with such substituted Carrier.

(c) Commencing on the first day of the first Renewal Term of this Agreement, and continuing thereafter on the first day of each successive Renewal Term, the then current Rent payable by LESSEE to the LESSOR shall be increased by an amount equal to [redacted]

6. Interference. Subject to LESSEE's rights under this Agreement including, without limitation, non-interference, LESSEE shall not use the Leased Premises in any way which interferes with the use of the Property by LESSOR or its lessees or licensees with rights in the Property prior in time to LESSEE's initial use thereof as a telecommunications facility. LESSOR shall not use, nor shall LESSOR permit its tenants, licensees, employees, invitees or agents to use, any portion of the Property in any way that interferes with the operations of LESSEE. Any interference prohibited by this paragraph shall be deemed to constitute a material breach of this Agreement, and the offending party shall, upon written notice from the other, promptly cause such interference to be terminated. In the event that any such interference is not so terminated, the injured party shall have the right, in addition to any other rights that it may have at law or in equity, to bring a court action to enjoin such interference or to terminate this Agreement immediately upon written notice to the other party.

7. Construction of Improvements. (a) From time to time during the Term hereof, LESSEE shall have the right, in its sole judgment and at its sole cost and expense, to construct, install, operate, maintain, replace, remove, modify, add to, upgrade, rebuild, and/or relocate any or all of the Telecommunications Facilities. Notwithstanding the fact that certain such equipment and appurtenances that are a part of the Telecommunications Facilities may be classified as fixtures under applicable law, the parties agree and acknowledge that all such equipment and appurtenances are, and shall at all times remain, the sole property of LESSEE or its Customers, as the case may be, and that LESSEE shall have the right, but not the obligation, to remove any or all of the same during the Term of this Agreement and/or at the expiration or earlier termination hereof.

(b) The Telecommunication Facilities shall be initially configured as generally set forth in the Site Plan. LESSEE shall have the right to modify, replace, add to, upgrade, rebuild, and/or relocate the Telecommunication Facilities at any time during the Term.

(c) LESSEE shall be solely responsible for the operation, maintenance, repair of, and the insurance for, the Telecommunications Facilities, and shall do so in accordance with all applicable laws, rules, and regulations, whether federal, state or local.

8. Access. (a) As partial consideration for the Rent paid by LESSEE pursuant to this Agreement, LESSEE shall have, throughout the Term hereof, the right to access the Leased Premises over and across the Property twenty-four (24) hours per day, seven (7) days a week for the purpose of ingress, egress, operation, maintenance, replacement, and repair of the Telecommunications Facilities (the "Access Rights"). The Access Rights granted herein (i) include the nonexclusive right to enter the Property from the nearest public street and driveway, parking rights, and (ii) extend to LESSEE, its Customers, their contractors, subcontractors, equipment and service providers, governmental agencies of appropriate jurisdiction, and the duly-authorized employees, inspectors, representatives, and agents of each of them.

(b) In addition to the Access Rights set forth in the preceding paragraph, during the period that the Telecommunications Facilities are being constructed, LESSOR grants to LESSEE and its Customers the right to use such portions of the Property and the

Adjacent Property as are reasonably required for the construction and installation of the Telecommunications Facilities, including, but not necessarily limited to, (i) the right of ingress to and egress from the Property and, to the extent reasonably required, the Adjacent Property for construction machinery and related equipment, and (ii) the right to use such portions of the Property and/or Adjacent Property as are reasonably necessary for the storage of construction materials and equipment. As used herein, "Adjacent Property" means other real property owned by LESSOR that is contiguous to, surrounds, or is in the immediate vicinity of the Property.

9. Utilities. (a) LESSOR hereby grants to LESSEE, at LESSEE's sole cost and expense, the right to install, and, to the extent applicable, improve, upgrade, and modify utilities at the Leased Premises (including, without limitation, telephone service, telecommunications lines (including, fiber) and electricity). LESSEE shall, to the extent reasonably practicable, install separate meters or sub-meters, as the case may be, for utilities used in the operation of the Telecommunications Facilities on the Leased Premises.

(b) As partial consideration for the Rent paid by LESSEE under this Agreement, LESSOR hereby grants to LESSEE and the servicing utility companies a nonexclusive right of way over and across the Property as necessary for the construction, installation, running, servicing and maintenance of electrical power and other utilities necessary to serve the Telecommunication Facilities. Upon LESSEE's request, LESSOR agrees to promptly execute any and all documents necessary to evidence the rights granted to LESSEE pursuant to this paragraph including, without limitation, right-of-way and easement documents, and further grants to LESSEE an irrevocable power of attorney to execute, on LESSOR's behalf, any and all such documents.

10. Default and Termination. (a) In addition to other events or circumstances permitting the termination of this Agreement, this Agreement may be terminated, without any penalty or further liability, as follows: (i) by either party, upon a breach or default of any covenant or term hereof by the other party, which breach or default is not cured within thirty (30) days of the breaching party's receipt of written notice thereof from the non-breaching party; *provided, however,* that if efforts to cure such breach are commenced within such thirty (30) day period and are thereafter diligently prosecuted to completion, such period shall be extended for a period of time not to exceed six (6) months, and further provided that the cure period for any monetary default shall be thirty (30) days from the defaulting party's receipt of the other party's written notice of payment delinquency; (ii) by LESSEE, upon thirty (30) days prior written notice to LESSOR, in the event that the Leased Premises become technologically unsuitable, in LESSEE's opinion, for LESSEE's Telecommunications Facilities for reasons including, but not limited to, unacceptable radio signal interference and any addition, alteration, or new construction on, adjacent to, or in the vicinity of the Leased Premises and/or the Property that blocks, either partially or totally, transmission or receiving paths; (iii) by LESSEE, upon thirty (30) days prior written notice to LESSOR, in the event that any Governmental Approval that LESSEE considers to be necessary or convenient for the construction, operation, maintenance, reconstruction, modification, addition to, or removal of the Telecommunications Facilities is not, in LESSEE's sole discretion, reasonably obtainable or maintainable in the future; (iv) by LESSEE, upon thirty (30) days prior written notice to LESSOR, in the event that the Leased Premises cease to be economically viable as a telecommunications site (as determined by LESSEE in its sole business judgment); and (v) by LESSEE, upon thirty (30) days prior written notice to LESSOR, if any Hazardous Substance (as defined in Section 13 below) is or becomes present on the Property in violation of any Environmental Laws (as also defined in Section 13 below) to the extent that such is not caused by LESSEE.

(b) Except as expressly limited by this Agreement, a party's termination hereof as the result of a breach thereof by the other party that is not cured within the applicable period set forth in Section 10(a) shall be in addition to, and not in lieu of, any and all remedies available to the terminating party, whether at law or in equity.

(c) Not later than one hundred twenty (120) days following the expiration or earlier termination of this Agreement, LESSEE shall remove the Telecommunications Facilities (including the removal of the tower foundation up to twenty-four inches (24") below grade level per industry standards).

11. Condemnation. If all or any part of the Leased Premises, or if all or any part of the Property and/or Access Parcel underlying the Telecommunication Facilities or providing access to the Premises is taken by eminent domain or other action by governmental authority(s) of appropriate jurisdiction (each, an "Act of Condemnation"), and if, in LESSEE's sole discretion, such an Act(s) of Condemnation renders the Premises unusable for the Permitted Use set forth in Section 3 hereof, then LESSEE shall have the right to immediately terminate this Agreement upon written notice to Lessor, and all Rent obligations (except those that accrued prior to the effective date of termination) shall cease. If LESSEE elects not to terminate this Agreement following an Act of Condemnation, then this Agreement shall continue unaffected, except that the Rent shall be reduced or abated in proportion to the actual reduction or abatement of LESSEE's use of the Leased Premises as a result of such Act of Condemnation. In the event of an Act of Condemnation (whether in whole or in part), LESSEE shall be entitled to pursue and receive the award related to the Telecommunication Facilities and any equipment and/or infrastructure owned or constructed by LESSEE that is related thereto. The terms set forth in this Section 11 shall survive the expiration or earlier termination of this Agreement.

12. Indemnification. Subject to the provisions of Section 14 below, LESSEE shall defend (with counsel reasonably acceptable to LESSOR), indemnify, and hold LESSOR harmless from and against any claims (including reasonable attorneys' fees, costs and expenses incurred in defending against such claims), losses, damages, and liabilities (collectively, "Claims") resulting from the negligence or willful misconduct of LESSEE and LESSEE's agents, licensees, invitees, and contractors, and the shareholders, directors, officers, and employees of each of them (the "LESSEE Parties") occurring in or about the Leased Premises and/or the Property. LESSOR shall defend (with counsel reasonably acceptable to LESSEE), indemnify, and hold LESSEE harmless from all Claims arising from the negligence or willful misconduct of LESSOR and LESSOR's agents, lessees, licensees, invitees, and contractors, and the shareholders, directors, officers, and employees of each of them (the "LESSOR Parties") occurring in or about the Leased Premises and/or the Property. The terms set forth in this Section 12 shall survive the expiration or earlier termination of this Agreement.

13. Hazardous Substances. LESSOR represents and warrants to LESSEE that LESSOR (a) is not presently, nor at any time in the past did LESSOR engage in or permit, and (b) has no knowledge of any other person or entity's engaging (whether past or present) or permitting (whether past or present) any operations or activities upon, or any use or occupancy of any portion of the Property (including, without limitation, the Leased Premises), for the purpose of or in any way involving the handling, manufacturing, treatment, storage, use, transportation, spillage, leakage, dumping, discharge or disposal (whether legal or illegal), accidental or intentional, of any hazardous substances, materials or wastes (individually, a "Hazardous Substance" and collectively, "Hazardous Substances") regulated under any federal, state, or local law, rule, or regulation pertaining to the environment, public health or safety, or the handling, manufacturing, treatment storage, use, transportation, spillage, leakage, dumping, discharge or disposal of Hazardous Substances (collectively, "Environmental Laws"). LESSOR and LESSEE each agree that they will not use, generate, store, or dispose of any Hazardous Material on, under, about or within the Property or the Leased Premises in violation of any Environmental Law(s). LESSOR shall indemnify, defend, and hold harmless LESSEE and the LESSEE Parties (as defined in Section 12 above), and LESSEE shall indemnify, defend, and hold harmless LESSOR and the LESSOR Parties (as defined in Section 12 above), from and against any and all Claims (as also defined in Section 12) arising from the indemnifying party's breach of any obligation, representation, or warranty contained in this paragraph, except for Claims arising in whole or in any part out of the indemnified Party's use or occupancy of the Property or the Leased Premises. The indemnification provisions set forth in this Section 13 shall survive the expiration or earlier termination of this Agreement.

14. Insurance. a) During the Term of this Agreement, LESSEE shall, at its sole cost and expense, procure and maintain the following insurance with customary exceptions and exclusions: (i) Bodily Injury: $1,000,000.00 for injury to any one (1) person, $2,000,000.00 for injury(s) sustained by more than one (1) person in any one (1) occurrence, and (3) $2,000,000.00 in the aggregate; and (ii) Property Damage: replacement cost for all of LESSEE's equipment located at the Leased Premises (collectively, the "LESSEE Policies"). LESSEE covenants and agrees that LESSOR shall be named as an additional insured under the LESSEE Policies. In the event of LESSOR's written request therefore, LESSEE shall provide LESSOR with a certificate of insurance evidencing the coverage required hereby not later than thirty (30) days following its receipt of LESSOR's request.

(b) Notwithstanding the foregoing insurance requirements, the insolvency, bankruptcy, or failure of any insurance company carrying or writing any of the policies referenced in this Section 14 shall not be construed as a waiver of any of the provisions of this Agreement, nor shall any such insolvency, bankruptcy, or failure relieve either party from its obligations hereunder. The terms set forth in this Section 14(c) shall survive the expiration or earlier termination of this Agreement.

15. Taxes. LESSOR shall be responsible for all real and personal property taxes, assessments, and similar charges assessed against the Property and LESSOR's property thereon, and LESSEE shall be responsible, to the extent applicable, for any and all personal property taxes, assessments, and similar charges attributable to LESSEE's equipment and other property owned by LESSEE located at the Leased Premises. LESSOR shall provide to LESSEE a copy of any notice or assessment relating to LESSEE's personal property for which LESSEE is responsible within thirty (30) days of receipt of the same by LESSOR. In the event LESSOR fails to provide LESSEE a copy of any such notice or assessment within the aforementioned thirty (30) day period, and if LESSEE is prejudiced by the delay, LESSEE shall be relieved of its obligation to pay the tax(s) or assessment(s) referred to in the notice or assessment which was not timely delivered by LESSOR to LESSEE. LESSEE shall have the right, at its sole option and expense, to appeal, challenge or seek modification of any tax, assessment, or billing for which LESSEE is wholly or partially responsible for payment. LESSOR shall reasonably cooperate with LESSEE at LESSEE's expense in filing, prosecuting and perfecting any appeal or challenge to taxes or assessments as set forth in the preceding sentence including, but not limited to, executing any consent, appeal, or similar document. In the event that, as a result of any appeal or challenge by LESSEE, there is a reduction, credit or repayment received by LESSOR for any tax(s) or assessment(s) previously paid by LESSEE, LESSOR agrees to promptly reimburse LESSEE for the amount of such reduction, credit or repayment.

16. Quiet Enjoyment, Title and Authority. (a) During the Term of this Agreement, LESSEE may, provided that it is not in default hereunder beyond any applicable notice and cure period, peaceably and quietly hold and enjoy the Premises, free from disturbance from any person claiming by, through, or under LESSOR.

(b) LESSOR covenants and warrants to LESSEE that: (i) LESSOR has full right, power, and authority to execute this Agreement; (ii) LESSOR has good and unencumbered title to the Property, free and clear of any liens or mortgages, except those disclosed to LESSEE and of record as of the date of this Agreement; (iii) there are no pending or threatened actions including, without limitation, bankruptcy or insolvency proceedings (whether voluntary or involuntary) under state or federal law, suits, claims or causes of action against LESSOR or which may otherwise adversely affect the Property or the Leased Premises, (iv) LESSOR has obtain any and all consents from third parties or governmental authorities necessary for the execution of this Agreement and (v) LESSOR's execution and performance of this Agreement will not violate the covenants, provisions, representations, or warranties of any mortgage, deed of trust, lease, or other agreement to which LESSOR is a party or by which LESSOR is otherwise bound.

(c) LESSOR agrees that, during the Term of this Agreement, LESSEE will have the exclusive right to use the Property or any portion thereof for use as telecommunications facilities providing transmission and/or receiving facilities for wireless providers and/or users, and that that LESSOR shall not itself operate wireless telecommunications facilities on the Property, or any portion thereof, nor will LESSOR grant a lease, sublease, license, or other right to use the Property, the Access Parcel, any portion of either, or any property that is adjacent thereto (including, without limitation, the Access Parcel) that may be owned by LESSOR, to any other person or entity for the operation of antenna and/or telecommunications facilities.

17. Notices. All notices, demands, requests, or other communications which are required to be given, served, or sent by one party to the other pursuant to this Agreement shall be in writing and shall be mailed, postage prepaid, by registered or certified mail, or forwarded by a reliable overnight courier service with delivery verification, to the following addresses for LESSOR and LESSEE, or to such address as may be designated in writing by either party pursuant to this Section 17:

If to LESSEE, to:
Supera Technical Services, Inc.
d/b/a Rocky Mountain Towers
ATTN: President & CEO
9120 Doc Bar Court
Elk Grove, CA 95624
Telephone: (916) 761-9271

With a copy to:
Roni D. Jackson, Esq.
27242 Paseo Peregrino
San Juan Capistrano, CA 92675
(714) 396-1360

If to LESSOR, to:
2409 Iron Mountain Rd
Cheyenne, WY 82009
Attn: Mike Zumo
Telephone: (307) 287-7277

With a copy to:
_____
_____
_____
Attn:_____
Telephone:_____

Notice given by certified or registered mail or by reliable overnight courier shall be deemed to have been delivered on the date of receipt (or on the date receipt is refused, as the case may be) as shown on the certification of receipt or on the records or manifest of the U.S. Postal Service or courier service.

18. Estoppel, Non-Disturbance and Attornment. (a) From time to time during the Term of this Agreement, LESSOR agrees, upon not less than ten (10) days prior written notice from LESSEE, to execute, acknowledge and deliver to LESSEE a written estoppel certificate (the "Lessor Estoppel") certifying that as of the date of the certification: (i) the Agreement is a valid and enforceable Agreement and is in full force and effect; (ii) that LESSEE is not in default under any of the terms, conditions, or covenants of the Agreement beyond or any applicable cure period or, if applicable, truthfully specifying any default by LESSEE hereunder and the cure period applicable thereto; (iii) the commencement and expiration dates of the then-current term hereof together with any remaining Renewal Term(s); (iv) the amount of the then-current Rent payable under the Agreement; and (v) a true and correct copy of the Agreement and all amendments thereto shall be attached to the Lessor Estoppel.

(b) LESSOR shall use good faith efforts to obtain for LESSEE from the holder of any mortgage and/or deed of trust now or hereafter encumbering the Property a non-disturbance and attornment agreement in a form reasonably satisfactory to LESSEE, which agreement shall provide that as long as LESSEE is not in default of any of its material obligations under this Agreement beyond any applicable cure period, its rights as LESSEE hereunder shall not be terminated and its access to and possession of the Leased Premises shall not be disturbed by the mortgagee or trustee, as the case may be, or by any proceedings on the debt which any such mortgage or deed of trust secures, and that any sale at foreclosure shall be subject to this Agreement.

(c) For purposes of allowing LESSEE to satisfy its lender's continuing rights with respect to LESSEE'S property on the Leased Premises, and with respect to LESSEE's rights and interests under this Agreement, LESSOR agrees as follows:

(i) LESSOR shall recognize the subleases and/or licenses of all Customers of LESSEE on the Leased Premises, and, notwithstanding any default hereunder by LESSEE, will permit such Customers to remain in occupancy thereof so long as such Customer is not in default of any material obligation under its sublease/license with LESSEE beyond any applicable notice and cure period;

(ii) LESSOR consents to the granting by LESSEE of a lien and security interest in and/or mortgaging of LESSEE's interest in this Agreement and all of LESSEE's personal property and fixtures located on or attached to the Property, and furthermore consents to the exercise by LESSEE's mortgagee of its rights of foreclosure with respect to such mortgagee's lien and/or security interest. LESSOR agrees to recognize LESSEE's mortgagee as LESSEE hereunder upon any such exercise by LESSEE's mortgagee of its rights of foreclosure. LESSOR further agrees (A) to subordinate any lien or security interest which it may have which arises by law or pursuant to this Agreement to the lien and security interest of LESSEE's mortgagee in the collateral securing all indebtedness at any time owed by LESSEE to its mortgagee (collectively the "Collateral"), and (B) that, upon an event of default by LESSEE under this Agreement or under any applicable mortgage, security agreement, or other loan document executed in favor of LESSEE's mortgagee, LESSEE's mortgagee shall have the full right, title, and authority to exercise its rights against the Collateral prior to the exercise by the LESSOR of any rights which it may have or claim to have therein, including, but not limited to, the right to enter upon the Leased Premises and remove the Collateral free and clear of any applicable lien or security interest of LESSOR;

(iii) Within a reasonable time after the occurrence thereof, LESSOR shall give LESSEE's lender written notice of any breach or default of the terms of this Agreement that is not cured by LESSEE within any applicable notice and cure period(s) (an "Uncured LESSEE Default"). In this regard, LESSEE agrees to notify LESSOR in writing from time to time during the Term of the names and notice addresses of LESSEE's lenders. LESSOR further agrees that no default shall be deemed to have occurred under this Agreement unless LESSOR gives the notice required to lender that is required by this paragraph, and that in the event of any Uncured LESSEE Default, lender shall have the right, to the same extent and with the same effect as LESSEE, for the period set forth in this Agreement, to cure or correct any such Uncured LESSEE Default, whether the same shall consist of the failure to pay rent or the failure to perform, and LESSOR agrees to accept such payment or performance on the part of lender as though the same had been made or performed by the LESSEE; and

(iv) LESSOR acknowledges and agrees that nothing contained in this Agreement shall construed as obligating LESSEE's mortgagee to take any action hereunder, or to perform or discharge any obligation, duty, or liability of LESSEE under this Agreement.

19. Assignment and Subletting LESSEE shall have the right to assign its interest in this this Agreement, whether in whole or in part, without LESSOR's consent. Upon notification to LESSOR of such assignment, LESSEE shall be relieved of all future performance, liabilities and obligations under this Agreement. In addition, LESSEE shall have the right to license or sublet the Leased Premises, in whole or in part, without LESSOR's consent, for the Permitted Use set forth in Section 3.

20. Right of First Refusal. Without in any way modifying or limiting LESSOR's obligations under Section 21 ("Confidentiality") below, if, during the Option Period, the Lease Term, or the six (6) month LESSEE's Limited Right To Negotiate period referenced in Section 4(b) above, LESSOR receives a bona fide offer ("Bona Fide Offer") from a third party to lease or purchase (a) an interest in all or a portion of the Property (including, without limitation, the Leased Premises) whether in fee, by grant of easement, or otherwise, (b) LESSOR's interest under this Agreement including, but not limited to, LESSOR's rights to receive rents hereunder, (c) the right to enter into an option, lease, or easement after the Term of this Agreement, and/or (d) any combination of the foregoing that LESSOR is willing to accept (individually and collectively, the "Property Interest"), LESSEE shall have the right of first refusal ("Right of First Refusal") to so acquire the Property Interest that is the subject of the Bona Fide Offer. LESSOR shall provide LESSEE with a written copy of the

Bona Fide Offer, and LESSEE shall have thirty (30) days following its receipt thereof to notify LESSOR in writing as to whether it wishes to exercise its Right of First Refusal with respect to the Property Interest that is the subject thereof. If LESSEE exercises its right to purchase the subject Property Interest, such purchase shall be made pursuant to all of the terms and conditions set forth under the Bona Fide Offer. If LESSEE fails to exercise its Right of First Refusal, this Agreement shall remain in full force and effect, and such Right of First Refusal shall lapse with respect to the Bona Fide Offer, but not with respect to any subsequent Bona Fide Offer(s)), unless LESSOR fails to convey the subject Property Interest to the third party in strict accordance with the terms of the Bona Fide Offer within one hundred eighty (180) days of the date of LESSEE's waiver of such Right of First Refusal.

21. Confidentiality. The terms of this Agreement, including, without limitation, the Rent paid by LESSEE to LESSOR hereunder (the "Information"), constitute confidential, proprietary, and trade secret information of LESSEE. As a result, LESSOR agrees to maintain the Information in confidence (except with respect to LESSEE's accountants, attorneys, and lenders), and will cause its directors, officers, employees, agents, and advisors to maintain the Information in confidence throughout the Option Period, the Term and the six (6) month LESSEE's Limited First Right To Negotiate period referenced in Section 4(b) above. Notwithstanding the foregoing, LESSEE shall not be prohibited from making a limited disclosure of the Information to the extent that: (1) such is necessary or appropriate in making any filing or obtaining any consent or approval required for LESSOR to entire into this Agreement; (2) the furnishing of such Information is required by legal order or process *provided, however,* that LESSOR provides LESSEE with notice and a copy of the order or other process prior to any such disclosure to enable the LESSEE, at its sole cost and expense, to challenge the order or other process and/or to obtain protective relief therefrom; or (3) the Information is disclosed to a potential acquirer of all of LESSOR's fee interest in the Property, but only to the extent that the potential acquiring entity or individual first executes a confidentiality agreement with respect to the Information in form and substance reasonably acceptable to LESSEE. In the event of LESSOR's breach of this Section 21, the Parties agree that the harm suffered by LESSEE would not be compensable by monetary damages alone and that, in addition to other legal and equitable remedies, LESSEE shall be entitled to seek an injunction against such breach.

22. Miscellaneous. (a) This Agreement, including Exhibits A-C hereto which are hereby incorporated herein by this reference, constitutes the entire Agreement and understanding of the parties with respect to the subject matter hereof, and supersedes all prior offers, negotiations, and agreements with respect thereto. There are no representations or understandings of any kind not set forth herein. Any amendments to this Agreement must be in writing and be executed by a duly authorized representative of each party.

(b) LESSOR shall, not later than thirty (30) days following the Effective Date hereof, provide LESSEE with a copy of LESSOR's organizational documents which may include, by way of example, (i) LESSOR's Articles of Incorporation, By-Laws, Partnership Agreement, Operating Agreement and the like, which documents shall evidence LESSOR's authority, right, and ability to enter into this Agreement, (ii) current certificates of good standing and incumbency, (iii) a duly-executed and authorized resolution authorizing the transactions contemplated hereby, and (iv) a document evidencing, to LESSEE's commercially-reasonable satisfaction, the signature authority of the LESSOR representative who executed this Agreement on LESSOR's behalf.

(c) Concurrently with the execution of this Agreement, the parties shall execute the Memorandum of Lease attached hereto and incorporated herein as **Exhibit "C"** (the "Memorandum"). LESSEE shall cause the Memorandum to be recorded, at LESSEE's sole cost and expense, in the official records of the county and state in which the Leased Premises are located. Upon determination of the legal description of the Leased Premises by LESSEE (the "Leased Premises Legal Description"), LESSOR and LESSEE shall amend this Agreement and record an amendment to the Memorandum to incorporate the Leased Premises Legal Description.

(d) Any sale or conveyance of all or any portion of the Premises shall be subject to this Agreement and LESSEE's rights hereunder.

(e) This Agreement shall be construed in accordance with the laws of the state in which the Premises are located, without regard to the choice of law rules thereof.

(f) If any term of this Agreement is found to be void or invalid, such invalidity shall not affect the remaining terms of this Agreement, which shall continue in full force and effect.

(g) This Agreement may be executed in any number of counterparts (including by facsimile or by electronic copy or transmission), each of which shall be the binding agreement of the executing party, and which, when taken together, shall constitute but one and the same instrument.

(h) This Agreement shall extend to and be binding upon the heirs, successors or assignees of the parties hereto.

(i) The headings, captions and numbers in this Agreement are solely for convenience and shall not be considered in construing or interpreting any provision herein.

(j) Neither party to this Agreement shall be liable for any real estate brokers' or leasing agents' commissions in the absence of a written agreement, which expressly provides therefore and is signed by the party to be charged or obligated with payment thereof. LESSOR and LESSEE shall each indemnify and defend and hold harmless each other from and against any liability arising from such claims for commissions as a result of its acts.

(k) No failure or delay by either party to the exercise of its rights under this Agreement or to insist upon the strict compliance with any obligation imposed by this Agreement, and no course of dealing, custom or practice of either party contrary to the terms of this Agreement, shall constitute a waiver or a modification of the terms hereof or the right to demand strict compliance with the terms of this Agreement.

(l) The provisions of this Section 22 shall survive the expiration or earlier termination of this Agreement.

[SIGNATURE PAGE FOLLOWS.]

IN WITNESS WHEREOF, the parties have caused this Option and Ground Lease Agreement to be executed by their duly-authorized representatives as of the Effective Date set forth above.

MICHAEL J. ZUMO and LORINDA R. ZUMO, husband and wife
("LESSOR")

By: Michael J. Zumo 6-10-2024
Michael J. Zumo

By: Lorinda R Zumo 6-10-2024
Lorinda R. Zumo

SUPERA TECHNICAL SERVICES, INC., a California corporation
d/b/a Rocky Mountain Towers
("LESSEE")

By: Rachelle L Neace 7-4/2024
Rachelle ("Shelly") L. Neace
President & CEO

EXHIBIT "A" TO OPTION AND GROUND LEASE AGREEMENT

LEGAL DESCRIPTION OF PROPERTY

That certain real property located in Laramie County, Wyoming bearing APN 14660420000200 which is legally described as follows:

[SEE FOLLOWING PAGE]

EXHIBIT "A"

All that portion of the W½ of Section 4, Township 14 North, Range 66 West of the 6th P.M., Laramie County, Wyoming records, more particularly described as follows:

Beginning at a point on the North Boundary of said Section 4, which point bears S 89°47.5′ E, a distance of 888.43 feet from the northwest corner of said Section 4, and thence proceeding S 89°47.5′ E, a distance of 888.42 feet to a point, thence proceeding S 0°09.5′ E, a distance of 2451.6 feet to a point, thence proceeding N 89°47.5′ W. a distance of 888.42 feet to a point, thence proceeding N 0°09.5′ W, a distance of 2451.6 feet to the point of beginning hereinbefore mentioned; **EXCEPT:**

A parcel of land in Section 4, Township 14 North, Range 66 West, 6th Principal Meridian, Laramie County, Wyoming, more particularly described as follows:

Beginning at the Northwest corner of said Section 4; thence S.89°47′30"E. along the north boundary of said Section 4 a distance of 1,776.80 feet (1,776.85 feet, record) to a survey monument stamped LS 2500′ thence S.0°09′15"E. a distance of 1,470.49 feet to a copperweld monument (5/8 inch diameter copper-coated steel road, with 1½ inch brass head), the true point of beginning; thence S.0°09′15"E. a distance of 980.62 feet to a copperweld monument; thence N.89°46′16"W., a distance of 888.38 feet to a copperweld monument; thence N.0°09′24"W. a distance of 980.46 feet to a copperweld monument; thence S.89°46′53"E. a distance of 888.42 feet to the true point of beginning.

EXHIBIT "B" TO OPTION AND GROUND LEASE AGREEMENT

DEPICTION/DESCRIPTION/SITE PLAN OF LEASED PREMISES[1]

x The Leased Premises includes ground space.

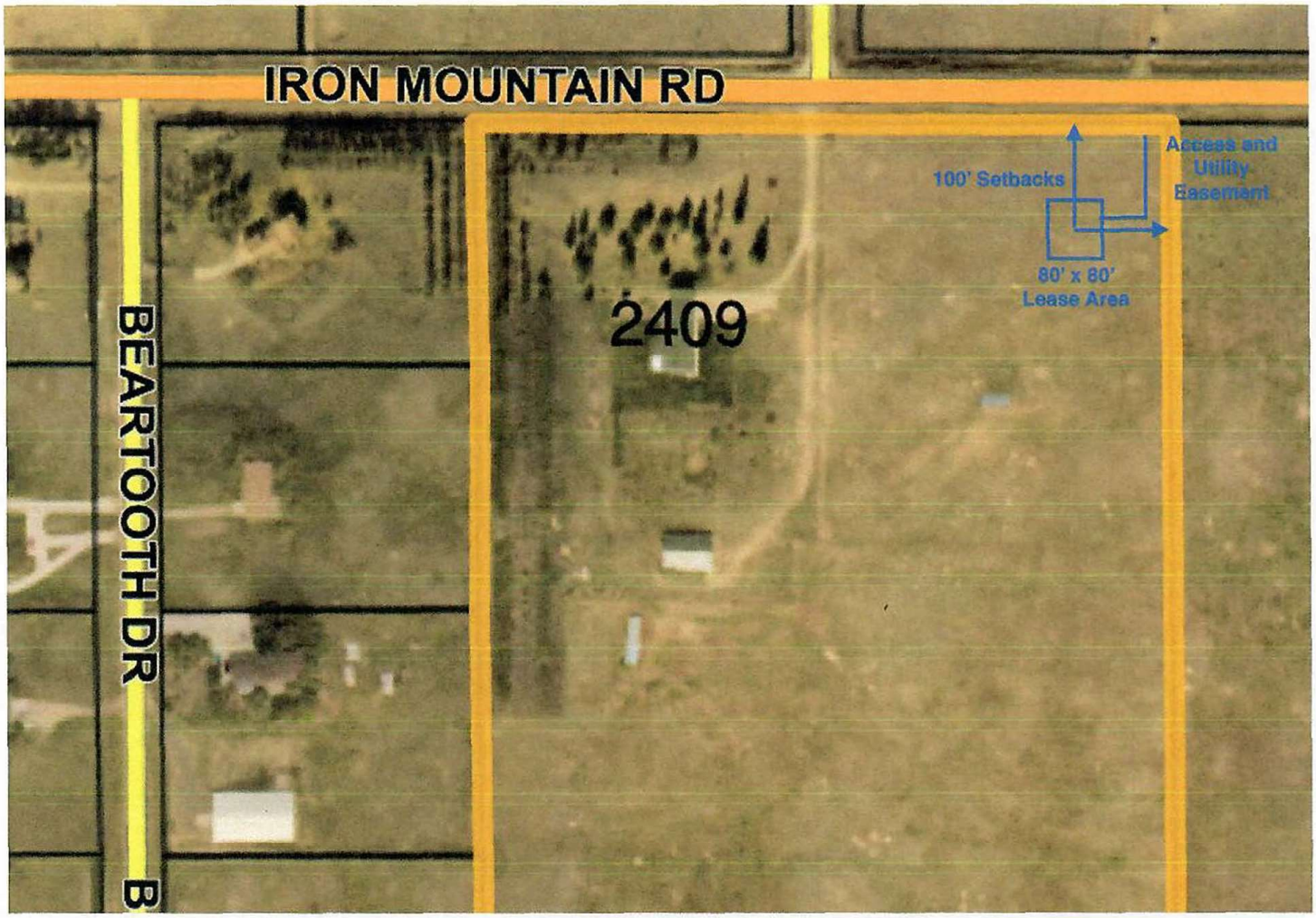


EXHIBIT "C" TO OPTION AND GROUND LEASE AGREEMENT
MEMORANDUM OF LEASE

[SEE ATTACHED.]

Drainage Study Waiver Request

Re: **150' Cell Tower Proposed at 2409 Iron Mountain Rd, Cheyenne, WY 82009**

Rocky Mountain Towers is requesting a waiver from requiring a Drainage study for this project as the cell tower footprint is only 6400 S.F. with a permeable crushed gravel base laid inside the compound. The parcel consists of 29.74 acres and any future equipment pads in the compound would represent less than .1 percent increase to the impervious surfaces on the property.

I appreciate your consideration,

Regards,

Shannon Morrelli

Rocky Mountain Towers
Infrastructure Development

Traffic Study Waiver Request

Re: **150' Cell Tower Proposed at 2409 Iron Mountain Rd, Cheyenne, WY 82009**

Rocky Mountain Towers is requesting a waiver from requiring a traffic study for this project as the cell tower is unmanned and expects to have only 1 monthly maintenance visit by a service technician. The tower is designed for up to 4 wireless carriers so there would be a maximum of 4 visits per month.

I appreciate you consideration,

Regards,

Shannon Morrelli

Rocky Mountain Towers
Infrastructure Development

Landscape Waiver Request

Re: **150' Cell Tower Proposed at 2409 Iron Mountain Rd, Cheyenne, WY 82009**

Rocky Mountain Towers is requesting a waiver from a landscape plan. the site will be set back in a field and no irrigation is nearby for landscaping. If screening at the base of the tower is desired, we can add vinyl slats the fencing to screen interior equipment from view.

I appreciate you consideration,

Regards,

Shannon Morrelli

Rocky Mountain Towers
Infrastructure Development

SITE OVERVIEW

TYPE OF OCCUPANCY:	TELECOMMUNICATIONS
SITE TYPE:	RAWLAND
TOWER TYPE:	MONOPOLE
TOWER HEIGHT:	150-FT +/-
TOWER LATITUDE:	41° 13' 04.09" N (41.217803°)
TOWER LONGITUDE:	104° 47' 00.68" W (-104.783522°)
GROUND ELEVATION:	6179.2-FT +/- AMSL (NAVD 88)
ZONING JURISDICTION:	LARAMIE COUNTY
COUNTY:	LARAMIE
TAX PARCEL ID:	0-0014-0066-04050
ZONED:	A-1
POWER COMPANY:	TBD
TELCO/FIBER COMPANY:	TBD

PROJECT CONTACT DIRECTORY

LAND OWNER:	MICHAEL J. ZUMO AND LORINDA R. ZUMO 2409 IRON MOUNTAIN RD CHEYENNE, WY 82009
TOWER OWNER AND APPLICANT:	ROCKY MOUNTAIN TOWERS, INC. 5150 MAE ANNE AVE RENO, NV 89523 CONTACT: N/A
SITE ENGINEER:	DELTA OAKS GROUP, PLLC 4904 PROFESSIONAL COURT RALEIGH, NC 27609 CONTACT: RHETT BUTLER, PE (919) 342-8247
SCOPE OF WORK:	INSTALLATION OF 150-FT MONOPOLE AND A 80-FT BY 80-FT FENCED COMPOUND

CODE COMPLIANCE

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

1. UNIFORM CONSTRUCTION CODE (UCC)
2. ANSI/TIA/EIA-222-H
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES
5. 2024 WYOMING BUILDING CODE
6. 2024 WYOMING FIRE CODE
7. 2024 WYOMING MECHANICAL CODE
8. 2024 WYOMING FUEL GAS CODE
9. 2024 INTERNATIONAL ENERGY CONSERVATION CODE
10. 2023 WYOMING ELECTRICAL CODE

811 CALL WYOMING ONE 3 WORKING DAYS BEFORE YOU DIG
CALL 811 OR 1-800-332-2344

GENERAL NOTES

- THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, THEREFORE HANDICAP ACCESS IS NOT REQUIRED.
- A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE APPROX. ONE TRIP PER MONTH.
- NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED.
- NO COMMERCIAL SIGNAGE IS PROPOSED.

SHEET INDEX

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
T-1	TITLE SHEET	G-3	GROUNDING DETAILS
C-1	OVERALL PARCEL VIEW	G-4	GROUNDING DETAILS
C-2A	SITE PLAN	GN-1	GENERAL NOTES
C-2B	GRADING PLAN AND EROSION CONTROL PLAN		
C-3	COMPOUND LAYOUT		
C-4	TOWER PROFILE		
C-5	CIVIL DETAILS		
C-6	CIVIL DETAILS		
C-7	CIVIL DETAILS		
C-8	CIVIL DETAILS		
C-9	CIVIL DETAILS		
E-1	UTILITY LAYOUT		
E-2	ELECTRICAL DETAILS		
E-3	ELECTRICAL DETAILS		
G-1	GROUNDING PLAN		
G-2	GROUNDING DETAILS		

CONSTRUCTION DRAWINGS

PROPOSED 150-FT MONOPOLE

RMT

ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

SITE NAME
POWDERHOUSE MOUNTAIN

SITE ID
WY001

SITE COORDINATES
41° 13' 04.09" N, 104° 47' 00.68" W

SITE ADDRESS
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

VICINITY MAP

LOCAL MAP

DIRECTIONS

FROM CHEYENNE REGIONAL AIRPORT AIRPORT:

HEAD WEST TOWARD AIRPORT PKWY W. TURN RIGHT ONTO E PERSHING BLVD. TURN RIGHT ONTO WARREN AVE. CONTINUE ONTO I-25BL/CENTRAL AVE. CONTINUE STRAIGHT ONTO WY-219 S/YELLOWSTONE RD. TURN RIGHT ONTO IRON MOUNTAIN RD. DESTINATION WILL BE ON THE RIGHT, 2.3 MI

PREPARED FOR:

RMT
ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

PREPARED BY:

DELTA OAKS GROUP
DELTA OAKS GROUP
2724 DISCOVERY DRIVE, STE 110 & 120
RALEIGH, NC 27616
PHONE: (919) 342-8247
WWW.DELTAOAKSGROUP.COM

DocuSigned by:
Joseph Borrelli
Professional Engineer
JOSEPH V. BORRELLI, JR.
14561
Date 6/12/2025
WYOMING

DRAWN BY:	GSB
CHECKED BY:	WRB
PROJECT NO:	25-23808

SUBMITTALS

DATE	DESCRIPTION	REV	ISSUED BY
3/19/25	PRELIMINARY	A	GSB
4/2/25	PRELIMINARY	B	GSB
4/3/25	PRELIMINARY	C	GSB
6/5/25	PRELIMINARY	D	GSB

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POWDERHOUSE MOUNTAIN

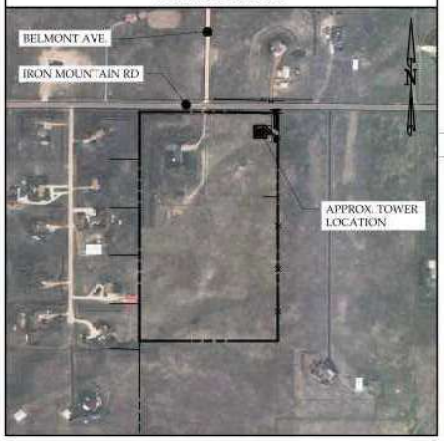
SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

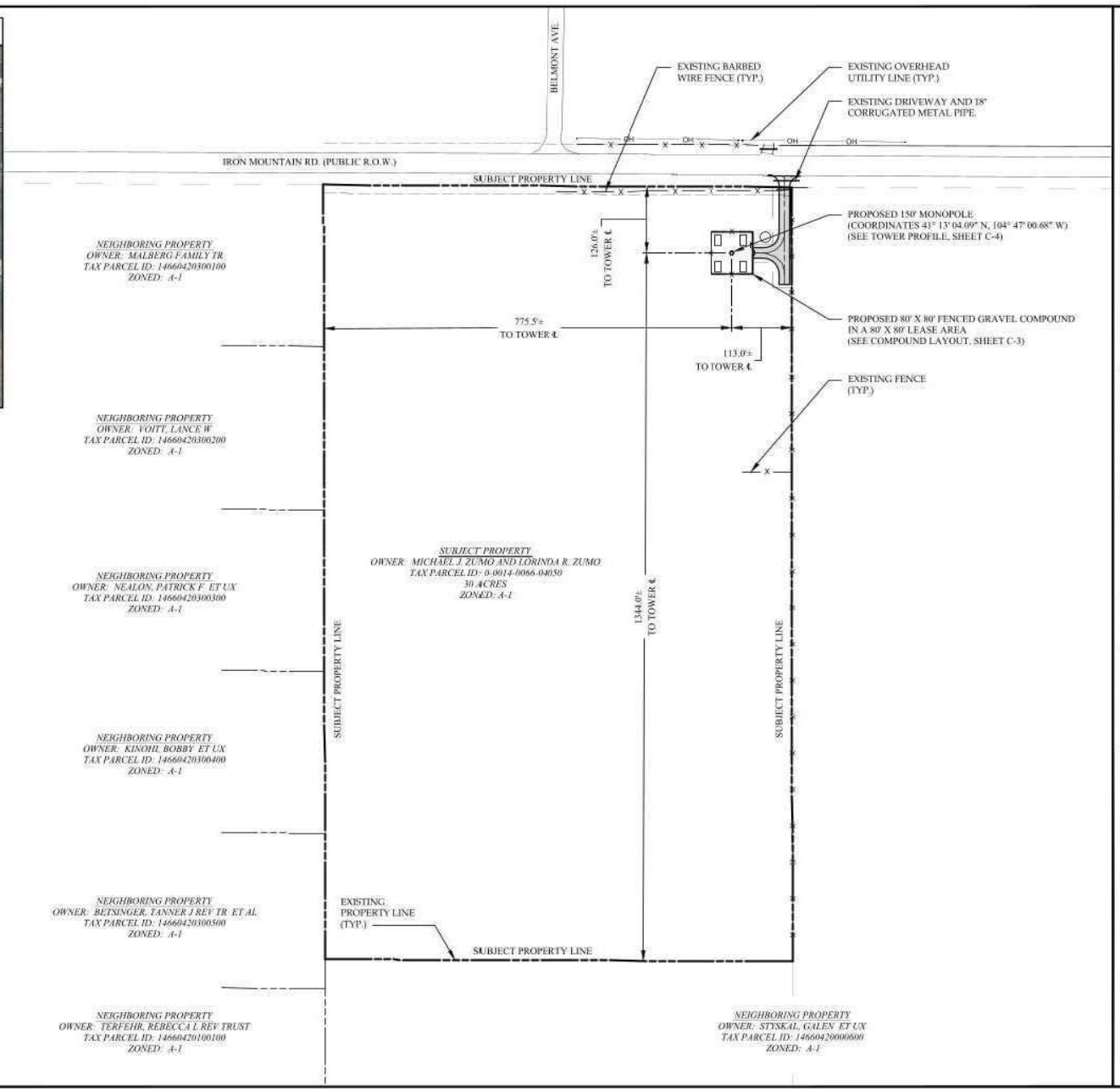
SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

AERIAL IMAGE



NOTES
1. SEE GENERAL NOTES ON SHEET GN-1.
2. EXISTING TOPOGRAPHIC, UTILITY, PLANIMETRIC, AND BOUNDARY INFORMATION IS TAKEN FROM A DRAWING ENTITLED "WY001 RANCHETTES" AND DATED FEBRUARY 7, 2025 BY ARROW SURVEY GROUP, INC.



OVERALL PARCEL VIEW
11" X 17" : 1" = 200'
100 0 200 400

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Date: 6/10/2025
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2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

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SHEET TITLE
OVERALL PARCEL VIEW

SHEET NUMBER
C-1

NOTES

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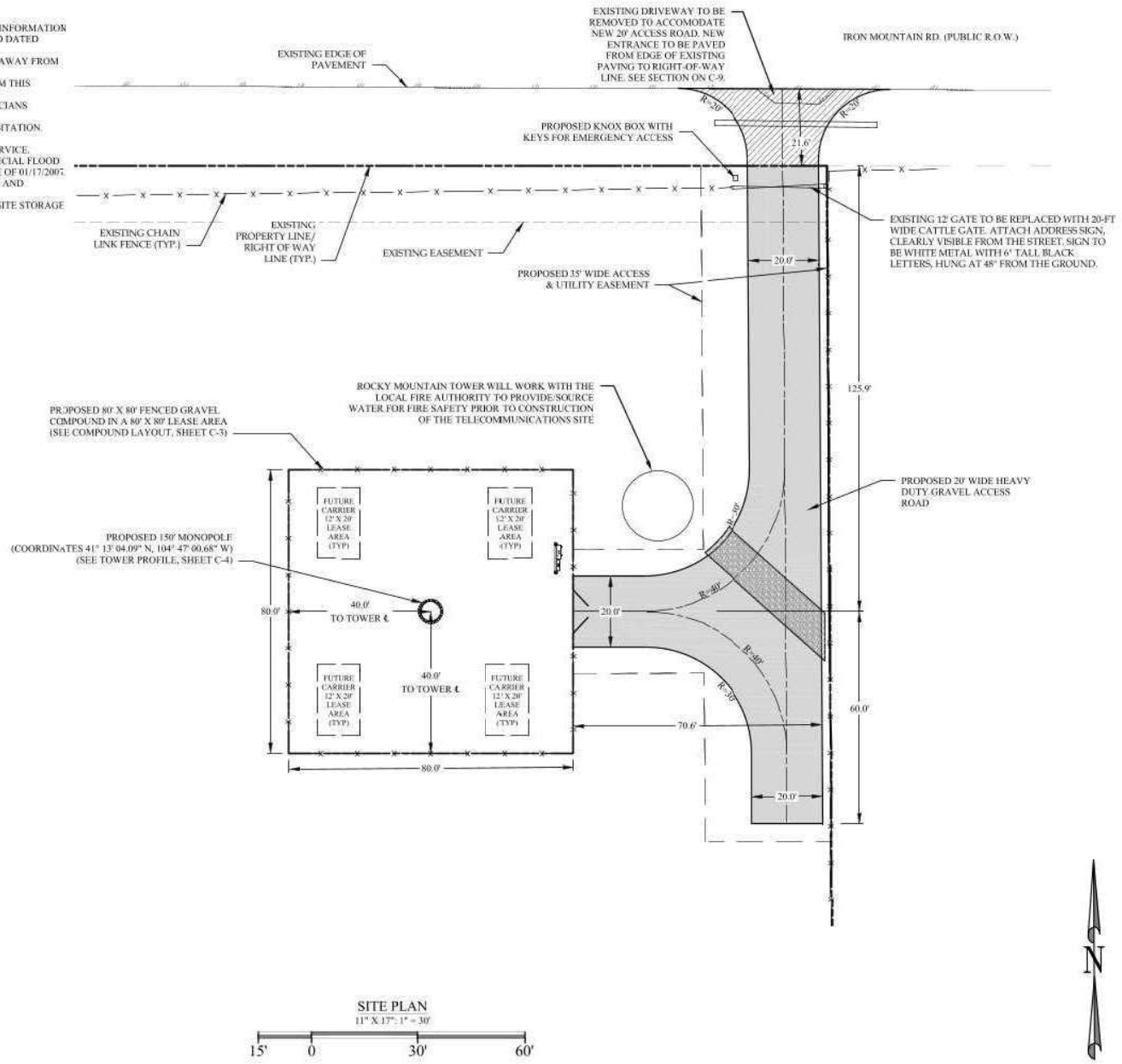
3. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE PROPOSED EQUIPMENT & TOWER AREA.
4. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
5. THE SITE WILL GENERATE APPROX. 1 TRIPS PER MONTH BY TECHNICIANS PERFORMING ROUTINE MAINTENANCE.
6. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION. THERE IS NO HANDICAP ACCESS REQUIRED.
7. THE FACILITY DOES NOT REQUIRE WATER OR SANITARY SEWER SERVICE.
8. THE PROPOSED TOWER LEASE AREA IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE PER FEMA FIRM #56021C1083F WITH EFFECTIVE DATE OF 01/17/2007.
9. THERE ARE NO WETLANDS WITHIN THE PROJECT AREA PER US FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY.
10. THE FACILITY DOES NOT GENERATE SOLID WASTE REQUIRING ON-SITE STORAGE OR DISPOSAL SERVICES.

LEGEND

- PROPERTY LINE/ROW
- EXISTING LOT
- PROPOSED EASEMENT
- PROPOSED LEASE AREA
- WATERBODY
- EXISTING FENCE
- PROPOSED FENCE
- ROADWAY CENTERLINE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- OH — OVERHEAD UTILITY



SITE PLAN
11" X 17": 1" = 30'

15' 0 30' 60'

N

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14561
Date 6/6/2025
WYOMING

DRAWN BY:	GSB
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PROJECT NO:	25-23808

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SITE ADDRESS:
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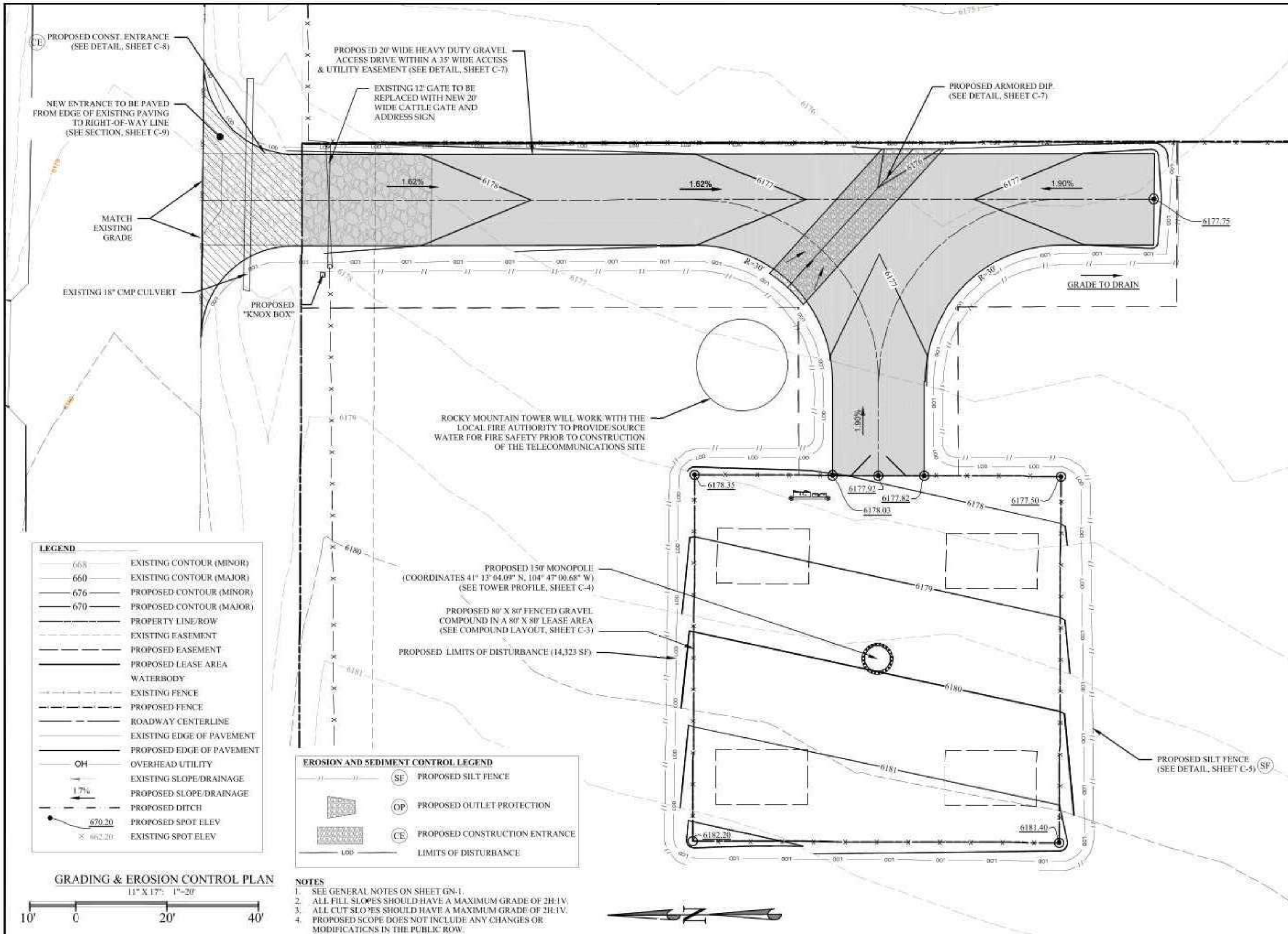
CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-2A



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CHEYENNE, WY 82009

SITE ID:
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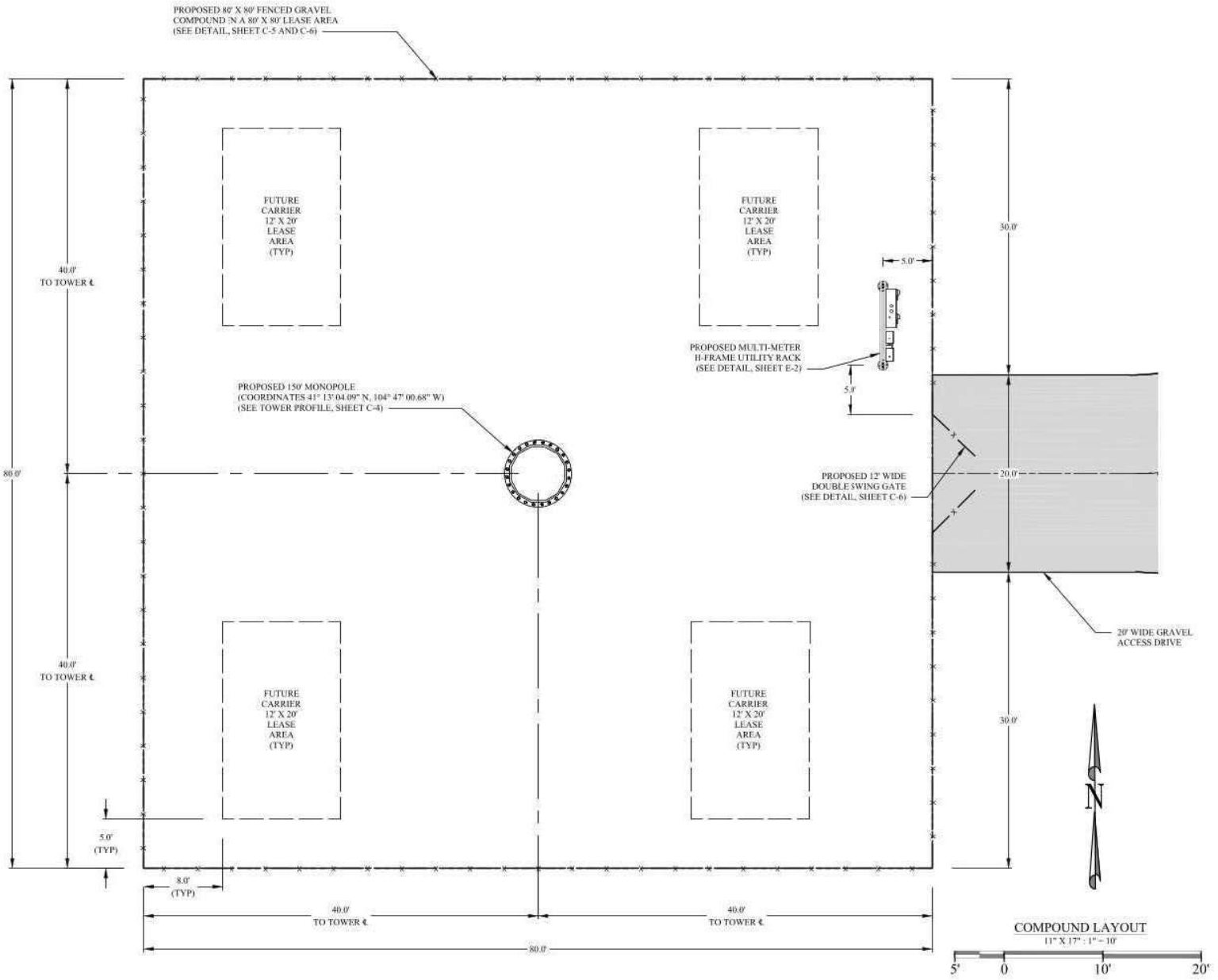
SHEET TITLE
GRADING & EROSION CONTROL PLAN

SHEET NUMBER
C-2B



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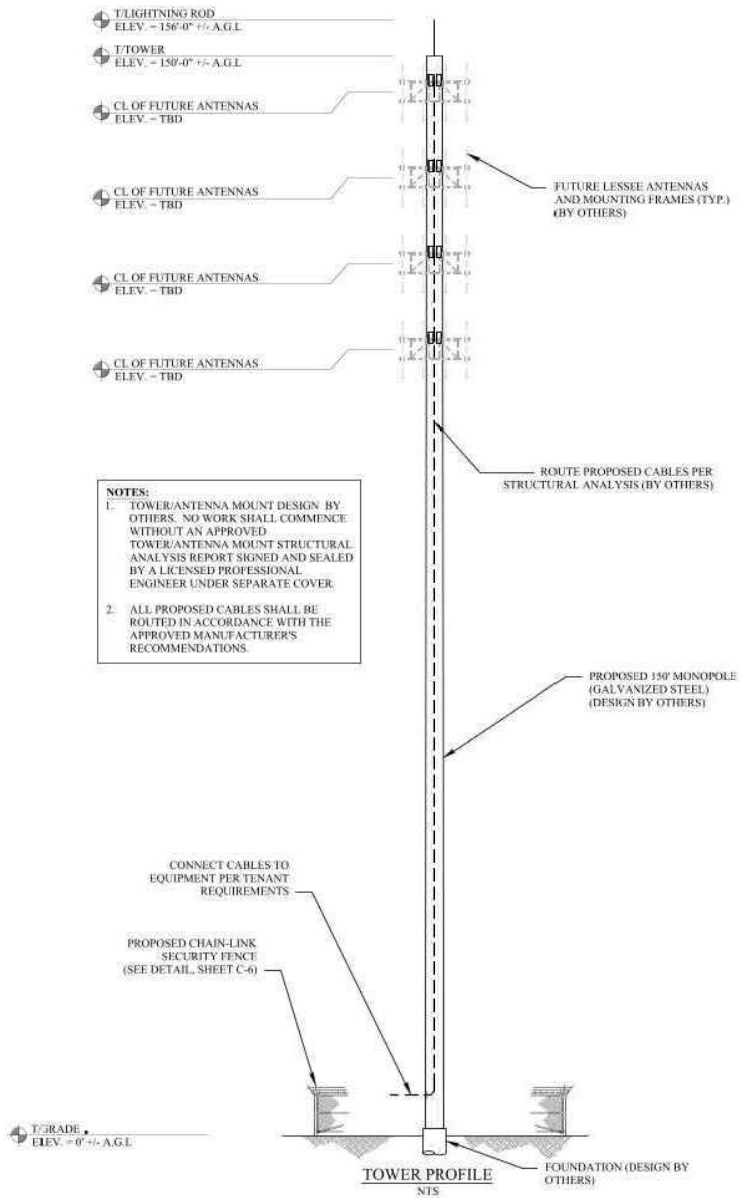
SITE ID:
WY001

SHEET TITLE
COMPOUND LAYOUT

SHEET NUMBER
C-3



NOTES:

1. TOWER/ANTENNA MOUNT DESIGN BY OTHERS. NO WORK SHALL COMMENCE WITHOUT AN APPROVED TOWER/ANTENNA MOUNT STRUCTURAL ANALYSIS REPORT SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER UNDER SEPARATE COVER.
2. ALL PROPOSED CABLES SHALL BE ROUTED IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S RECOMMENDATIONS.

TOWER PROFILE
NTS

PREPARED FOR:

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5150 MAE ANNE AVE
RENO, NV 89523

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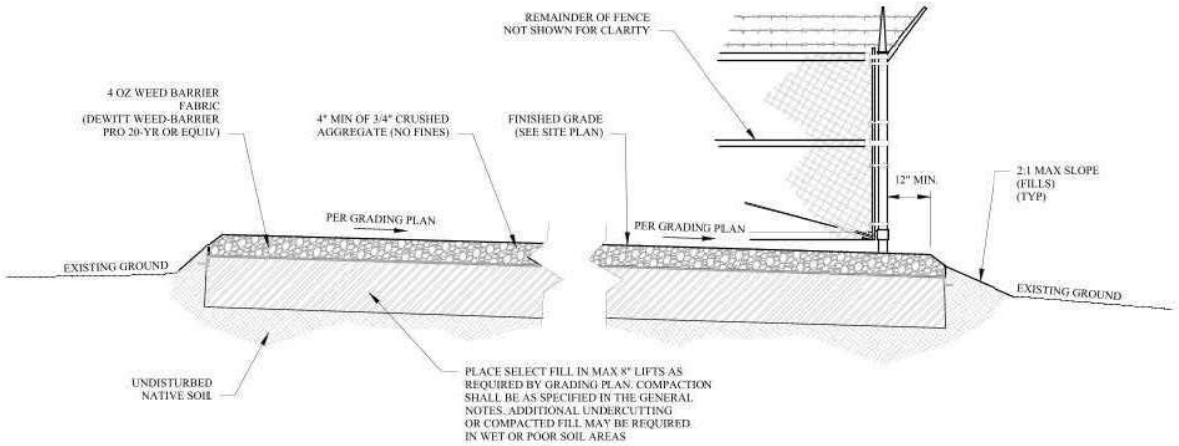
CHEYENNE, WY 82009

SITE ID:
WY001

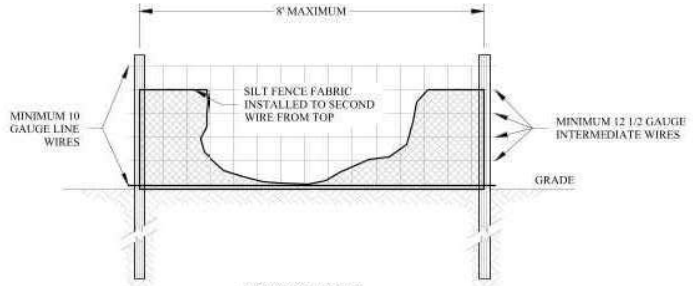
SHEET TITLE
TOWER PROFILE AND ANTENNA CONFIGURATION

SHEET NUMBER
C-4

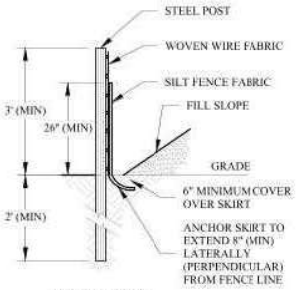
COMPOUND SECTION



TEMPORARY SILT FENCE



FRONT VIEW



SIDE VIEW

NOTE:

1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.

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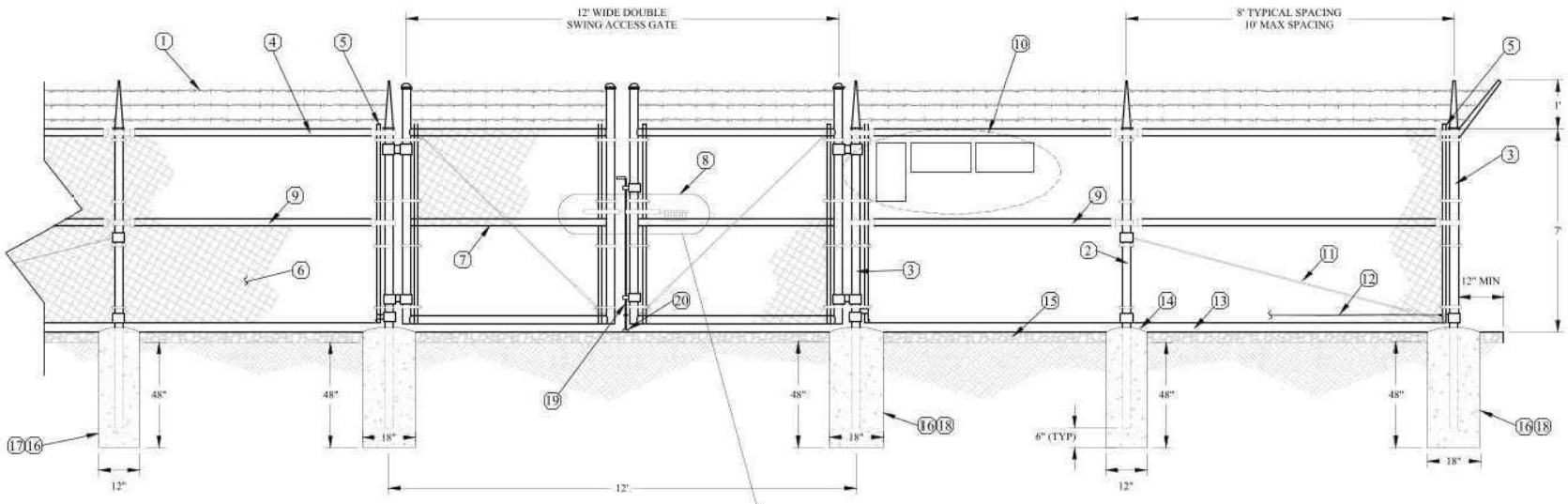
CHEYENNE, WY 82009

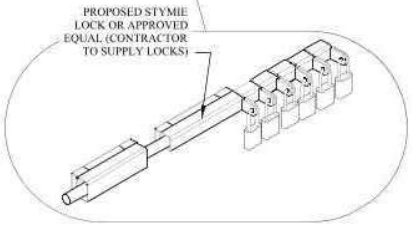
SITE ID:
WY001

SHEET TITLE
CIVIL DETAILS

SHEET NUMBER
C-5

COMPOUND FENCE





KEYNOTES:

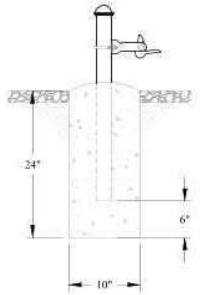
1. 3 STRANDS OF DOUBLE 12-1/2 GAUGE TWISTED STRAND WIRE, WITH 4 POINT 14 GAUGE BARBS SPACED 5" O.C.
2. 2-1/2" NOMINAL GALVANIZED STEEL, SCHEDULE 40 INTERMEDIARY LINE POSTS (PER ASTM-F1083). LINE POSTS SHALL BE EQUALLY SPACED AT MAXIMUM 10' O.C.
3. 3" O.D. GALVANIZED STEEL SCHEDULE 40 CORNER AND GATE POSTS (PER ASTM-F1083). IF GATE LEAF WIDTH GREATER THAN OR EQUAL TO 10-FT OR IF FENCE FABRIC EXTENDED OVER 6-FT AND GATE LEAF WIDTH OVER 6-FT, GATE POST SHALL BE 4" O.D. GALVANIZED STEEL SCHEDULE 40 (PER ASTM-F1083).
4. 1-5/8" O.D. SCHEDULE 40 ROUND TOP/BRACE RAIL (PER ASTM-F1083)
5. STRETCHER BAR TO EXTEND FULL HEIGHT OF FENCE FABRIC; NOT LESS THAN 3/16" X 3/4" CROSS SECTION; PLACE ON ALL GATES AND POSTS
6. 9 GAUGE 2" x 2" FENCE FABRIC (TO CONFORM TO ASTM-A392)
7. GATE FRAME BRACE
8. STYMIE LOCK OR OTHER APPROVED MULTI-TENANT LOCKING DEVICE
9. 1-5/8" DIAMETER POST BRACE (AS REQUIRED)
10. GATE SIGNS (SEE DETAIL AT RIGHT)
11. 3/8" DIAGONAL BRACE ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD
12. 9 GAUGE ALUMINUM TIE WIRE. PROVIDE HOG RING FABRIC TIES SPACED 12" O.C. FOR POSTS AND GATES AND 24" O.C. FOR RAILS AND WIRE.
13. MAINTAIN A 1" MAXIMUM CLEARANCE FROM FINISHED GRADE
14. PROVIDE CROWNED/PITCHED FINISH FOR FENCE POST PIER FOUNDATIONS
15. COMPOUND SECTION AND MATERIALS (SEE DETAIL, SHEET C-5)
16. CONCRETE PIER FOUNDATION; TO ACHIEVE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAYS. CONCRETE DEPTH TO BE AS SPECIFIED HEREIN, AS SPECIFIED BY MANUFACTURER, OR A MINIMUM OF 6" BELOW FROST LINE; WHICHEVER IS GREATER
17. LINE POST CONCRETE PIER FOUNDATION
18. CORNER/GATE POST CONCRETE PIER FOUNDATION
19. COMMERCIAL GRADE DROP ROD AND CENTERSTOP (HOOVER FENCE OR EQUIV)

NOTES:

1. FENCE DESIGN AND INSTALLATION NOTES ARE INDUSTRY STANDARDS AND/OR MINIMUM REQUIREMENTS AND ARE FOR GENERAL GUIDANCE ONLY. REFER TO MANUFACTURER'S RECOMMENDATIONS OF THE SPECIFIED PRODUCT AND APPLICABLE GOVERNING CODES FOR FULL INSTALLATION DETAILS. IN THE EVENT OF DISCREPANCIES, MANUFACTURER'S RECOMMENDATIONS OR APPLICABLE CODE SHALL GOVERN, WHICHEVER IS MORE STRINGENT.
2. ALL FENCING TO BE INSTALLED PER ASTM F-567. ALL SWING GATES TO BE INSTALLED PER ASTM F-900.
3. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE GALVANIZED (HOT DIP, ASTM A120 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDINGS SHALL BE COATED WITH (3) COATS OF GOLD GALV. (OR EQUAL). ALL OPEN POSTS SHALL HAVE END-CAPS.
4. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE FABRIC USING GALVANIZED HOG-RING WIRE.
5. ALL SIGNS AND SIGN PLACEMENT SHALL ADHERE TO THE REQUIREMENTS OF OSHA 1910.145 AND 1910.200 AND ALL APPLICABLE FCC CODES
6. DROP ROD AND CENTERSTOP REQUIRED FOR GATE. GENERAL CONTRACTOR RESPONSIBLE FOR GATE LOCK.

GATE SIGNS

GATE KEEPER



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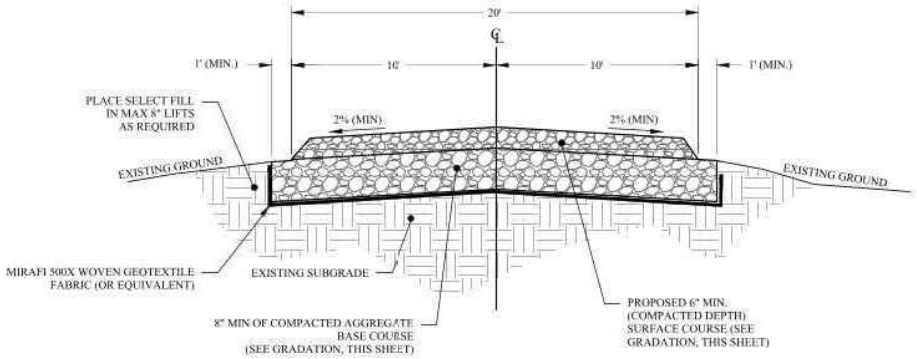
CHEYENNE, WY 82009

SITE ID:
WY001

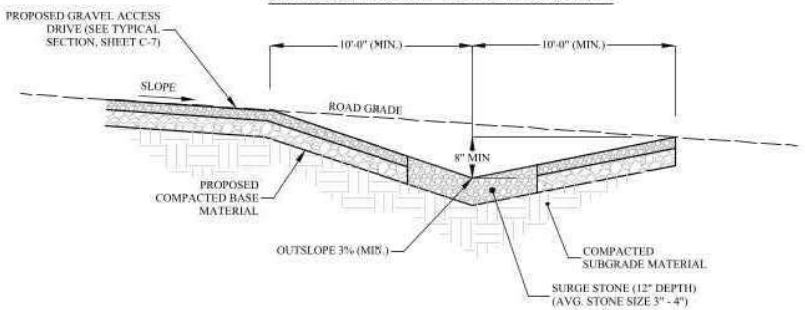
SHEET TITLE
CIVIL DETAILS

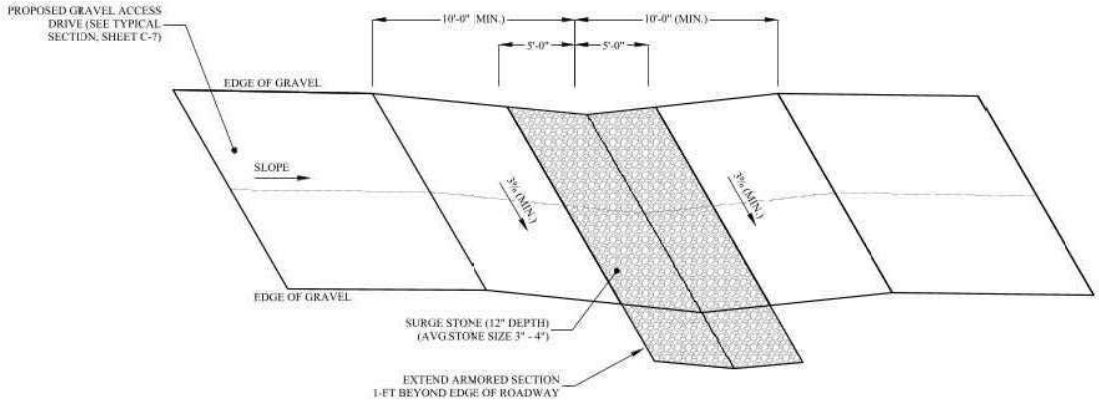
SHEET NUMBER
C-6

TYPICAL HEAVY-DUTY GRAVEL ACCESS ROAD SECTION (CROWNED)



ARMORED DIP-DITCH DETAIL





NOTES

1. REMOVE ALL TOPSOIL, ORGANIC MATERIAL, AND WET OR POOR SOILS ALONG ACCESS DRIVE. CONTRACTOR TO REVIEW SITE CONDITIONS AND CONSULT GEOTECHNICAL REPORT FOR ANTICIPATED DEPTH OF SOILS THAT WILL REQUIRE REMOVAL (IF AVAILABLE). IF POOR SOILS ARE ENCOUNTERED AT A DEPTH OF MORE THAN 12", CONTACT CONSTRUCTION MANAGER FOR GUIDANCE.
2. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR AND VERIFIED BY PROOF-ROLL AND/OR GEOTECHNICAL PROFESSIONAL OBSERVATION AND/OR TESTING.
3. CONSULT GRADING PLAN OR SITE PLAN FOR FINAL SITE GRADES.

ROADBED, GRAVEL COURSE, AND SUBGRADE REQUIREMENTS

1. THICKNESS OF GRAVEL DRIVE BASE COURSE TO BE DETERMINED BASED ON THE EXISTING SOIL BEARING CAPACITY (PER UFC DESIGN RECOMMENDATIONS):

BEARING CAPACITY (PSF)	TOTAL AGGREGATE THICKNESS (IN)
1000	16
1500	12
2000	8

*A HIGH PERFORMANCE, WOVEN GEOTEXTILE FABRIC MAY BE USED TO REPLACE UP TO 50%, OR 6" OF AGGREGATE THICKNESS, WHICHEVER IS LESS (MIRAFI HP 270 OR EQUIVALENT). FOR SITES WITH POOR SOILS, THE EQUIVALENT AGGREGATE THICKNESS SHOULD BE DETERMINED FROM THE GEOTECHNICAL REPORT OR FROM SITE SPECIFIC CALCULATIONS.

2. IF POOR OR WET SOILS ARE PRESENT BELOW BASE COURSE, CONTRACTOR TO INSTALL 6" MIN. WELL-GRADED GRAVEL/SAND SUB-BASE TO FACILITATE ADEQUATE DRAINAGE AND STABILITY.
3. CONSULT GEOTECHNICAL REPORT (AS AVAILABLE) FOR ANTICIPATED SOIL CONDITIONS.
4. AGGREGATE LAYER GRADATIONS SHALL BE AS FOLLOWS:

REQUIREMENT SIEVE	AGGREGATE BASE COURSE % PASSING	GRAVEL SURFACE COURSE % PASSING
2.5"	-	-
2"	100	-
1.5"	-	-
1"	-	-
3/4"	52-85	100
1/2"	-	-
3/8"	36-70	-
No. 4	24-50	50-78
No. 8	16-38	37-67
No. 16	10-30	-
No. 40	-	15-35
No. 200	0-10	4-15
PLASTICITY INDEX	0-6	4-12

NOTES (FOR IMPROVEMENTS TO EXISTING GRAVEL ROADS)

1. PRIOR TO PLACEMENT OF ADDITIONAL SURFACE OR BASE MATERIAL, EXISTING GRAVEL AND/OR DIRT ROADS SHALL BE EXCAVATED AND RESHAPED AS NECESSARY TO REMOVE DEPRESSIONS, POTHOLES, EROSION, RUTTING, WASHBOARDS, OR OTHER SURFACE IRREGULARITIES IN ORDER TO RESTORE THE SPECIFIED ROADWAY SECTION (NORMAL CROWN, SUPER-SLOPED, ETC.).
2. EXISTING ROADWAY SURFACE SHALL BE SCARIFIED PRIOR TO PLACEMENT OF NEW MATERIAL IN ORDER TO ENSURE A SUFFICIENT BOND.
3. FOR AREAS WHERE PAVEMENT IS REMOVED TO CONSTRUCT THE ACCESS ROAD, ALL EXISTING PAVEMENT/AGGREGATE LAYERS SHALL BE REMOVED, AND THE EXISTING SUBGRADE COMPACTED AND REWORKED AS NECESSARY TO PROVIDE THE COMPACTION AND SECTION REQUIREMENTS SPECIFIED HEREIN OR IN THE ASSOCIATED GEOTECHNICAL REPORT, WHICHEVER IS MORE STRINGENT.

PREPARED FOR:

RMT

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5150 MAE ANNE AVE
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PREPARED BY:

DELTA OAKS GROUP

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Joseph Borrelli
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JOSEPH V. BORRELLI, JR.
14561
Date: 6/6/2025
WYOMING

DRAWN BY:	GSB
CHECKED BY:	WRB
PROJECT NO:	25-23808

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SITE NAME:
POWDERHOUSE MOUNTAIN

SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

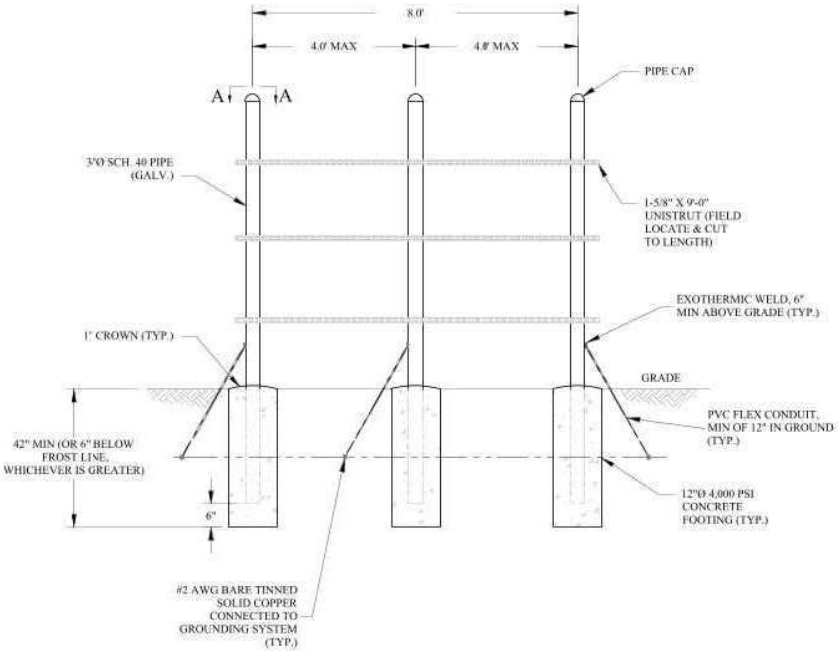
SHEET TITLE
CIVIL DETAILS

SHEET NUMBER
C-7

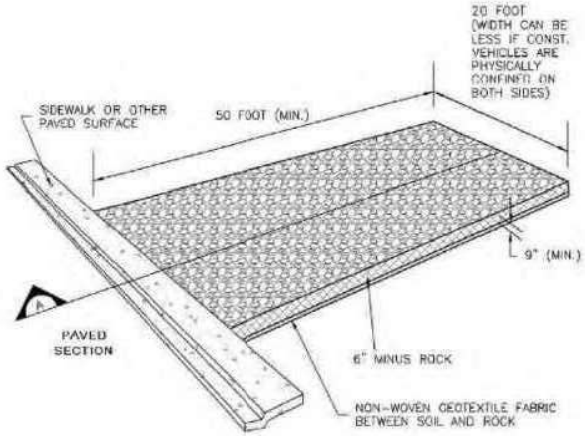
H-FRAME NOTES:

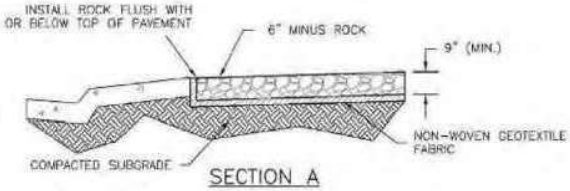
1. IF IT IS NECESSARY TO EXTEND THE H-FRAME, AN ADDITIONAL POST WILL ALWAYS BE REQUIRED.
2. PROPOSED UNISTRUTS TO BE FIELD CUT AND SHOULD NOT EXTEND MORE THAN6 INCHES BEYOND THE LAST POST.
3. SPRAY ENDS OF UNISTRUT WITH COLD GALVANIZING SPRAY PAINT, ALLOW TO DRY, THEN COVER WITH RUBBER PROTECTIVE CAPS FOR SAFETY.
4. UNISTRUT TO BE CUT FLUSH WITH NO SHARP OR JAGGED EDGES.
5. ALL PROPOSED HARDWARE TO BE MOUNTED PER MANUFACTURERS SPECS.

SECTION A-A



H-FRAME W/POSTS DETAIL





SECTION A

VTC– AGGREGATE VEHICLE TRACKING CONTROL

Adapted from Urban Drainage and Flood Control District Criteria Manual, Vol. 3

TEMPORARY CONSTRUCTION ENTRANCE

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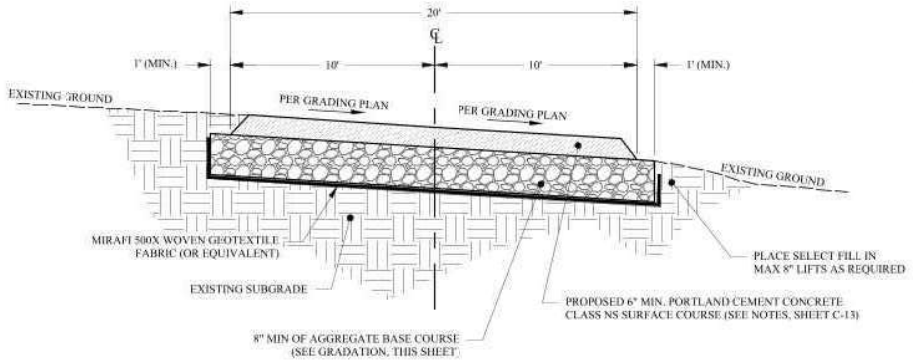
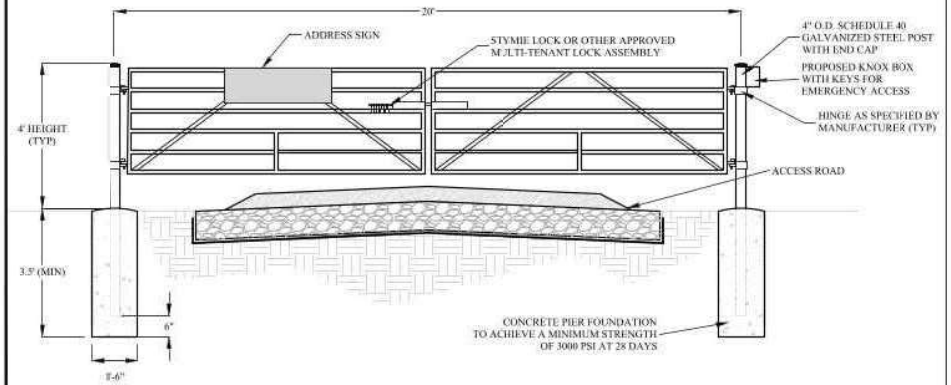
SHEET NUMBER
C-8

TYPICAL PORTLAND CEMENT ACCESS ROAD SECTION



CATTLE GATE



NOTES

1. CONTRACTOR TO USE HOOVER FENCE COMPANY G-SERIES 4'-0" HIGH X 20'-0" WIDE DOUBLE TUBULAR GATE OR EQUIVALENT.
2. ALL GATE FRAMEWORK (EXCLUDING GATE POSTS AS SPECIFIED HEREIN) TO BE CONSTRUCTED WITH 2" O.D. SCHEDULE 40, GALVANIZED STEEL, WITH WELDED CONSTRUCTION.
3. FOLLOW MANUFACTURER RECOMMENDATICNS FOR APPROVED HARDWARE AND INSTALLATION REQUIREMENTS

NOTES

1. ALL MATERIALS AND CONSTRUCTION METHODS SHALL ADHERE TO WYOMING DOT STANDARDS
2. DRIVEWAY SHOULD MATCH PUBLIC ROAD EDGE OF PAVEMENT GRADE AT POINT OF INTERSECTION AND SHOULD SMOOTHLY TRANSITION TO ROADWAY SECTION DEPICTED ON GRADING PLAN AND DETAIL SHEETS

CONCRETE NOTES

1. CONCRETE MIX DESIGN SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS: TYPE II PORTLAND CEMENT, ¾" MAX. AGGREGATE, 40% BY WEIGHT CRUSHED LIMESTONE OR GRANITE, MIN 28 DAY COMPRESSIVE STRENGHT OF 4,500 PSI, 0.45 MAX WATER/CEMENT RATIO, AND AIR ENTRAINMENT OF 5 TO 7%.
2. FIBER REINFORCEMENT SHALL BE FIBERMESH, OR APPROVED EQUAL, ¾ INCH LENGTH MIN. POLYPROPELENE FIBERS SHALL BE ADDED TO THE CONCRETE AT THE RATE OF 1.5 POUNDS PER CUBIC YARD. FIBER IS USED IN UTILITY DIAMONDS, VALLEY PANS, AND DRIVE APPROACHES UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. CURING COMPOUND SHALL BE APPLIED TO ALL CONCRETE. CONTRACTOR SHALL SELECT FROM THE FOLLOWING:

A. PENETRATING SILANE SEALER (EARLY CONSTRUCTION SEASON)
   a. 40% SILANE BY WEIGHT
   b. WEATHER WORKER S-40 (J-29), AS MANUFACTURED BY DAYTON SUPERIOR OR EQUIVALENTS, S-40 IS AN ALCOHOL BASED PRODUCT.
   c. WEATHER WORKER S-40 (J-29 WB), AS MANUFACTED BY DAYTON SUPERIOR OR EQUIVALENTS, S-40 WB IS A WATER BASED PRODUCT.
   d. APPLY IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. CURE AND SEAL (LATE FALL CONSTRUCTION WHERE WINTER CONDITIONS MAY OCCUR PRIOR TO 30 DAYS OF AIR DRYING)
   a. 30% SOLIDS ACRYLIC COPOLYMER
   b. CURE & SEAL 1315 EF, AS MANUFACTURED BY DAYTON SUPERIOR OR EQUIVALENTS. THE 1315 EF PRODUCT IS WATER BASED.
   c. CURE & SEAL UV 30% (J-23 U.V.), AS MANUFACTURED BY DAYTON SUPERIOR OR EQUIVALENTS. THE J-23 U.V. PRODUCT IS SOLVENT BASED.
   d. APPLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

C. CURE AND PENETRATING BLEND OF SILANES AND ACRYLIC COPOLYMERS.
   a. CURE & PENETRANT (J-18), AS MANUFACTURED BY DAYTON SUPERIOR OR EQUIVALENTS.
   b. APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

4. FRESHLY PLACED CONCRETE SHALL BE PROTECTEDFROM EXCESSIVE MOISTURE LOSS BEFORE CURING WITH SHEET MATERIALS OR MISTING.
5. EVAPORATION RETARDERS SHALL NOT BE USED AS A FINISHING AID TO FACILITATE THE FINISHING OF DRIED SURFACES.
6. IF MISTING IS EMPLOYED, ANY ACCUMULATION OF WATER ON THE SURFACE ON THE CONCRETE MUST BE REMOVED, AND NOT FINISHED INTO SURFACE.
7. BASE COURSE, W OR L, 6 INCHES IN DEPTH, SHALL BE REQUIRED UNDER ALL SIDEWALKS, PATHWAYS, CURB & GUTTER, AND DRIVEWAYS/ALLEY APPROACHES. DEPTH OF BASE MAY BE INCREASED OR DECREASED IF DIRECTED BY THE COUNTY ENGINEER.
8. CONTRACTION JOINTS SHALL BE AT 10 FEET MAXIMUM INTERVALS FOR ALL PATHWAYS AND SHALL BE SAW CUT, NOT TROWELED

BASE COURSE GRADATION

REQUIREMENT SIEVE	AGGREGATE BASE COURSE % PASSING
2.5"	-
2"	100
1.5"	-
1"	-
3/4"	52-85
1/2"	-
3/8"	36-70
No. 4	24-50
No. 8	16-38
No. 16	10-30
No. 40	-
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PLASTICITY INDEX	0-6

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SHEET TITLE
CIVIL DETAILS

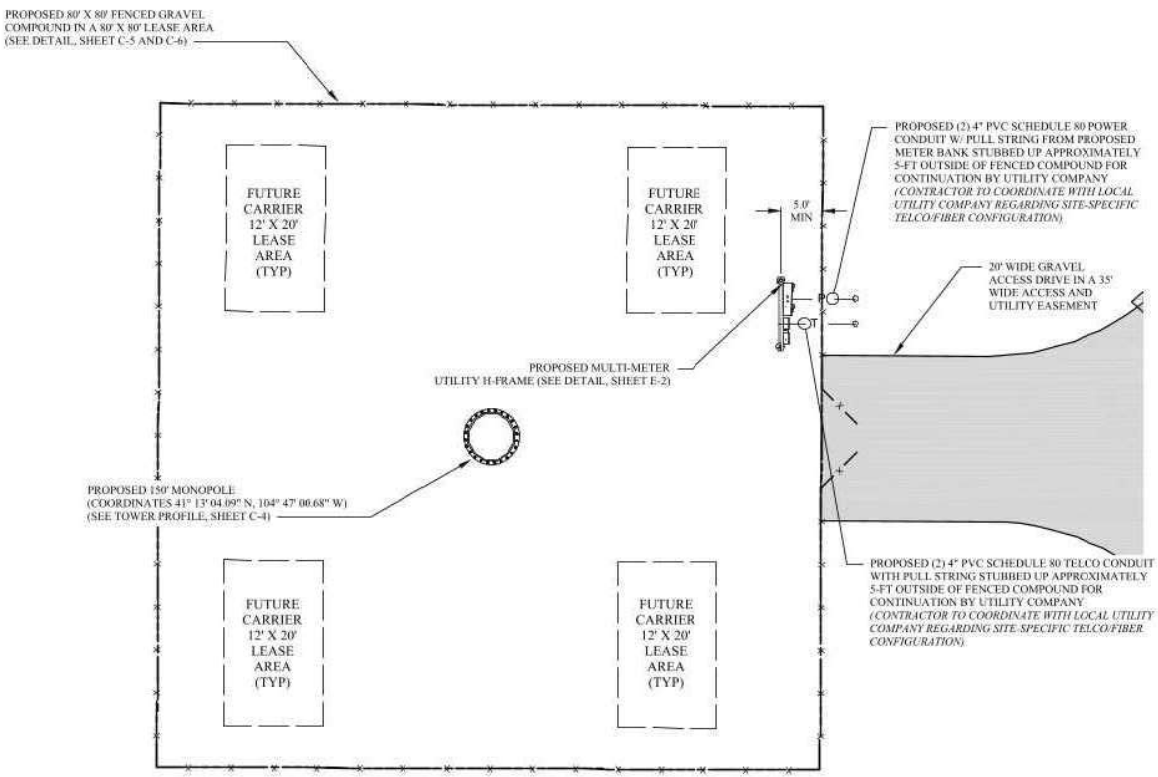
SHEET NUMBER
C-9

LEGEND

- PROPERTY LINE/ROW
- EXISTING EASEMENT
- PROPOSED EASEMENT
- PROPOSED LEASE AREA
- WATERBODY
- EXISTING FENCE
- PROPOSED FENCE
- ROADWAY CENTERLINE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- OH — OVERHEAD UTILITY
- P — PROPOSED UNDERGROUND POWER
- T — PROPOSED UNDERGROUND TELCO

NOTES:

1. ALL CONDUIT BENDS SHALL BE A MINIMUM 24" RADIUS.
2. ALL CONDUITS SHALL BE LOCATED 30" BELOW GRADE OR 6" BELOW THE FROST LINE, WHICHEVER IS GREATER.
3. EXACT LAYOUT AND COMPONENTS OF UTILITY ROUTING MAY CHANGE BASED ON OWNER/TENANT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO BID REGARDING POTENTIAL MODIFICATIONS.
4. FINAL UTILITY ROUTING PLAN IS TO BE CONFIRMED WITH LOCAL POWER COMPANY.
5. ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH CURRENT NATIONAL ELECTRIC CODE, LOCAL AND STATE CODES, LAWS AND ORDINANCES. COMPLY WITH NEC AS APPLICABLE TO WIRING, GROUNDING AND BONDING METHODS, CONSTRUCTION AND INSTALLATION.
6. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC, ABOVE GROUND CONDUITS SHALL BE SCHEDULE 80 PVC (UNLESS OTHERWISE NOTED). ALL CONDUIT BENDS SHALL BE A MIN. OF 24" RADIUS OR AS SPECIFIED BY THE LATEST EDITION OF THE NEC, WHICHEVER IS GREATER.



UTILITY LAYOUT
11" X 17" : 1" = 15'

7.5 0 15 30

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SITE ID:
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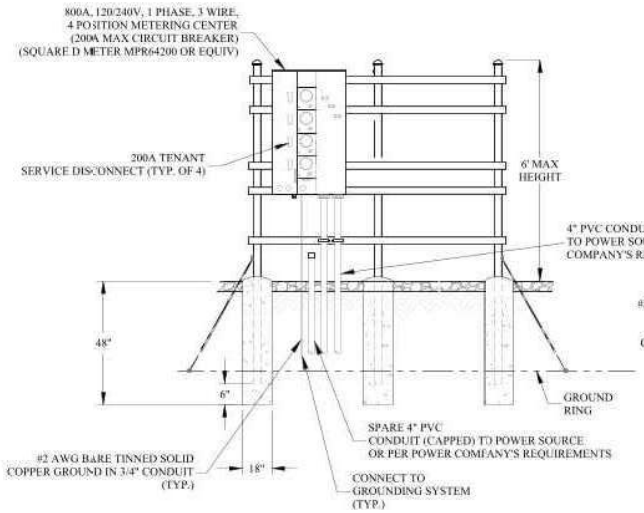
SHEET TITLE
UTILITY LAYOUT

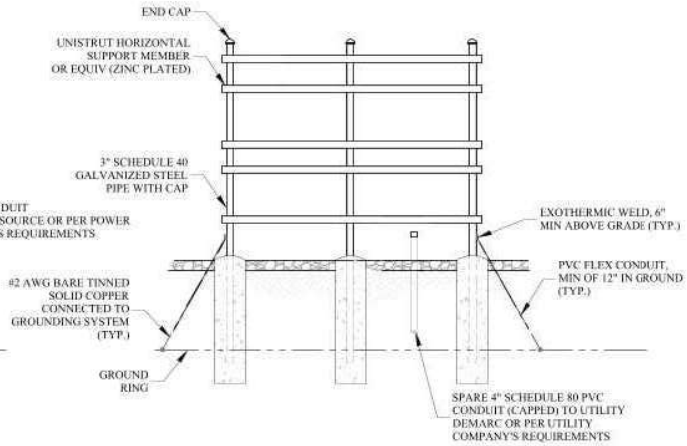
SHEET NUMBER
E-1

H-FRAME UTILITY RACK

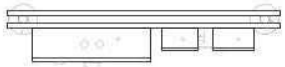
FRONT VIEW



REAR VIEW



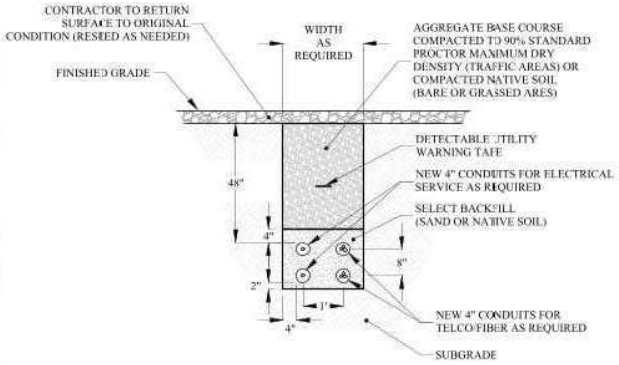
PLAN VIEW



NOTES:

1. EXACT LAYOUT AND COMPONENTS OF UTILITY RACK MAY CHANGE BASED ON OWNER/TENANT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO BID REGARDING POTENTIAL MODIFICATIONS.
2. CONTRACTOR TO MAINTAIN 3'-0" MINIMUM CLEARANCE FROM METERING CENTER TO NEAREST OBSTRUCTION.
3. CONCRETE PIER FOUNDATION TO ACHIEVE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAYS. CONCRETE DEPTH TO BE A MINIMUM OF 6" BELOW FROST LINE (48" MINIMUM, TYP.)
4. ELECTRIC SERVICE: 240/120V, 1Ø, 3W, 800A UNDERGROUND SERVICE TO POLE RISER
5. USE COPPER STRANDED, 600V, TYPE THW/THWN, WITH CROSS-LINKED POLYETHYLENE INSULATION FOR #8 AWG AND LARGER WIRE.
6. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC, ABOVE GROUND CONDUITS SHALL BE SCHEDULE 80 PVC (UNLESS OTHERWISE NOTED). ALL CONDUIT BENDS SHALL BE A MIN. OF 24" RADIUS OR AS SPECIFIED BY THE LATEST EDITION OF THE NEC, WHICHEVER IS GREATER.
7. GROUNDING CONDUCTOR SHALL BE #2 AWG SOLID BARE TINNED COPPER UNLESS OTHERWISE NOTED.

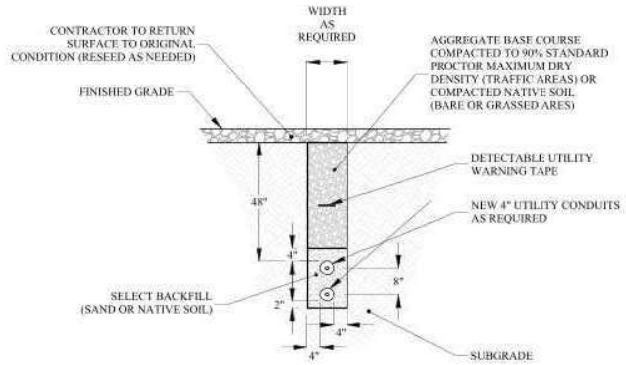
JOINT UTILITY TRENCH



NOTES:

1. CONDUIT TYPE, SIZE, QUANTITY, AND SEPARATION TO BE VERIFIED WITH LOCAL UTILITY PROVIDER REQUIREMENTS.

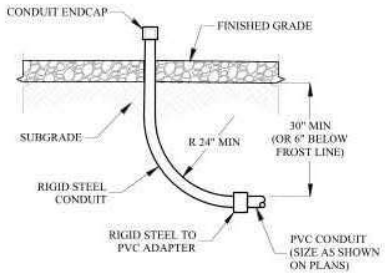
SINGLE UTILITY TRENCH



NOTES:

1. CONDUIT TYPE, SIZE, QUANTITY, AND SEPARATION TO BE VERIFIED WITH LOCAL UTILITY PROVIDER REQUIREMENTS.

CONDUIT STUB-UP



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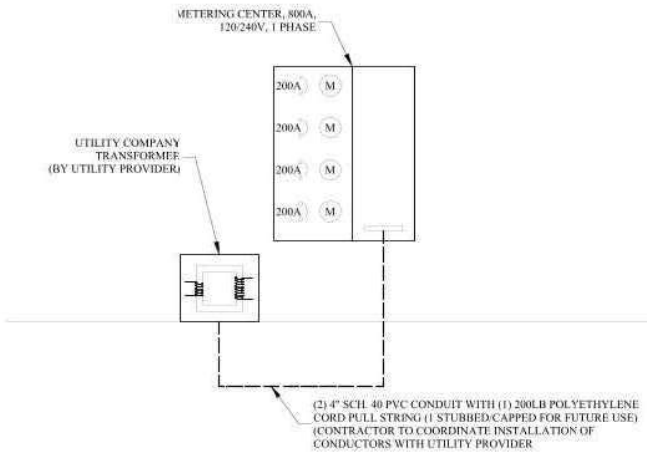
ELECTRICAL DETAILS

SHEET NUMBER
E-2

NOTES:
1. EXACT LAYOUT AND COMPONENTS OF UTILITY RACK MAY CHANGE BASED ON OWNER/TENANT REQUIREMENTS. CONTRAC"OR TO COORDINATE WITH OWNER PRIOR TO BID REGARDING POTENTIAL MODIFICATIONS.

UTILITY SINGLE LINE DIAGRAM



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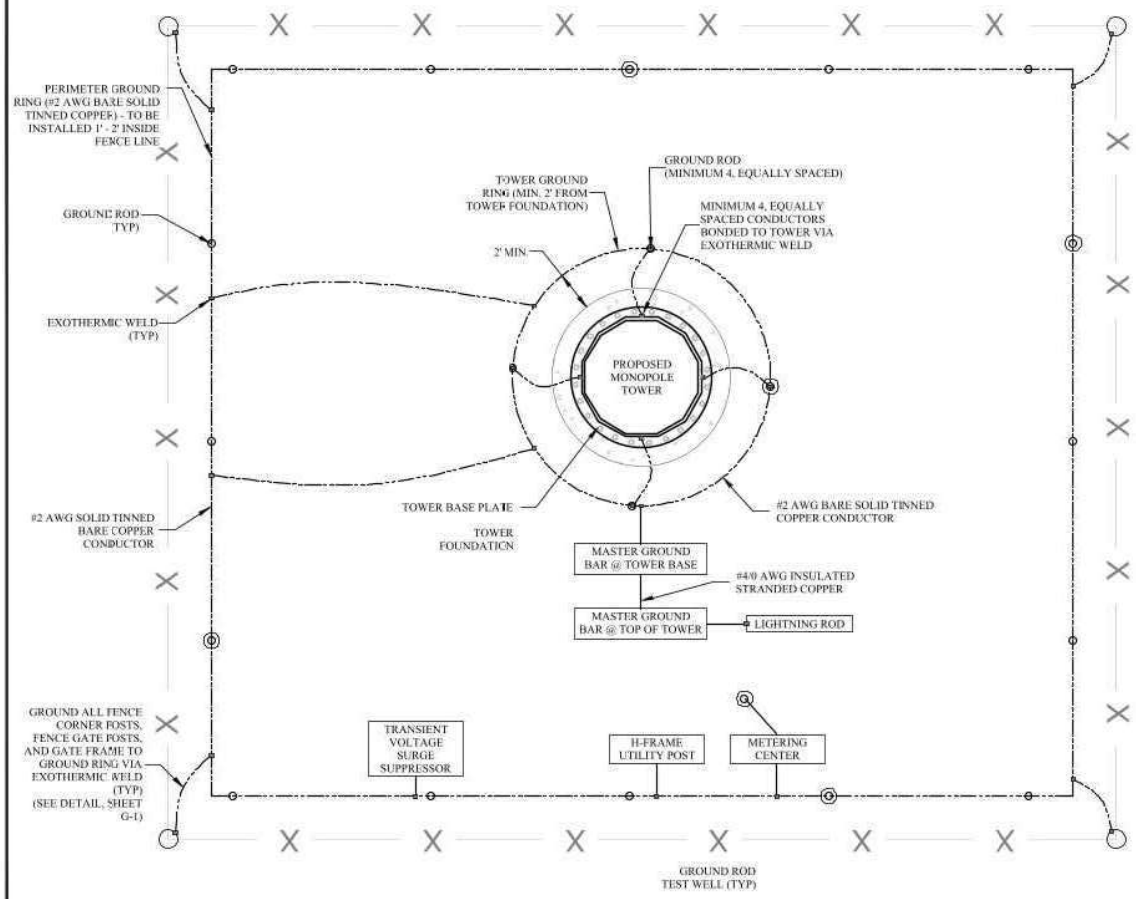
E-3

GROUNDING SINGLE LINE DIAGRAM
TYPICAL CONFIGURATION FOR MONOPOLES



NOTES:

1. ALL GROUNDING SYSTEM SCHEMATICS/DIAGRAMS ARE INTENDED TO REPRESENT TYPICAL INSTALLATION SCENARIOS. VARYING SITE CONDITIONS MAY REQUIRE MODIFICATION OF THE DETAILS PRESENTED HERLIN. ALL GROUNDING SYSTEM GUIDELINES AND COMPONENTS SHOULD ADHERE TO THE SPECIFICATIONS SET FORTH IN THE LATEST VERSION OF TIA-607 OR THE NATIONAL ELECTRIC CODE, WHICHEVER IS MORE STRINGENT.
2. SITE GROUNDING SYSTEM MUST ACHIEVE A RESISTANCE OF 5 OHMS OR LESS.
3. ALL GROUND RINGS SHALL BE INSTALLED AT A MINIMUM DEPTH OF 2.5-FT BELOW GRADE OR 6-INCHES BELOW THE FROST LINE, WHICHEVER IS GREATER.
4. ALL GROUND RODS SHALL BE INSTALLED TO A MINIMUM DEPTH OF 10-FT BELOW THE GROUND RING.
5. TOWER GROUND RING SHALL BE BONDED TO SHELTER/EQUIP PAD GROUND RING AND PERIMETER GROUND RING IN (2) LOCATIONS. SHELTER/EQUIPMENT PAD GROUND RING SHALL BEBONDED TO THE PERIMETER GROUND RING IN (2) LOCATIONS.
6. ALL SHELTER, EQUIPMENT PAD, AND TOWER FOUNDATIONS SHALL HAVE REBAR ELECTRICALLY CONNECTED TO THEIR ASSOCIATED GROUND RING (TOWER, SHELTER/EQUIP PAD) PER NEC 250.52(3)(A). FOUNDATION GROUNDING CONNECTIONS SHALL HAVE A MINIMUMCOVER OF 3" OF CONCRETE AND SHALL BE MADE TO A MINIMUM 6' LENGTH OF REBAR (20' IS PREFERABLE).
7. GROUND ALL CORNER FENCE POSTS, GATE POSTS, AND GATE FRAME TO THE GROUND RING VIA EXOTHERMIC WELD. GROUND ANY GATE POST WITHIN 6' OF A SHELTER/EQUIPMENT PAD OR 25-FT OF THE TOWER TO THE GROUND RING VIA EXOTHERMIC WELD.
8. FOR TOWERS NOT EXCEEDING 5-FT IN BASE WIDTH, A MINIMUM OF (2) GROUND RODS SHOULD BE INCLUDED IN THE TOWER GROUND RING, SPACED OPPOSITE EACH OTHER.
9. FOR SELF SUPPORT TOWERS EXCEEDING 5-FT IN BASE WIDTH, A MINIMUM OF ONE GROUND ROD PER TOWER LEG SHOULD BE INCLUDED IN THE TOWER GROUND RING.
10. FOR MONOPOLES EXCEEDING 5-FT IN BASE WIDTH, THE GROUND RING SHOULD INCLUDE (4) GROUND RODS, EQUALLY SPACED; THERE SHOULD ALSO BE (4) BONDING CONDUCTORS CONNECTED TO THE MONOPOLE TOWER, EQUALLY SPACED.
11. BOND PROPANE TANK(S), GENERATOR(S), AND ALL MISCELLANEOUS METALLIC EQUIPMENT TO THE SITE GROUNDING SYSTEM.
12. GROUND ALL EXPOSED METALLIC OBJECTS ON THE BUILDING/SHELTER EXTERIOR.
13. ALL CONDUITS CROSSING THE GROUND RING CONDUCTOR SHALL BE BONDED TO THE GROUND CONDUCTOR USING A PIPE CLAMP. DO NOT EXOTHERMICALLY WELD TO CONDUIT.
14. GROUNDING CONDUCTORS SHALL NOT HAVE A RADIUS LESS THAN 8" OR AN ANGLE OF BEND LESS THAN 90 DEGREES.
15. ALL BONDING CONNECTIONS SHALL BE MADE VIA EXOTHERMIC WELDING OR LISTED IRREVERSIBLE COMPRESSION OR MECHANICAL CONNECTORS. ALL BELOW GRADE CONNECTIONS SHOULD BE MADE VIA EXOTHERMIC WELD.
16. ALL ABOVE GRADE CONNECTIONS EXTENDING BENEATH THE GROUND SURFACE SHOULD BE ENCASED IN $\frac{1}{2}$" PVC FLEX CONDUIT THAT EXTENDS A MINIMUM 12" BELOW GRADE; ALL FLEX CONDUIT OPENINGS SHALL BE WEATHERPROOFED.
17. UNLESS OTHERWISE NOTED, ALL EXTERIOR GROUNDING CONDUCTORS, INCLUDING GROUND RINGS, SHALL BE #2 AWG SOLID BARE TINNED COPPER. CONFIGURE ALL GROUNDING CONNECTIONS AS SHORT AND STRAIGHT AS POSSIBLE. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
18. ALL GROUND MECHANICAL AND COMPRESSION CONNECTIONS SHALL BE COATED WITH ANTI-OXIDANT AGENT.
19. PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
20. ALL LUG CONNECTIONS SHALL BE 2 HOLE LONG BARREL COMPRESSION TYPE OR APPROVED EQUAL.
21. REMOVAL ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS. SURFACES SHOULD BE REPAINTED TO MATCH (AFTER CONNECTION IS MADE) TO MAINTAIN CORROSION RESISTANCE.
22. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZER.
23. WHERE MECHANICAL CONNECTORS ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND ON ALL CONNECTORS.
24. THE TOWER BASE GROUND BUSBAR SHALL BE INSTALLED BELOW THE TRANSMISSION LINE GROUND KITS, NEAR THE AREA OF THE TOWER WHERE THE ANTENNA TRANSMISSION LINES TRANSITION FROM THE TOWER TO THE EQUIPMENT/ICE BRIDGE.
25. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUND RING IS INSTALLED SO THAT IT CAN BE INSPECTED PRIOR TO BACKFILL.

PREPARED FOR:

RMT

ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

PREPARED BY:

DELTA OAKS GROUP

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DocuSigned by:

Professional Engineer
JOSEPH V. BORRELLI, JR.
14561
Date 6/6/2025
WYOMING

DRAWN BY:	GSB
CHECKED BY:	WRB
PROJECT NO:	25-23808

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6/5/25	PRELIMINARY	D	GSB

SITE NAME:
POWDERHOUSE MOUNTAIN

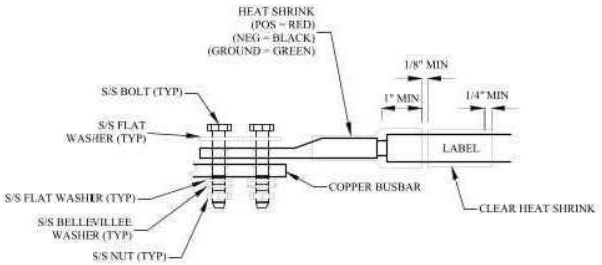
SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
GROUNDING PLAN

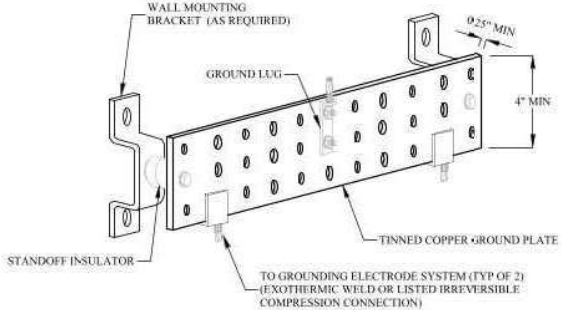
SHEET NUMBER
G-1

GROUND LUG DETAIL



NOTES:
1. ALL GROUNDING SYSTEM COMPONENTS SHOULD ADHERE TO THE APPLICABLE SECTIONS OF THE MOTOROLA R56 "STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES", 2017 REV OR THE NATIONAL ELECTRIC CODE, WHICHEVER IS MORE STRINGENT

EXTERIOR GROUND BUSBAR

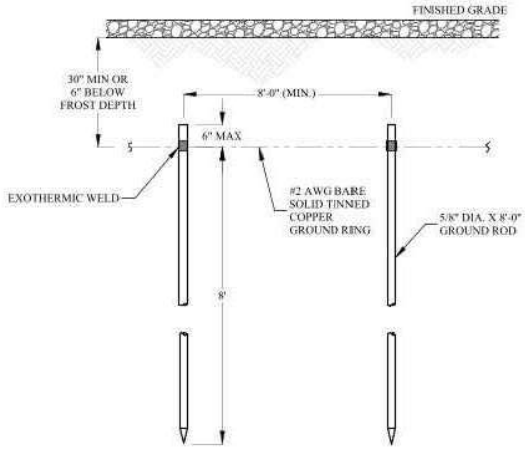


NOTES:
ALL BUSBARS
1. ALL GROUNDING SYSTEM COMPONENTS SHOULD ADHERE TO THE SPECIFICATIONS SET FORTH IN THE LATEST VERSION OF TIA-607 OR THE NATIONAL ELECTRIC CODE, WHICHEVER IS MORE STRINGENT
2. GROUNDING CONDUCTORS SHALL NOT HAVE A RADIUS LESS THAN 8" OR AN ANGLE OF BEND LESS THAN 90 DEGREES.
3. WHEN MOUNTED ON WALLS OR OTHER SOLID SURFACES, GROUND BUSBAR(S) SHALL HAVE A MINIMUM 2" SEPARATION FROM THE SURFACE TO WHICH IT IS MOUNTED TO ALLOW ACCESS TO THE REAR OF THE BAR.
4. SHOULD BE CONNECTED DIRECTLY TO THE GROUNDING ELECTRODE SYSTEM VIA EXOTHERMIC WELD OR LISTED IRREVERSIBLE COMPRESSION CONNECTION. ALL BONDING CONNECTIONS SHALL BE MADE VIA EXOTHERMIC WELDING OR LISTED IRREVERSIBLE COMPRESSION OR MECHANICAL CONNECTORS. MECHANICAL AND COMPRESSION CONNECTORS SHOULD ONLY BE USED ABOVE GROUND.

EXTERNAL SHELTER/EQUIPMENT BUSBAR
5. SHALL BE CONNECTED DIRECTLY TO THE GROUNDING ELECTRODE SYSTEM VIA NO. 2 AWG OR LARGER BARE, SOLID, TINNED COPPER CONDUCTOR.

TOWER BUSBAR
6. SHALL BE DIRECTLY BONDED TO THE TOWER.
7. SHALL BE INSTALLED AT THE TOP AND BOTTOM OF THE TOWER; WHEN TOWER IS GREATER THAN 200-FT IN HEIGHT, BUSBARS SHALL BE INSTALLED EVERY 50-FT AND BONDED TO THE TOWER AND TRANSMISSION LINE CABLE SHIELDS
8. SHALL BE CONNECTED DIRECTLY TO THE GROUNDING ELECTRODE SYSTEM VIA #2 AWG OR LARGER BARE, SOLID, TINNED COPPER CONDUCTER.

GROUND ROD DETAIL



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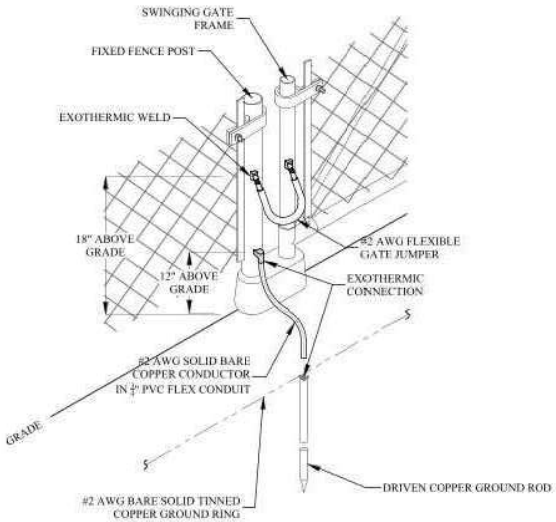
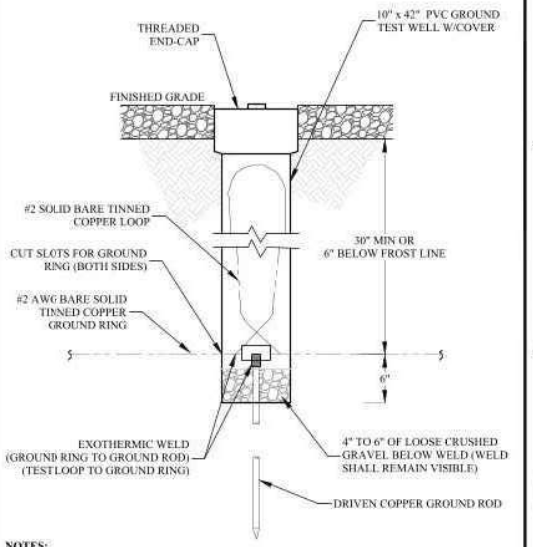
2. GROUND RODS SHALL BE LATERALLY SPACED NO CLOSER THAN A DISTANCE EQUAL TO THEIR LENGTH, BUT NO GREATER THAN TWICE THEIR LENGTH
3. GROUND RODS SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM VERTICAL
4. ALL BONDING CONNECTIONS SHALL BE MADE VIA EXOTHERMIC WELDING

GATE GROUNDING DETAIL



GROUND ROD TEST WELL DETAIL



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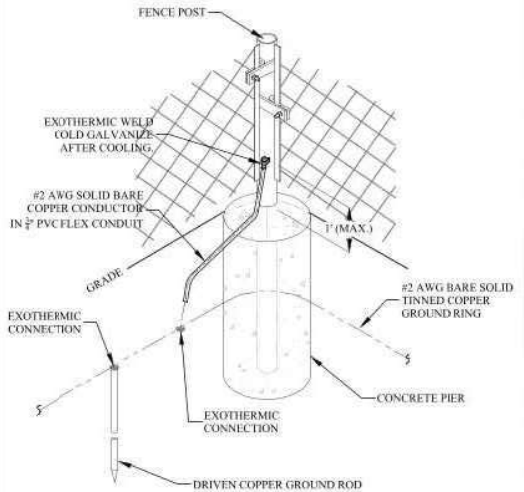
FENCE POST GROUNDING DETAIL



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PREPARED BY:
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Professional Engineer
JOSEPH V. BORRELLI, JR.
14561
Date 6/6/2025
WYOMING

DRAWN BY:	GSB
CHECKED BY:	WRB
PROJECT NO:	25-23808

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CHEYENNE, WY 82009

SITE ID:
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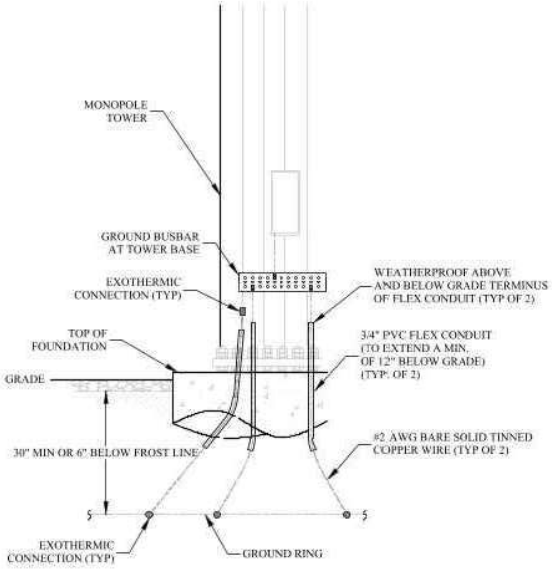
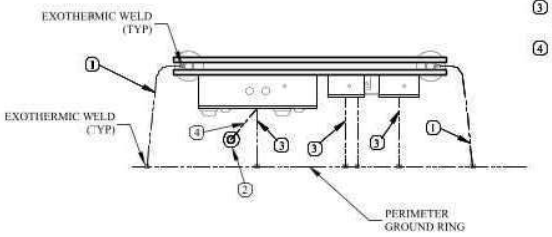
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

GROUNDING AT TOWER BASE



UTILITY RACK GROUNDING DIAGRAM



1. #2 AWG BARE SOLID TINNED COPPER CONDUCTOR FROM I-FRAME TO GROUND RING (TYP)
2. GROUND ROD AND TEST WELL (TYP)
3. #2 AWG BARE SOLID TINNED COPPER CONDUCTOR FROM ALL METAL CABINETS ON BACKBOARD TO GROUND RING (TYP)....GROUND RING CONNECTION EXOTHERMIC, METAL CABINET CONNECTION MECHANICAL
4. BOND #6 AWG INSULATED CONDUCTOR FROM METER PANEL AND DISCONNECT TO SEPARATE GROUND

NOTES:

1. EXACT LAYOUT AND COMPONENTS OF UTILITY RACK GROUNDING MAY CHANGE BASED ON OWNER/TENANT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO BID REGARDING POTENTIAL MODIFICATIONS.

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SITE ID:
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SHEET TITLE
GROUNDING DETAILS

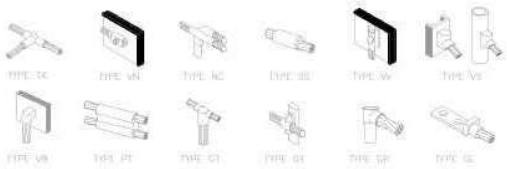
SHEET NUMBER
G-3

NOT USED

NOT USED

NOT USED

CADWELD GROUNDING CONNECTION DETAILS



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SHEET TITLE
GROUNDING DETAILS

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G-4

GENERAL NOTES

1. THE SCOPE OF WORK DEPICTED IN THIS PLANSET MUST BE COMPLETED UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE SUBSTANTIAL EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS PROJECT, THE CONTRACTOR IS CONFIRMING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY TO COMPLETE THE WORK, THAT HE IS KNOWLEDGEABLE OF THE SCOPE OF WORK TO BE PERFORMED AND THAT HE IS LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.

2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST VERSION OF THE LOCAL AND NATIONAL BUILDING CODE, WHICHEVER IS MORE STRINGENT.

3. SHOP DRAWINGS AND/OR MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS REGARDING ANY HARDWARE, INFRASTRUCTURE, OR MATERIALS SPECIFIED HEREIN SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING INFORMATION CONTAINED HEREIN.

4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS NOT PROVIDED BY OWNER. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PERMITS AS ISSUED AND ANY AND ALL APPLICABLESTATE, COUNTY, AND LOCAL CODES.

5. THE CONTRACTOR SHALL VERIFY ALL EXISTING TOPOGRAPHY, DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS ARE AS INDICATED ON THESE DRAWINGS. ADDITIONALLY, THE CONTRACTOR SHALL ESTABLISH THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND OWNER'S ENGINEER FOR RESOLUTION AND/OR MODIFICATION PRIOR TO COMMENCEMENT OF THE WORK.

6. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE REPLACED OR RESTORED TO THEIR ORIGINAL CONDITION OR BETTER, AND TO THE SATISFACTION OF THE OWNER OF THE IMPROVEMENTS

7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, AND/OR ANY OTHER REQUIREMENTS WHICH MUST BE MET TO FULFILL THE SCOPE OF WORK AS REPRESENTED IN THIS PLAN SET, OBTAIN A CERTIFICATE OF OCCUPANCY, OR OTHERWISE ALLOW FOR THE FULL INTENDED USE OF THE PROPOSED FACILITY

8. THESE PLANS/DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR ENGINEER SHALL NOT INCLUDE INSPECTION OF THE CONSTRUCTION PROCEDURES AND DOES NOT ALLEVIATE CONTRACTOR FROM THE FOREGOING. ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.

9. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE AND IMPLEMENT BOTH THE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE, ALL SURROUNDING INFRASTRUCTURE, WORKSPACE, EMPLOYEES, AND PUBLIC DURING ERECTION AND/OR MODIFICATIONS. THIS INCLUDES BUT IS NOT LIMITED TO TEMPORARY BRACING, GUYS, TIE DOWNS, OR OTHER SUPPORTS THAT MAY BE NECESSARY DURING CONSTRUCTION.

10. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTION MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION.

11. IF DEVIATIONS FROM THE DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEVIATION AND REASONS THEREOF SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR REVIEW. NO DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER AND/OR ENGINEER

12. THE CONTRACTOR MUST, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY HIM, HIS EMPLOYEES, OR HIS WORK. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS

13. CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS (INCLUDING THE GENERAL PUBLIC) AND PROPERTY (INCLUDING ADJOINING PROPERTIES). THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD THE OWNER AND DESIGN PROFESSIONAL HARMLESS OF ANY AND ALL LIABILITY REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR DESIGN PROFESSIONAL.

GENERAL NOTES (CONT.)

13. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WORK ASSOCIATED WITH THIS PROJECT COMPLIES WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY CODES AND OTHER REGULATIONS GOVERNING THE WORK.

14. ACCESS TO THE PROPOSED SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER OR THE OWNER'S REPRESENTATIVE REGARDING ALL CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIAL ACCESS.

EXISTING INFRASTRUCTURE

1. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN THE AREA OF ANY PROPOSED CONSTRUCTION OR PROPOSED DISTURBANCE DUE TO CONSTRUCTION. THE LOCATION OF ALL EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON THE PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COSTS LOCATE ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE, OTHER OBSTRUCTIONS OR FROM ANY DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES AND IS RESPONSIBLE FOR CONTACTING ALL NON-SUBSCRIBING UTILITIES. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS OR IF THERE APPEARS TO BE A CONFLICT BETWEEN EXISTING AND PROPOSED UTILITY LOCATIONS.

GRADING

1. CONTRACTOR IS TO CONTACT WASHINGTON 811, INC. AT 1-800-424-5555 FOR UNDERGROUND UTILITY LOCATION 48 HOURS PRIOR TO ANY GROUND DISTURBANCE.

2. ALL CONSTRUCTION AREAS ARE TO BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL, ORGANICS AND UNSUITABLE MATERIALS PRIOR TO GRADING AND IN ACCORDANCE WITH THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT.

3. EXCAVATIONS SHOULD BE SLOPED OR SHORED IN ACCORDANCE AND COMPLIANCE WITH OSHA 29 CFR PART 1926, EXCAVATION TRENCH SAFETY STANDARDS AS WELL AS LOCAL, STATE AND FEDERAL REGULATIONS.

4. ALL FILL PLACEMENT INCLUDING SUITABILITY OF FILL MATERIALS AND COMPACTION OF MATERIALS SHOULD BE CONDUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT. IN THE ABSENCE OF FILL SPECIFICATIONS, THE FOLLOWING MINIMUM REQUIREMENTS SHOULD BE ADHERED TO:

   4.1. FILL LIFT THICKNESS SHOULD NOT EXCEED 8 INCHES LOOSE WHEN COMPACTED WITH HEAVY COMPACTION EQUIPMENT OR 4 INCHES LOOSE WHEN COMPACTED WITH HAND OPERATED TAMPERS.

   4.2. FILL MATERIALS SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES OR SURFACES THAT CONTAIN ORGANIC MATERIAL, MUD, SNOW, ICE OR FROST

   4.3. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER OBJECTIONABLE MATERIALS THAT WOULD PREVENT THE CONSTRUCTION AND/OR COMPACTION OF SATISFACTORY FILLS. THIS INCLUDES SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS.

   4.4. ALL FILLS SHOULD BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE, OR OTHER RELATED PROBLEMS. ALL FILL AREAS WITHIN BUILDINGS OR OTHER STRUCTURES, TRAVEL/ACCESS ROUTES, PARKING AREAS AND EXTENDING 5-FT (MINIMUM) OUTSIDE OF THOSE AREAS' FOOTPRINT, SHOULD BE COMPACTED TO +/- 95% OF MAXIMUM DRY DENSITY OF THE MATERIAL AS OBTAINED BY THE STANDARD PROCTOR METHOD.

GRADING (CONT.)

5. THE CONTRACTOR SHALL REWORK ALL MATERIALS NOT SUITABLE FOR USE IN THEIR PRESENT STATE DUE TO MOISTURE CONTENT VARIATION. IF THE MATERIAL REMAINS UNSUITABLE AFTER INITIAL REWORKING, THE CONTRACTOR SHALL REMOVE AND REPLACE WITH NEW MATERIAL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT RECOMMENDATIONS.

6. IN THE ABSENCE OF A GEOTECHNICAL REPORT A GEOTECHNICAL ENGINEER SHOULD BE RETAINED TO PROVIDE SITE SPECIFIC RECOMMENDATIONS/OVERSIGHT.

7. DELTA OAKS GROUP MAKES NO CLAIMS TO THE SUITABILITY OF ANY ON-SITE MATERIALS FOR USE AS FILL TO SUPPORT ANY PROPOSED INFRASTRUCTURE.

8. SPOT ELEVATIONS REPRESENT FINISHED GRADE UNLESS OTHERWISE NOTED.

9. ALL TEMPORARY AND FINISHED GRADES MUST MAINTAIN ADEQUATE SURFACE DRAINAGE SO THAT RUN-OFF IS DIRECTED TO DEDICATED OFF-SITE AREAS OR TO ON-SITE COLLECTION POINTS SUCH AS SWALES, CATCH BASINS, DROP INLETS, CULVERTS, STORMWATER BMP'S, ETC TO PREVENT SURFACE PONDING, STANDING WATER, OR EXTENDED PERIODS OF SOIL SATURATION.

**DELTA OAKS GROUP MAKES NO CLAIM TO THE VALIDITY OF THESE RECOMMENDATIONS TO THE SITE'S SPECIFIC GEOTECHNICAL CONDITIONS AND STRONGLY RECOMMENDS A SITE-SPECIFIC GEOTECHNICAL INVESTIGATION BE PERFORMED. ANY AND ALL FILL RECOMMENDATIONS PRESENTED IN SUCH A REPORT WILL TAKE PRECEDENCE OVER THE INFORMATION PRESENTED HEREIN.*

CONSTRUCTION REQUIREMENTS

1. UPON ISSUANCE OF BID AWARD, CONTRACTOR WILL BE REQUIRED TO PROVIDE PROOF OF LICENSE TO PERFORM WORK IN APPLICABLE JURISDICTION

2. CONTRACTOR WILL PROVIDE A CONSTRUCTION SCHEDULE PRIOR TO COMMENCEMENT OF CONSTRUCTION. SCHEDULE SHALL BE UPDATED IMMEDIATELY AND SUBMITTED TO OWNER IN EVENT OF DELAYS OR REQUIRED TIME EXTENSTIONS. ALL DELAYS AND/OR TIME EXTENSIONS WILL BE ACCOMPANIED BY EXPLANATIONS FOR EACH OCCURRENCE.

3. DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE OWNER OR OWNER'S REPRESENTATIVE WITH PHOTOGRAPHS OF MAJOR CONSTRUCTION MILESTONES AS THEY OCCUR.

4. CONTRACTOR OR CONTRACTOR'S REPRESENTATIVE SHALL BE PREPARED TO ATTEND WEEKLY CONFERENCE CALLS WHERE SPECIFIC DETAILS, INCLUDING PROGRESS REPORTS, UNFORESEEN SITE CONDITIONS, SCHEDULE CHANGES, SAFETY CONCERNS, ETC. REGARDING THE SITE WILL BE DISCUSSED.

5. CONTRACTOR WILL UTILIZE, ADHERE TO, AND SUBMIT (AS REQUIRED) ALL OWNER PROVIDED DOCUMENTATION.

6. CONTRACTOR IS RESPONSIBLE FOR CONDUCTION OF ALL CONCRETE COMPRESSIVE STRENGTH TESTING (INCLUDING THE SUBMITTAL OF FINAL TESTING RESULTS AND CLOSE-OUT BOOK)

7. CONTRACTOR IS RESPONSIBLE FOR ALL GRADING AND FILL COMPACTION TESTING REQUIRED AS SET FORTH IN THE GEOTECHNICAL REPORT PROVIDED BY OWNER.

8. CONTRACTOR IS RESPONSIBLE FOR GROUND MEG TESTING.

9. CONTRACTOR SHALL ASSIST IN COORDINATING AND OBTAINING PRIMARY POWER TO THE SITE PRIOR TO TOWER ERECTION. CONTRACTOR SHALL ALSO ASSIST IN COORDINATING AND OBTAINING TELCO/FIBER SERVICE PRIOR TO PROJECT COMPLETION (ON SITE VISITS WITH UTILITY COMPANY REPRESENTATIVES AS NECESSARY).

10. CONTRACTOR SHOULD BE PREPARED FOR RANDOM SAFETY INSPECTIONS AT ALL TIMES.

11. CONTRACTOR IS EXPECTED TO MAINTAIN PROPER WORKING CONDITIONS AND PROCEDURES PER OSHA STANDARDS AT ALL TIMES.

12. CONTRACTOR WILL BE REQUIRED TO OBTAIN ALL NECESSARY CONSTRUCTION AND/OR CLOSE-OUT RELATED PERMITS, INCLUDING ELECTRICAL PERMITS AND INSPECTIONS, CERTIFICATES OF OCCUPANCY, ETC. AS REQUIRED BY JURISDICTION.

13. CONTRACTOR IS EXPECTED TO CLOSE-OUT THE JOB SITE AS QUICKLY AS POSSIBLE (OBTAINING A CERTIFICATE OF OCCUPANCY AND GETTING OWNER'S SIGN-OFF ON THE SITE).

14. CONTRACTOR WILL PROVIDE A COMPLETED TOWER HEIGHT VERIFICATION FORM AND TAPE DROP WITHIN 24 HOURS OF REACHING OVERALL HEIGHT.

PREPARED FOR:

ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

PREPARED BY:

DELTA OAKS GROUP
2724 DISCOVERY DRIVE, STE 110 & 120
RALEIGH, NC 27616
PHONE: (919) 342-8247
WWW.DELTAOAKSGROUP.COM

DocuSigned by:

Professional Engineer
JOSEPH V. BORRELLI, JR.
14561
Date 6/6/2025
WYOMING

DRAWN BY:	GSB
CHECKED BY:	WRB
PROJECT NO:	25-23808

SUBMITTALS

DATE	DESCRIPTION	REV	ISSUED BY
3/19/25	PRELIMINARY	A	GSB
4/2/25	PRELIMINARY	B	GSB
4/3/25	PRELIMINARY	C	GSB
6/5/25	PRELIMINARY	D	GSB

SITE NAME:
POWDERHOUSE MOUNTAIN

SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

Sabre Industries™
INNOVATION DELIVERED

Structural Design Report

150' Monopole

Site: [redacted]

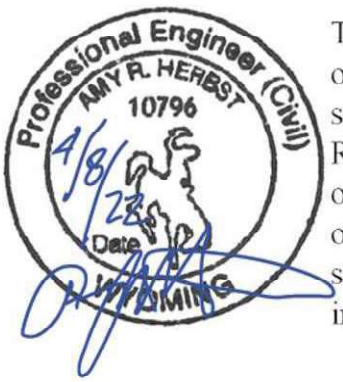
Site Number: [redacted]

Prepared for: [redacted]

by: Sabre Industries ™

Job Number: [redacted]

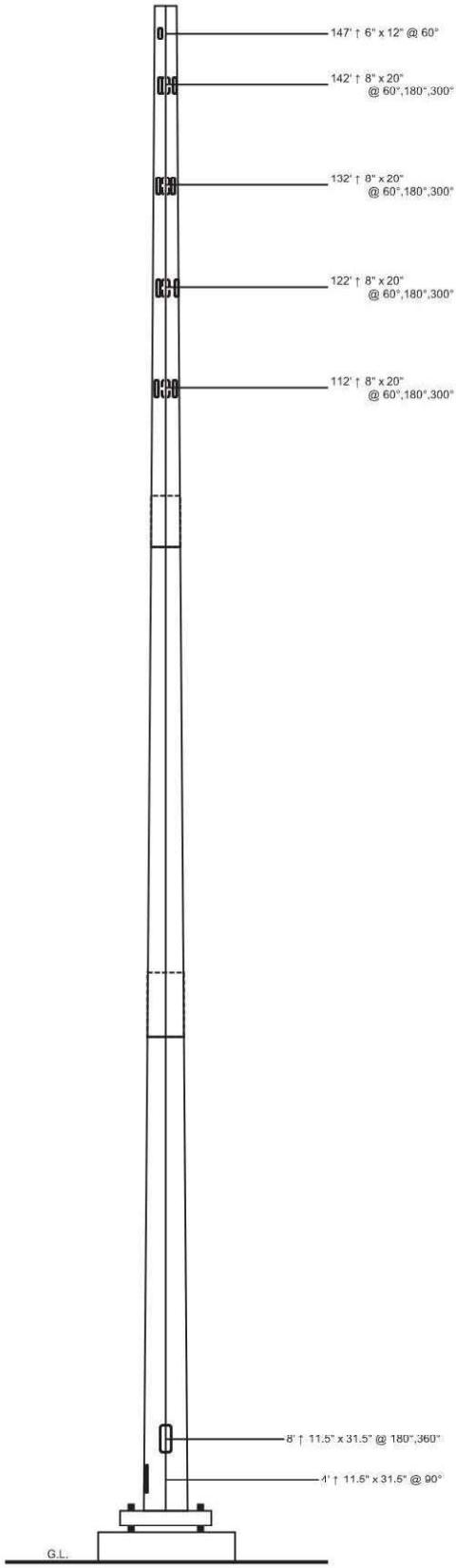
April 8, 2022



This document was originally issued and sealed by Amy R. Herbst, Registration No. 10796, on 4/8/2022 and the original document is stored at Sabre Industries in Sioux City, IA.

Digitally Signed By Amy R. Herbst
DN: c=US, st=Texas, l=Alvarado, o=SABRE INDUSTRIES, INC., cn=Amy R. Herbst, email=arherbst@sabreindustries.com Date: 2022.04.08 12:43:54

Length: (ft)	53'-3"	53'-6"	53'-6"	53'-6"
Number Of Sides		18		
Thickness: (in)	7/16"	3/8"	1/4"	
Lap Splice (ft)		6' - 3"	5' - 0"	
Top Diameter (in)	42.44"	33.47"	24"	
Bottom Diameter (in)	53.38"	44.47"	35"	
Taper (in/ft)		0.2056		
Grade		A572-65		
Weight: (lbs)	14313	8873	5139	
Overall Steel Height (ft)		149		



Designed Appurtenance Loading

Elev	Description	Tx-Line
145	(1) 250 Sq. Ft. EPA (8000 lbs)	(18) 1 5/8"
135	(1) 250 Sq. Ft. EPA (8000 lbs)	(18) 1 5/8"
125	(1) 200 sq. ft. EPA, 7,000 lb Weight	(12) 1 5/8"
115	(1) 200 sq. ft. EPA, 7,000 lb Weight	(12) 1 5/8"

Design Criteria - ANSI/TIA-222-H

Wind Speed (No Ice)	108 mph
Wind Speed (Ice)	50 mph
Design Ice Thickness	0.25 in
Risk Category	II
Exposure Category	C
Topographic Factor Procedure	Method 1 (Simplified)
Topographic Category	1
Ground Elevation	5289 ft
Seismic Importance Factor, Ie	1.00
0.2-sec Spectral Response, Ss	0.311 g
1-sec Spectral Response, S1	0.072 g
Site Class	D (DEFAULT)
Seismic Design Category	B
Basic Seismic Force-Resisting System	Telecommunication Tower (Pole: Steel)

Limit State Load Combination Reactions

Load Combination	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
1.2 D + 1.0 Wo	75.48	40.45	5211.75	12.2	8.51
0.9 D + 1.0 Wo	56.62	40.35	5062.63	11.76	8.18
1.2 D + 1.0 Ev + 1.0 Eh	79.54	1.89	268.22	0.66	0.46
0.9 D - 1.0 Ev + 1.0 Eh	52.56	1.88	256.89	0.63	0.44
1.0 D + 1.0 Wo (Service @ 60 mph)	62.96	11.18	1424.73	3.38	2.33

Base Plate Dimensions

Shape	Diameter	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Round	66"	2.25"	60.25"	18	2.25"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
84"	2.25"	2.625"	2179.8	A615-75	Galv

Notes

1) Antenna Feed Lines Run Inside Pole
2) All dimensions are above ground level, unless otherwise specified.
3) Weights shown are estimates. Final weights may vary.
4) Full Height Step Bolts
5) This tower design and, if applicable, the foundation design(s) shown on the following page(s) also meet or exceed the requirements of the 2021 International Building Code.
6) Tower Rating: 97.9%

Sabre Industries
INNOVATION DELIVERED

Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Job:	
Customer:	[redacted]
Site Name:	
Description:	150' Monopole
Date:	4/8/2022 By: DO

150' Monopole / Casper 1, WY

* All pole diameters shown on the following pages are across corners.
See profile drawing for widths across flats.

POLE GEOMETRY

ELEV ft	SECTION NAME	No. SIDE	OUTSIDE DIAM in	THICK -NESS in	RESISTANCES ϕ*Pn kip	ϕ*Mn ft-kip	SPLICE TYPE	...OVERLAP... LENGTH ft	RATIO	w/t
149.0										
			24.37	0.250	1400.1	682.2				
	A	18								15.7
			34.49	0.250	1798.0	1247.4				
100.5										
			34.49	0.250	1798.0	1247.4				
	A/B	18					SLIP	5.00	1.74	
			35.04	0.375	3018.3	2112.7				
95.5										
			35.04	0.375	3018.3	2112.7				
	B	18								15.3
			43.84	0.375	3605.0	3170.9				
53.2										
			43.84	0.375	3605.0	3170.9				
	B/C	18					SLIP	6.25	1.71	
			44.41	0.438	4419.3	3927.0				
47.0										
			44.41	0.438	4419.3	3927.0				
	C	18								16.8
			54.21	0.438	5101.8	5554.1				
0.0										

POLE ASSEMBLY

SECTION NAME	BASE ELEV ft	.....BOLTS AT BASE OF SECTION..... NUMBER	TYPE	DIAM in	STRENGTH ksi	THREADS IN SHEAR PLANE	CALC BASE ELEV ft
A	95.500	0	A325	0.00	92.0	0	95.500
B	47.000	0	A325	0.00	92.0	0	47.000
C	0.000	0	A325	0.00	92.0	0	0.000

POLE SECTIONS

SECTION NAME	No.of SIDES	LENGTH ft	OUTSIDE.DIAMETER BOT * in	TOP * in	BEND RAD in	MAT-ERIAL ID	FLANGE.ID BOT	TOP	FLANGE.WELD ..GROUP.ID.. BOT	TOP
A	18	53.50	35.54	24.37	0.625	1	0	0	0	0
B	18	53.50	45.16	33.99	0.625	2	0	0	0	0
C	18	53.25	54.21	43.09	0.625	3	0	0	0	0

* - Diameter of circumscribed circle

MATERIAL TYPES

TYPE OF SHAPE	TYPE NO	NO OF ELEM.	ORIENT	HEIGHT	WIDTH	.THICKNESS. WEB	FLANGE	IRREGULARITY .PROJECTION. % OF AREA	ORIENT

			& deg	in	in	in	in		deg
PL		1	1	0.0	35.54	0.25	0.250	0.250	0.00	0.0
PL		2	1	0.0	45.16	0.38	0.375	0.375	0.00	0.0
PL		3	1	0.0	54.21	0.44	0.438	0.438	0.00	0.0

& - With respect to vertical

MATERIAL PROPERTIES

MATERIAL TYPE NO.	ELASTIC MODULUS ksi	UNIT WEIGHT pcf	.. STRENGTH .. Fu ksi	Fy ksi	THERMAL COEFFICIENT /deg
1	29000.0	490.0	80.0	65.0	0.00001170
2	29000.0	490.0	80.0	65.0	0.00001170
3	29000.0	490.0	80.0	65.0	0.00001170

* Only 4 condition(s) shown in full
* Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

108 mph wind with no ice. Wind Azimuth: 0◆ (1.2 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	145.000	0.00	0.0	0.0	0.0257	0.0168	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.0000	3.2348	0.0000	0.0000
C	144.000	0.00	0.0	0.0	8.8578	9.6366	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0254	0.0168	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.0000	3.0102	0.0000	0.0000
C	134.000	0.00	0.0	0.0	8.7255	9.6366	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0250	0.0168	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	1.8570	0.0000	0.0000
C	124.000	0.00	0.0	0.0	6.8358	8.4000	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0245	0.0168	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	1.7073	0.0000	0.0000
C	114.000	0.00	0.0	0.0	6.7168	8.4000	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0241	0.0168	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0235	0.0168	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0230	0.0168	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0224	0.0168	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0217	0.0168	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0210	0.0168	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0201	0.0168	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0191	0.0168	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0178	0.0168	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0160	0.0168	0.0000	0.0000
D	149.000	0.00	180.0	0.0	0.0480	0.0825	0.0000	0.0000
D	132.833	0.00	180.0	0.0	0.0480	0.0825	0.0000	0.0000
D	132.833	0.00	180.0	0.0	0.0529	0.0931	0.0000	0.0000
D	116.667	0.00	180.0	0.0	0.0529	0.0931	0.0000	0.0000
D	116.667	0.00	180.0	0.0	0.0573	0.1038	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0573	0.1038	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0598	0.2744	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0598	0.2744	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0610	0.1730	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0610	0.1730	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0636	0.1870	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0636	0.1870	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0655	0.2009	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0655	0.2009	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0662	0.4530	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0662	0.4530	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0651	0.2525	0.0000	0.0000
D	35.250	0.00	180.0	0.0	0.0651	0.2525	0.0000	0.0000

D	35.250	0.00	180.0	0.0	0.0634	0.2660	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0603	0.2932	0.0000	0.0000

LOADING CONDITION M

108 mph wind with no ice. Wind Azimuth: 0◆ (0.9 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	145.000	0.00	0.0	0.0	0.0257	0.0126	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.0000	2.4261	0.0000	0.0000
C	144.000	0.00	0.0	0.0	8.8578	7.2274	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0254	0.0126	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.0000	2.2576	0.0000	0.0000
C	134.000	0.00	0.0	0.0	8.7255	7.2274	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0250	0.0126	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	1.3928	0.0000	0.0000
C	124.000	0.00	0.0	0.0	6.8358	6.3000	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0245	0.0126	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	1.2804	0.0000	0.0000
C	114.000	0.00	0.0	0.0	6.7168	6.3000	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0241	0.0126	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0235	0.0126	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0230	0.0126	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0224	0.0126	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0217	0.0126	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0210	0.0126	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0201	0.0126	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0191	0.0126	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0178	0.0126	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0160	0.0126	0.0000	0.0000
D	149.000	0.00	180.0	0.0	0.0481	0.0618	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0573	0.0779	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0598	0.2058	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0598	0.2058	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0610	0.1298	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0610	0.1298	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0636	0.1402	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0636	0.1402	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0655	0.1507	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0655	0.1507	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0662	0.3398	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0662	0.3398	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0651	0.1893	0.0000	0.0000
D	35.250	0.00	180.0	0.0	0.0651	0.1893	0.0000	0.0000
D	35.250	0.00	180.0	0.0	0.0634	0.1995	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0603	0.2199	0.0000	0.0000

LOADING CONDITION Y

Seismic - Azimuth: 0◆ (1.2 D + 1.0 Ev + 1.0 Eh)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	145.000	0.00	0.0	0.0	0.0007	0.0177	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.1368	3.4084	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.4076	10.1538	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0006	0.0177	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.1103	3.1717	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.3530	10.1538	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0005	0.0177	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0582	1.9567	0.0000	0.0000

C	124.000	0.00	0.0	0.0	0.2635	8.8508	0.0000	0.0000
C	122.250	0.00	0.0	0.0	0.1541	5.3277	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0005	0.0177	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0453	1.7988	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.2227	8.8508	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0004	0.0177	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0003	0.0177	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0002	0.0177	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0002	0.0177	0.0000	0.0000
C	73.750	0.00	0.0	0.0	0.1111	10.5502	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0001	0.0177	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0001	0.0177	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0001	0.0177	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0000	0.0177	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0207	15.0653	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0000	0.0177	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0000	0.0177	0.0000	0.0000
D	149.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000

LOADING CONDITION Z

Seismic - Azimuth: 0◆ (0.9 D - 1.0 Ev + 1.0 Eh)

LOADS ON POLE

LOAD TYPE	ELEV	APPLY..LOAD..AT RADIUS	AZI	LOAD AZI	.....FORCES..... HORIZ	DOWN	.....MOMENTS..... VERTICAL	TORSNAL
	ft	ft			kip	kip	ft-kip	ft-kip
C	145.000	0.00	0.0	0.0	0.0007	0.0117	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.1368	2.2525	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.4076	6.7102	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0006	0.0117	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.1103	2.0962	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.3530	6.7102	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0005	0.0117	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0582	1.2931	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.2635	5.8492	0.0000	0.0000
C	122.250	0.00	0.0	0.0	0.1541	3.5208	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0005	0.0117	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0453	1.1888	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.2227	5.8492	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0004	0.0117	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0003	0.0117	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0002	0.0117	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0002	0.0117	0.0000	0.0000
C	73.750	0.00	0.0	0.0	0.1111	6.9722	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0001	0.0117	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0001	0.0117	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0001	0.0117	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0000	0.0117	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0207	9.9562	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0000	0.0117	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0000	0.0117	0.0000	0.0000
D	149.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

MAST ELEV ft	DEFLECTIONS (ft) HORIZONTAL ALONG	HORIZONTAL ACROSS	DOWN	ROTATIONS (deg) TILT ALONG	TILT ACROSS	TWIST
149.0	12.20I	-0.02C	1.35C	8.51I	-0.01C	0.00L
132.8	9.86I	-0.01C	1.01C	8.40I	-0.01C	0.00L
116.7	7.61I	-0.01C	0.69C	7.79I	-0.01C	0.00L
100.5	5.60I	-0.01C	0.43C	6.62I	-0.01C	0.00L
95.5	5.04I	-0.01C	0.37C	6.33I	-0.01C	0.00L
81.4	3.62I	-0.01C	0.22C	5.36I	-0.01C	0.00L
67.3	2.43I	0.00C	0.12C	4.34I	-0.01C	0.00L
53.2	1.50I	0.00C	0.06C	3.30I	-0.01C	0.00L
47.0	1.16I	0.00C	0.04C	2.91I	-0.01C	0.00L
35.2	0.64I	0.00C	0.02C	2.14I	0.00C	0.00L
23.5	0.28I	0.00C	0.01C	1.40I	0.00C	0.00L
11.7	0.07I	0.00C	0.00C	0.68I	0.00C	0.00L
0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A

MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)

MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t.WIND.DIR ALONG kip	SHEAR.w.r.t.WIND.DIR ACROSS kip	MOMENT.w.r.t.WIND.DIR ALONG ft-kip	MOMENT.w.r.t.WIND.DIR ACROSS ft-kip	TORSION ft-kip
149.0	0.01 P	0.00 E	0.00 E	0.01 I	-0.01 E	0.00 E
	26.92 Y	18.43 U	0.00 E	-137.70 C	0.02 L	-0.02 F
132.8	26.92 Y	18.43 O	0.00 O	-137.70 C	0.03 L	-0.02 F
	43.08 Y	26.14 O	0.00 O	-557.91 L	0.11 L	-0.07 F
116.7	43.08 Y	26.14 N	0.01 X	-557.90 L	0.11 L	-0.07 F
	53.76 Y	33.80 D	0.01 X	-1166.74 D	-0.22 X	-0.14 F
100.5	53.76 Y	33.91 X	0.06 R	-1166.82 K	-0.30 X	-0.15 E
	53.76 Y	34.21 X	0.06 R	-1362.86 D	0.24 K	-0.16 F
95.5	53.76 Y	34.23 I	-0.09 H	-1362.86 B	0.25 K	-0.17 F
	54.29 D	35.14 I	-0.09 H	-1921.09 I	1.26 H	0.29 L
81.4	54.27 D	35.15 I	-0.11 C	-1921.09 I	1.25 H	0.29 L
	64.36 Y	36.07 I	-0.11 C	-2484.71 I	2.75 C	0.45 L
67.3	64.36 Y	36.06 I	-0.12 C	-2484.71 I	2.75 C	0.45 L
	64.40 Y	37.03 I	-0.12 C	-3051.44 I	4.47 C	0.57 L
53.2	64.40 Y	37.03 I	-0.10 Q	-3051.41 I	4.46 C	0.57 L
	64.40 Y	37.44 I	-0.10 Q	-3304.08 I	5.07 C	0.61 L
47.0	64.40 Y	37.44 I	-0.12 H	-3304.07 I	5.04 C	0.61 L
	65.58 D	38.23 I	-0.12 H	-3780.78 I	6.29 C	0.68 L
35.2						

	65.58 F	38.22 I	-0.12 H	-3780.78 I	6.28 C	0.68 L
	79.52 Y	38.99 I	-0.12 H	-4258.24 I	7.47 C	0.73 L
23.5						
	79.52 Y	38.99 I	-0.11 Q	-4258.22 I	7.47 C	0.73 L
	79.54 Y	39.74 I	-0.11 Q	-4735.54 I	8.69 C	0.75 L
11.7						
	79.54 Y	39.74 I	-0.11 Q	-4735.53 I	8.69 C	0.75 L
	79.54 Y	40.45 I	-0.11 Q	-5211.75 I	9.91 C	0.76 L
base reaction	79.54 Y	-40.45 I	0.11 Q	5211.75 I	-9.91 C	-0.76 L

COMPLIANCE WITH 4.8.2 & 4.5.4

ELEV ft	AXIAL	BENDING	SHEAR + TORSIONAL	TOTAL	SATISFIED	D/t(w/t)	MAX ALLOWED
149.00							
	0.00P	0.00I	0.00E	0.00I	YES	15.69A	45.2
	0.02Y	0.16C	0.02U	0.18C	YES	18.04A	45.2
132.83							
	0.02Y	0.16C	0.02O	0.18C	YES	18.04A	45.2
	0.03Y	0.53L	0.03O	0.56L	YES	20.38A	45.2
116.67							
	0.03Y	0.53L	0.03N	0.55L	YES	20.38A	45.2
	0.03Y	0.94D	0.04D	0.96D	YES	22.73A	45.2
100.50							
	0.02Y	0.57K	0.02X	0.59K	YES	15.03A	45.2
	0.02Y	0.63D	0.02X	0.64D	YES	15.52A	45.2
95.50							
	0.02Y	0.65B	0.02I	0.66B	YES	15.28A	45.2
	0.02D	0.78I	0.02I	0.80I	YES	16.64A	45.2
81.42							
	0.02D	0.78I	0.02I	0.80I	YES	16.64A	45.2
	0.02Y	0.88I	0.02I	0.90I	YES	18.00A	45.2
67.33							
	0.02Y	0.88I	0.02I	0.90I	YES	18.00A	45.2
	0.02Y	0.96I	0.02I	0.98I	YES	19.37A	45.2
53.25							
	0.01Y	0.79I	0.02I	0.81I	YES	16.55A	45.2
	0.01Y	0.82I	0.02I	0.83I	YES	17.07A	45.2
47.00							
	0.01Y	0.84I	0.02I	0.86I	YES	16.77A	45.2
	0.01D	0.88I	0.02I	0.89I	YES	17.74A	45.2
35.25							
	0.01F	0.88I	0.02I	0.89I	YES	17.74A	45.2
	0.02Y	0.90I	0.02I	0.92I	YES	18.71A	45.2
23.50							
	0.02Y	0.90I	0.02I	0.92I	YES	18.71A	45.2
	0.02Y	0.92I	0.02I	0.94I	YES	19.69A	45.2
11.75							
	0.02Y	0.92I	0.02I	0.94I	YES	19.69A	45.2
	0.02Y	0.94I	0.02I	0.95I	YES	20.66A	45.2
0.00							

MAXIMUM LOADS ONTO FOUNDATION(w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR ALONG	ACROSS	MOMENT.w.r.t.WIND.DIR ALONG	ACROSS	TORSION
kip	kip	kip	ft-kip	ft-kip	ft-kip

79.54	40.45	-0.11	-5211.75	9.91	0.76
Y	I	Q	I	C	L

150' Monopole / Casper 1, WY

****
********** Service Load Condition **********
****

* Only 1 condition(s) shown in full
* Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

60 mph wind with no ice. Wind Azimuth: 0♦ (1.0 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	145.000	0.00	0.0	0.0	0.0071	0.0140	0.0000	0.0000
C	144.000	0.00	0.0	0.0	0.0000	2.6957	0.0000	0.0000
C	144.000	0.00	0.0	0.0	2.4461	8.0305	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0070	0.0140	0.0000	0.0000
C	134.000	0.00	0.0	0.0	0.0000	2.5085	0.0000	0.0000
C	134.000	0.00	0.0	0.0	2.4096	8.0305	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0069	0.0140	0.0000	0.0000
C	124.000	0.00	0.0	0.0	0.0000	1.5475	0.0000	0.0000
C	124.000	0.00	0.0	0.0	1.8877	7.0000	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0068	0.0140	0.0000	0.0000
C	114.000	0.00	0.0	0.0	0.0000	1.4227	0.0000	0.0000
C	114.000	0.00	0.0	0.0	1.8549	7.0000	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0066	0.0140	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0065	0.0140	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0064	0.0140	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0062	0.0140	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0060	0.0140	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0058	0.0140	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0056	0.0140	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0053	0.0140	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0049	0.0140	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0044	0.0140	0.0000	0.0000
D	149.000	0.00	180.0	0.0	0.0133	0.0687	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0158	0.0865	0.0000	0.0000
D	100.500	0.00	180.0	0.0	0.0165	0.2287	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0165	0.2287	0.0000	0.0000
D	95.500	0.00	180.0	0.0	0.0169	0.1442	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0169	0.1442	0.0000	0.0000
D	81.417	0.00	180.0	0.0	0.0176	0.1558	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0176	0.1558	0.0000	0.0000
D	67.333	0.00	180.0	0.0	0.0181	0.1674	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0181	0.1674	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0183	0.3775	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0183	0.3775	0.0000	0.0000
D	47.000	0.00	180.0	0.0	0.0180	0.2104	0.0000	0.0000
D	35.250	0.00	180.0	0.0	0.0180	0.2104	0.0000	0.0000
D	35.250	0.00	180.0	0.0	0.0175	0.2217	0.0000	0.0000

D	0.000	0.00	180.0	0.0	0.0167	0.2443	0.0000	0.0000

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

MAST ELEV ft	DEFLECTIONS (ft) HORIZONTAL ALONG	DEFLECTIONS (ft) HORIZONTAL ACROSS	DEFLECTIONS (ft) DOWN	ROTATIONS (deg) TILT ALONG	ROTATIONS (deg) TILT ACROSS	ROTATIONS (deg) TWIST
149.0	3.38I	0.00I	0.11A	2.33I	0.00I	0.00K
132.8	2.73I	0.00I	0.08A	2.30I	0.00I	0.00K
116.7	2.10I	0.00I	0.06A	2.13I	0.00I	0.00K
100.5	1.54I	0.00I	0.04A	1.81I	0.00I	0.00K
95.5	1.38I	0.00I	0.03A	1.73I	0.00I	0.00K
81.4	0.99I	0.00I	0.02A	1.47I	0.00I	0.00K
67.3	0.67I	0.00I	0.01A	1.18I	0.00I	0.00K
53.2	0.41I	0.00I	0.01A	0.90I	0.00I	0.00K
47.0	0.32I	0.00I	0.00A	0.79I	0.00I	0.00K
35.2	0.18I	0.00I	0.00A	0.58I	0.00I	0.00K
23.5	0.08I	0.00I	0.00A	0.38I	0.00I	0.00K
11.7	0.02I	0.00I	0.00A	0.19I	0.00I	0.00K
0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A

MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)

MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t.WIND.DIR ALONG kip	SHEAR.w.r.t.WIND.DIR ACROSS kip	MOMENT.w.r.t.WIND.DIR ALONG ft-kip	MOMENT.w.r.t.WIND.DIR ACROSS ft-kip	TORSION ft-kip
149.0	0.00 I	0.00 I	0.00 I	0.00 I	0.00 I	0.00 I
	22.45 I	5.09 D	0.00 I	-37.68 A	0.00 B	0.00 I
132.8	22.45 I	5.09 F	0.00 K	-37.68 B	0.00 B	0.00 I
	32.27 I	7.22 F	0.00 K	-152.56 A	-0.01 K	0.00 B
116.7	32.27 C	7.22 I	0.00 I	-152.55 A	-0.02 K	0.00 H
	42.07 C	9.34 I	0.00 I	-318.64 A	0.03 I	-0.01 H
100.5	42.07 B	9.36 B	0.01 B	-318.68 A	0.05 I	-0.01 B
	43.21 B	9.44 B	0.01 B	-372.09 A	-0.07 B	0.01 L
95.5	43.21 B	9.45 I	-0.03 I	-372.12 A	0.07 L	-0.01 E
	45.27 B	9.70 I	-0.03 I	-524.14 I	0.44 I	-0.01 K
81.4	45.27 B	9.70 I	-0.03 K	-524.14 I	0.44 I	-0.01 K
	47.48 B	9.95 I	-0.03 K	-677.54 I	0.66 I	-0.02 K
67.3	47.48 B	9.96 I	-0.03 K	-677.54 I	0.66 I	-0.02 K
	49.86 B	10.22 I	-0.03 K	-832.01 I	0.90 I	-0.03 K
53.2	49.86 B	10.23 I	-0.02 I	-831.99 I	0.91 I	-0.03 K
	52.22 B	10.34 I	-0.02 I	-900.99 I	1.05 I	-0.03 K
47.0	52.22 B	10.34 I	-0.03 I	-901.00 I	1.04 I	-0.03 K

	54.71 B	10.55 I	-0.03 I	-1031.27 I	1.39 I	-0.03 K
35.2						
	54.71 B	10.56 I	-0.02 I	-1031.26 I	1.39 I	-0.03 K
	57.39 B	10.78 I	-0.02 I	-1162.15 I	1.68 I	-0.03 K
23.5						
	57.39 B	10.78 I	-0.03 I	-1162.15 I	1.68 I	-0.03 K
	60.14 B	10.98 I	-0.03 I	-1293.37 I	2.01 I	-0.03 K
11.7						
	60.14 B	10.98 I	-0.03 I	-1293.37 I	2.01 I	-0.03 K
	62.96 B	11.18 I	-0.03 I	-1424.73 I	2.31 I	-0.03 K
base reaction	62.96 B	-11.18 I	0.03 I	1424.73 I	-2.31 I	0.03 K

COMPLIANCE WITH 4.8.2 & 4.5.4

ELEV ft	AXIAL	BENDING	SHEAR + TORSIONAL	TOTAL	SATISFIED	D/t(w/t)	MAX ALLOWED
149.00	0.00I	0.00I	0.00I	0.00I	YES	15.69A	45.2
	0.01I	0.04A	0.01D	0.06A	YES	18.04A	45.2
132.83	0.01I	0.04B	0.01F	0.06B	YES	18.04A	45.2
	0.02I	0.15A	0.01F	0.16A	YES	20.38A	45.2
116.67	0.02C	0.15A	0.01I	0.16A	YES	20.38A	45.2
	0.02C	0.26A	0.01I	0.28A	YES	22.73A	45.2
100.50	0.01B	0.16A	0.01B	0.17A	YES	15.03A	45.2
	0.01B	0.17A	0.01B	0.19A	YES	15.52A	45.2
95.50	0.01B	0.18A	0.01I	0.19A	YES	15.28A	45.2
	0.01B	0.21I	0.01I	0.23I	YES	16.64A	45.2
81.42	0.01B	0.21I	0.01I	0.23I	YES	16.64A	45.2
	0.01B	0.24I	0.01I	0.25I	YES	18.00A	45.2
67.33	0.01B	0.24I	0.01I	0.25I	YES	18.00A	45.2
	0.01B	0.26I	0.01I	0.28I	YES	19.37A	45.2
53.25	0.01B	0.22I	0.00I	0.23I	YES	16.55A	45.2
	0.01B	0.22I	0.00I	0.23I	YES	17.07A	45.2
47.00	0.01B	0.23I	0.00I	0.24I	YES	16.77A	45.2
	0.01B	0.24I	0.00I	0.25I	YES	17.74A	45.2
35.25	0.01B	0.24I	0.00I	0.25I	YES	17.74A	45.2
	0.01B	0.25I	0.00I	0.26I	YES	18.71A	45.2
23.50	0.01B	0.25I	0.00I	0.26I	YES	18.71A	45.2
	0.01B	0.25I	0.00I	0.26I	YES	19.69A	45.2
11.75	0.01B	0.25I	0.00I	0.26I	YES	19.69A	45.2
	0.01B	0.26I	0.00I	0.27I	YES	20.66A	45.2
0.00							

MAXIMUM LOADS ONTO FOUNDATION(w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR	MOMENT.w.r.t.WIND.DIR	TORSION

kip	ALONG kip	ACROSS kip	ALONG ft-kip	ACROSS ft-kip	ft-kip
62.96	11.18	-0.03	-1424.73	2.31	-0.03
B	I	I	I	I	K

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Seismic Load Effects
Equivalent Lateral Force Procedure
ANSI/TIA-222-H

Parameters	
Risk Category	II
R	1.500
S_S	0.311
S_1	0.072
Site Class	D (default)
T_L (sec)	4.000
F_a	1.551
F_v	2.400
S_{MS}	0.482
S_{M1}	0.173
S_{DS}	0.322
S_{D1}	0.115
T_s	0.357
I_e	1.000
Ω	1.500
C_S	0.030
E (ksi)	29,000
I_{top} (in^4)	1,346
I_{bot} (in^4)	26,096
I_{avg} (in^4)	13,721
g (in/s^2)	386.4
W_t (kips)	62.904
W_u (kips)	30.061
W_L (kips)	32.843
L_p (in)	1788
f_1 (Hertz)	0.233
T (sec)	4.301
k_e	2.0000
V_s (kips)	1.887
Seismic Design Category	B

Vertical Distribution of Seismic Forces

Description	h_i (ft.)	w_i (kips)	W_u (kips)	$w_i h_i^{ke}$	F_{sz} or E_h (kips)	E_V (kips)	1.2 D + 1.0 E_V (kips)	0.9 D - 1.0 E_V (kips)
Step Bolts/Safety Climb Load	145.00	0.0140	0.0000	294.3500	0.0007	0.0009	0.0177	0.0117
Antenna Load	144.00	8.0305	8.0305	166,520.4480	0.4076	0.5172	10.1538	6.7102
Line Deadload	144.00	2.6957	0.0000	55,898.0352	0.1368	0.1736	3.4084	2.2525
Step Bolts/Safety Climb Load	135.00	0.0140	0.0000	255.1500	0.0006	0.0009	0.0177	0.0117
Antenna Load	134.00	8.0305	8.0305	144,195.6580	0.3530	0.5172	10.1538	6.7102
Line Deadload	134.00	2.5085	0.0000	45,042.6260	0.1103	0.1615	3.1717	2.0962
Step Bolts/Safety Climb Load	125.00	0.0140	0.0000	218.7500	0.0005	0.0009	0.0177	0.0117
Antenna Load	124.00	7.0000	7.0000	107,632.0000	0.2635	0.4508	8.8508	5.8492
Line Deadload	124.00	1.5475	0.0000	23,794.3600	0.0582	0.0997	1.9567	1.2931
Structure - Section 1	122.25	4.2136	0.0000	62,972.5154	0.1541	0.2714	5.3277	3.5208
Step Bolts/Safety Climb Load	115.00	0.0140	0.0000	185.1500	0.0005	0.0009	0.0177	0.0117
Antenna Load	114.00	7.0000	7.0000	90,972.0000	0.2227	0.4508	8.8508	5.8492
Line Deadload	114.00	1.4227	0.0000	18,489.4092	0.0453	0.0916	1.7988	1.1888
Step Bolts/Safety Climb Load	105.00	0.0140	0.0000	154.3500	0.0004	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	95.00	0.0140	0.0000	126.3500	0.0003	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	85.00	0.0140	0.0000	101.1500	0.0002	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	75.00	0.0140	0.0000	78.7500	0.0002	0.0009	0.0177	0.0117
Structure - Section 2	73.75	8.3440	0.0000	45,383.5375	0.1111	0.5374	10.5502	6.9722
Step Bolts/Safety Climb Load	65.00	0.0140	0.0000	59.1500	0.0001	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	55.00	0.0140	0.0000	42.3500	0.0001	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	45.00	0.0140	0.0000	28.3500	0.0001	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	35.00	0.0140	0.0000	17.1500	0.0000	0.0009	0.0177	0.0117
Structure - Section 3	26.62	11.9150	0.0000	8,443.2597	0.0207	0.7673	15.0653	9.9562
Step Bolts/Safety Climb Load	25.00	0.0140	0.0000	8.7500	0.0000	0.0009	0.0177	0.0117
Step Bolts/Safety Climb Load	15.00	0.0140	0.0000	3.1500	0.0000	0.0009	0.0177	0.0117
	Σ	62.90	30.0610	770,916.75	1.89	4.05	79.54	52.56

Sabre Industries™
INNOVATION DELIVERED

SO#: 22-5669-JDS
Site Name: Casper 1, WY
Date: 4/8/2022

Round Base Plate and Anchor Rods, per ANSI/TIA 222-H

Pole Data

Diameter:	53.380	in (flat to flat)
Thickness:	0.4375	in
Yield (Fy):	65	ksi
# of Sides:	18	"0" IF Round
Strength (Fu):	80	ksi

Reactions

Moment, Mu:	5211.75	ft-kips
Axial, Pu:	75.48	kips
Shear, Vu:	40.45	kips

Anchor Rod Data

Quantity:	18		
Diameter:	2.25	in	
Rod Material:	A615		
Strength (Fu):	100	ksi	
Yield (Fy):	75	ksi	
BC Diam. (in):	60.25	BC Override:	

Anchor Rod Results

(per 4.9.9)

Maximum Put:	227.53	Kips
Φt*Rnt:	243.75	Kips
Vu:	2.25	Kips
Φv*Rnv:	149.10	Kips
Tension Interaction Ratio:	0.87	
Maximum Puc:	234.87	Kips
Φc*Rnc:	268.39	Kips
Vu:	2.25	Kips
Φc*Rnvc:	120.77	Kips
Compression Interaction Ratio:	0.88	
Maximum Interaction Ratio:	**87.5%**	**Pass**

Plate Data

Diameter (in):	66	Dia. Override:	
Thickness:	2.25	in	
Yield (Fy):	50	ksi	
Eff Width/Rod:	9.41	in	
Drain Hole:	2.625	in. diameter	
Drain Location:	24.5	in. center of pole to center of drain hole	
Center Hole:	41	in. diameter	

Base Plate Results

Base Plate (Mu/Z):	43.0	ksi
Allowable Φ*Fy:	45.0	ksi (per AISC)
Base Plate Interaction Ratio:	**95.6%**	**Pass**

Catherine Cundall

From: Cindy BRADEN <bradjim97@msn.com>
Sent: Tuesday, May 13, 2025 7:13 AM
To: Planning
Subject: Proposed Rocky Mountain Towers

To whom it may concern,
We oppose the proposed tower planned for Iron Mountain Road. Several years ago, a proposed cell tower was bought to the neighbors in Wyoming Ranchette area. It was turned down by all involved. The tower on Iron Mountain would be a terrible eye sore to the area. There are very beautiful homes out here and we do not want to have such a thing happen. I feel there would be a more suitable site for this that would not be along such a visible area. One away from such a busy traveled area. Please do not allow this to proceed.
Braden's
11119 Empire Road
Cheyenne, Wy 82009
307-630-2487

Catherine Cundall

From: Cori Hastings <bigsiscori@gmail.com>
Sent: Saturday, May 10, 2025 6:10 PM
To: Planning
Subject: Opposition to Proposed Wireless Communication Facility and Monopole Construction at 2409 Iron Mountain Road

Categories: CATE

Dear Planning and Development Officials,

I am writing as a concerned resident and property owner in Laramie County to formally express my opposition to the proposed construction of a wireless communication facility and monopole in our community.

While I understand the importance of expanding communication infrastructure, I believe this project raises serious concerns that should be thoroughly considered before any approval is granted:

1. Potential Health Risks
There is growing public concern over the possible health impacts associated with long-term exposure to electromagnetic fields (EMFs) emitted by wireless communication facilities. While the scientific community has not reached a definitive consensus, several peer-reviewed studies have raised red flags regarding the potential biological effects of chronic EMF exposure, particularly for vulnerable populations such as children and the elderly. It would be irresponsible to proceed with construction without a comprehensive, independent environmental and health impact assessment.

2. Property Devaluation
Numerous studies and real estate reports indicate that the presence of a cell tower or similar facility can lead to a measurable decrease in nearby property values. The visual blight of a monopole and the associated infrastructure can make homes in the vicinity less desirable, directly impacting property owners like myself who have invested significantly in our homes and neighborhoods.

3. Visual and Environmental Impact
The erection of a monopole will permanently alter the landscape and aesthetic of our area, undermining the rural and scenic character that defines Laramie County. This kind of industrial development is incompatible with residential zones and can erode the overall quality of life for nearby residents. Furthermore, such structures can have adverse effects on local wildlife, particularly birds.

--
Cori Hastings

https://www.pamperedchef.com/pws/chastings - website where you can find recipes, sign up to watch cooking demos and be included in drawings, and order Pampered Chef products.

https://www.facebook.com/CoriPChef - my business Facebook page, where I post recipes, information about current sales, the occasional game and food pix.

https://www.facebook.com/CoriHastingsFB/ - my personal page.

Catherine Cundall

From: Chris Roth <croth12@mindspring.com>
Sent: Friday, June 6, 2025 1:12 PM
To: Planning; Commissioners
Subject: PZ-25-00033 - Cell Tower

To the Planning Board and the Laramie County Commissioners,

I am writing in protest about the proposed PZ-25-00033(150') Cell Tower being planned for 2409 Iron Mountain Road.

My wife and I live at 2712 Iron Mountain Road, and we would be severely affected if this cell tower is constructed.

First off, these towers cause cancer from the radiation they emit. Research after research proves this, and yes, the cell tower companies say there needs to be more research, but I will bet you that no one that works at these cell tower companies would allow one to be installed within a few hundred feet of them or in their neighborhoods. There are at least four women living within a couple hundred yards and breast cancer is one of the most prevalent cancers caused by cell tower radiation. There is also at least one grade schooler, and many men, again, all of us are living within a couple hundred yards, so the likelihood of any or all of us getting cancer, caused by the cell tower is extremely high.

Therefore, I think it is critical to let the county, the cell tower companies and the owners of the property, Mike, and Lorinda Zumo, know that they will be held responsible for any cancer, medical bills, depreciation of property value and the decreased value of life from living on these properties, all caused by the cell tower.

The responsibility to stop the building of this cell tower, next to our homes, lies in the City of Cheyenne, Laramie County Commissioners, the Rocky Mountain Towers, and the Zumo's. Therefore, I believe that all our Medical Bills moving forward, caused by the cell towers, if it is erected, will be the responsibility of Laramie County in Wyoming, the City of Cheyenne, the Rocky Mountain Towers company, and the Zumo's. Both as groups and individually.

I know the letter said the tower will collapse on itself, but I honestly must call BS on that. It will fall the way the wind is pushing it. We do get remarkably high winds coming out of the south that would throw the tower onto Iron Mountain Road. Which could cause death and destruction. Also, is the tower really needed right here? We just had fiber optics buried in all our front yards.

Common Sense should tell all of you that it really does not take too much thought to move the cell tower, to where it will not cause cancer and other health problems in the area, where it will not depreciate the values of our homes, ruin our lifestyle and to where a collapse will not cause a danger to the public.

Thank You and I hope you listen to your constituents!

Chris and Kara Roth

2712 Iron Mountain Road

Cheyenne, WY 82009

Chris Roth

(307) 365-4920

croth12@mindspring.com

Catherine Cundall

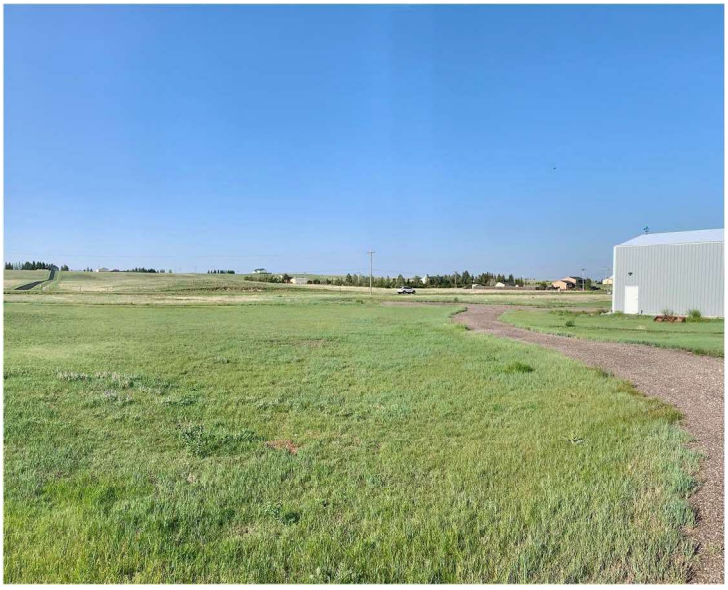
From: Chris Roth <croth12@mindspring.com>
Sent: Monday, June 9, 2025 6:44 PM
To: Planning
Subject: PZ-25-00033

Categories: CATE

These incredible views are gone if that cell tower is allowed to ruin the way of life we bought property on Iron Mountain Road for. I didn't realize that the County Commissioners, self-serving cell tower companies and self-serving individuals had the authority to de-value property and place the public in danger of cancer causing emissions. For some, Wyoming loving reason, I thought the Laramie County Commissioners were elected to listen to and support their constituents! Am I wrong?

The next to the last picture is taken from the fence where the tower would be placed. That is how close it is to our home. It is closer to the McMullen Family Home.

Chris Roth
(307) 365-4920
Chris.Roth@skyamp.com



Catherine Cundall

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Subject: PZ-25-00033

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The next to the last picture is taken from the fence where the tower would be placed. That is how close it is to our home. It is closer to the McMullen Family Home.

Chris Roth
(307) 365-4920
Chris.Roth@skyamp.com

Catherine Cundall

From: don franken <don.franken@att.net>
Sent: Monday, May 12, 2025 6:45 AM
To: Planning
Subject: Rocky Mountain PZ-25-00033

Categories: CATE

Your plan lacks abundant alternative's and appears harmful to our environment without regard for our in town rural appearance. We face ugly fracking oil rigs to the east of Black Fox Road at sunrise. Now a plan to build ridiculous tower to the west to stare at during sunset. Build that thing In another place where there are no homes. I will consider litigation if an alternative site is not chosen.

Don Franken
2817 Black Fox

Sent from my iPhone

Duwayne and Esther Lewis 10905 Empire Drive. We are located Kitty corner from proposed cell tower location. We oppose the addition of this tower to our area. We worry about microwaves being this close to our house and being hazardous to our health. Also, the ugly structure devalues homes in the area and that is very concerning as well. Once again, if we have a vote, we vote no to this project.

Catherine Cundall

From: Catherine Cundall
Sent: Thursday, June 5, 2025 5:17 PM
To: Catherine Cundall
Subject: FW: Rocky Mountain's PZ-25-00033

-----Original Message-----
From: don franken <don.franken@att.net>
Sent: Thursday, June 5, 2025 10:56 AM
To: Commissioners <Commissioners@laramiecountywy.gov>
Cc: Planning <planning@laramiecountywy.gov>
Subject: Rocky Mountain's PZ-25-00033

Gentlemen,

I echo the concerns of ALL of my the neighbors along the upper Powder House and Iron Mountain corridor. Property value, health, aesthetics, safety are but a few concerns that seem to be slept on by Laramie county with this idiotic tower. I can't believe our planning department is even entertaining this.

After purchasing this home with no warning I now stare at fracking wells in my back yard. To add Insult to injury, one relocating greedy resident is going to force dozens of HIGH paying tax payers to live with the burden of a cell tower. Not even an environmental health or community impact study given to residents? Tax payers worked all their life to live outside the city environment and this is what they get? Where is our representation? It is time for people to do what is right by 99 percent of the residents who do not want this tower.

Look around, there is ample land around to not disturb this community with. Stop lying down and just saying yes to this type of stuff. We are the ones paying the taxes! Nobody wants that tower out here to worry about. It's about tax payers, not what's convenient for cell companies and the ONE greedy resident who does not have to live with burden of health, property values, and aesthetics.

Don Franken
2817 Black Fox Road

Sent from my iPhone

Catherine Cundall

From: Galen Styskal <yearlings123@gmail.com>
Sent: Wednesday, June 4, 2025 8:40 PM
To: Planning
Subject: PZ-25-00033 Cell Tower

I am contacting the county as a result of project Cell Tower PZ-25-00033. I understand the need for infrastructure, and putting a 150-foot tower near so many homes seems to be a very poor decision and the worst location. Other homeowners have already mentioned potential health hazards, environmental damage and visual blight on the landscape and all are very valid concerns, that I totally agree with.

I would like to call into question the project narrative letter. In one place it claims that the tower was supposed to be 200' but was then reduced to 150' because of the community. This stands in contrast to the 100' tower Mike Zumo told me about originally. The letter never seemed to acknowledge that this cell phone tower has been declined by at least one other land owner. I was offered money in exchange for placing a 60' tower on my land, 2 or 3 years ago and I declined. A 150 foot tower is equivalent to a 15 story building in height. Why does the company care about the community now with a tower over twice the height? The owners of the property for this project are considering moving away and want to sell the property minus the location of the tower. I take this as a tacit admission that they also do not want the tower, but have a way to take the money while also not dealing with the unsightly tower.

In the event I or others ever decide to sell our property, will we be reimbursed for the lost property value? Does one person get to intentionally devalue the entire community and face no consequences? Who will compensate for the loss of property value?

I do not think allowing one person to affect this many people is in any form fair. We elect our county commissioners to preserve the community in the county, and we expect the county to not allow a company to come in and devalue the properties of many while waving dollars under the nose of one person.

Galen Styskal

Catherine Cundall

From: John Fox <blackfox22@icloud.com>
Sent: Monday, June 9, 2025 2:53 PM
To: Planning
Subject: 150 foot communications tower project PZ- 25-00033

To Cate Cundall Associate Planner:
I John Fox am submitting my objection to the proposed 150 foot tall communications tower to be located at 2409 Iron Mountain Road.
My concerns are first from a health standpoint of what might be emitted from a tower like this to the surrounding area.
Secondly having lived at my property for over thirty years I will have a constant view of this tower.
My third concern is how it will impact property values when a tower of this height is built amongst existing houses

Enclosed are pictures of the current views from the Styskal property at 2615 Iron Mountain Road and the Fox property at 2719 Iron Mountain Road.

Catherine Cundall

From: J Perry <joseph10perry@gmail.com>
Sent: Monday, June 9, 2025 4:51 PM
To: Planning
Subject: Opposition to Proposed Cell Phone Tower Installation Near Iron Mountain Road, Project # PZ-25-00033

Categories: CATE

To Whom it May Concern,

I am writing to express my strong opposition to the proposed cell phone tower installation near my residence at 2304 Iron Mountain Rd. As a concerned homeowner, I am alarmed by the well-documented health risks and property value declines associated with cell towers in residential areas, as well as the apparent exploitation of uninformed homeowners by the proposing cell company. I urge you to reconsider this proposal due to its potential to harm our community's health, financial well-being, and quality of life.

Health Concerns Supported by Scientific Evidence
Numerous studies have raised significant concerns about the health impacts of radiofrequency (RF) radiation emitted by cell towers, particularly for residents living in close proximity. A 2022 review published in *ScienceDirect* analyzed 38 studies and found that 73.6% reported adverse effects, including radiofrequency sickness, cancer, and biochemical changes in humans living near base stations. Specific symptoms linked to RF exposure include headaches, fatigue, dizziness, sleep disturbances, and neurological issues, as noted in a 2013 study from *Electromagnetic Biology and Medicine* conducted in Iran. Additionally, a 2021 European Parliament report, "Health Impact of 5G," concluded that RF frequencies commonly used in 4G and 5G networks are "probably carcinogenic" and may adversely affect fertility and fetal development.

A 2011 study published in *Oncology Letters* observed increased stress hormones and decreased dopamine levels in residents after a cell tower was erected, suggesting neurological impacts. Furthermore, a 10-year study in Brazil (Dode et al., 2011) found a significantly elevated risk of cancer mortality for residents living within 500 meters of cell towers. These findings are particularly concerning for vulnerable populations, such as children, who are more susceptible to RF radiation, as highlighted by resolutions from school districts like Los Angeles and Palo Alto opposing cell towers near schools. The cumulative effects of long-term exposure remain understudied, but the existing evidence underscores the need for precaution, especially in densely populated residential areas.

Property Value Decline Backed by Research
The installation of a cell tower near my home poses a direct threat to my property's value and marketability. Research consistently demonstrates that proximity to cell towers negatively impacts residential property prices. A 2006 study published in *The Appraisal Journal* found that homebuyers would pay 10–20% less for properties near cell towers, with a market sales analysis confirming a 21% price reduction after a tower was

built. Similarly, a 2018 study in *Journal of Real Estate Finance & Economics* reported a 2.46% average price decline for homes within 0.72 kilometers of a tower, with losses up to 9.78% for properties in visible range.

A 2014 survey by the National Institute for Science, Law and Public Policy (NISLAPP) found that 94% of respondents were less interested in properties near cell towers and would pay less for them, reflecting widespread market stigma. More recently, a 2024 study in *International Journal of Housing Markets and Analysis* confirmed a "significant impact" on property prices in Johannesburg, South Africa, with greater declines the closer a home is to a tower. These findings align with real-world examples, such as a NASA scientist selling his home in Piedmont, California, after a cell tower was approved nearby, citing concerns over property value and health. The potential for a 7.6–21% reduction in my home's value represents a significant financial loss that I cannot accept.

Exploitation of Uninformed Homeowners
It is deeply troubling that the cell company appears to be taking advantage of homeowners' lack of awareness regarding these risks. The homeowner whose property is being considered for the tower has personally stated that he is unaware of the negative health and property value impacts associated with cell towers. This lack of disclosure by the cell company raises ethical concerns and suggests an exploitative approach. Wireless companies have been known to inform shareholders of RF radiation risks while failing to warn consumers or nearby residents, as noted in a 2022 Environmental Health Trust report. Full transparency is essential, and homeowners must be provided with comprehensive information about the potential consequences before any agreements are made.

Call for Action
Given the substantial evidence of health risks and property value declines, I respectfully request that the proposed cell tower installation be **denied** or relocated to a non-residential area farther from homes. Regulatory guidelines, such as those suggested by the International Association of Fire Fighters, recommend stricter exposure limits and alternative siting to minimize health risks. Additionally, I urge the city to implement a compensation program for affected homeowners, as suggested by a 2017 study from Brisbane, Australia, to address inevitable property value losses.

The attached photos show the proposed location from my front door, which if the tower is installed it will be extremely visible and unsightly.

The health and financial well-being of our community must take precedence over the interests of a private cell company. I implore you to prioritize the safety and economic stability of residents by rejecting this proposal. Thank you for your attention to this critical matter, and I am available to discuss my concerns further at your convenience.

Sincerely,
Joseph Perry

719-334-2483

References

- Balmori, A. (2022). Evidence for a health risk by RF on humans living around mobile phone base stations. *ScienceDirect*.

- Bond, S. (2006). The impact of cell phone towers on house prices in residential neighborhoods. *The Appraisal Journal*.
- Cheruiyot, K., et al. (2024). Impact of proximity to cell phone tower base stations on residential property prices. *International Journal of Housing Markets and Analysis*.
- Dode, A. C., et al. (2011). Mortality by neoplasia and cellular telephone base stations. *Science of the Total Environment*.
- Environmental Health Trust. (2022). Liability, 5G and cell tower radiation health effects.
- Environmental Health Trust. (2024). Revealing 5G cell tower health impacts: 7 scientific case studies.
- Levitt, B. B. (2010). Biological effects from exposure to electromagnetic radiation emitted by cell tower base stations. *Environmental Reviews*.
- National Institute for Science, Law and Public Policy. (2014). Neighborhood cell towers & antennas—Do they impact a property's desirability?
- Shahbazi-Gahrouei, D., et al. (2013). Health effects of living near mobile phone base transceiver station antennae. *Electromagnetic Biology and Medicine*.

IMG_4666.jpeg

(2,051K)
IMG_4665.jpeg
(3,298K)

Catherine Cundall

From: James Stephens <javenz56@gmail.com>
Sent: Friday, May 16, 2025 9:29 PM
To: Planning
Subject: PZ-25-00033

Categories: CATE

Dear Laramie County Planners,

I am writing as a concerned property owner regarding the construction of a 150 foot monopole wireless communication tower for multi-carrier use. As you know the proposed facility would be located in a residential rural area. I and many of the residents near the proposed facility bought and developed our residential properties at this location for the views and rural feel of our small county acreage.

We developed and agreed to protective covenants to keep our property and our rural land a cohesive residential area. To allow the industrial facilities to creep up upon the surrounding residences could encourage similar for profit ventures for co-mingling residential development of industrial facilities in the future.

While I understand the growing need for enhanced wireless infrastructure, I strongly believe that this particular location is inappropriate for such a facility.

The visual impact of a 150 foot communication tower will dramatically alter the visual character of the area, negatively affecting the natural landscape and diminishing the rural feel of our neighborhood.

In addition, numerous studies have shown that proximity to large communication towers can adversely affect nearby property values. This is a major concern for us as rural homeowners.

Another concern is that although federal guidelines address radiation exposure, I as well as many residents remain concerned about the long term health effects of living and raising children near these high powered communication towers.
In addition to the radiation exposure concern, the height and scale of the tower could pose safety risks in the event of a structural failure due to our high winds. The structure may also disrupt our local wildlife and surrounding ecosystem.

To my knowledge, there has been limited outreach to the surrounding community regarding this project.

I would urge the Laramie County Planning Department to thoroughly assess alternative sites that would have less impact on the residential areas and to consider the cumulative effects of such infrastructure on our community's quality of life.

Thank You for taking the time to consider our concerns. We appreciate your service and dedication to responsible planning and look forward to a thoughtful and community centered decision.

Sincerely,

James A. Stephens
2115 Summerhill Ct.
Cheyenne, WY 82009

Catherine Cundall

From: Ken Roylance <kenroylance@msn.com>
Sent: Monday, June 2, 2025 1:26 PM
To: Planning
Cc: Ken Roylance
Subject: Fw: Cell Tower PZ-25-00033
Attachments: We sent you safe versions of your files; How Close Is Too Close to a Cell Phone Tower.docx; American Cancer Society - Cell Phone Towers.pdf

Categories: CATE

Get Outlook for iOS

From: Ken Roylance <kenroylance@msn.com>
Sent: Monday, June 2, 2025 11:40:44 AM
To: commissioners@laramiecountywy.gov <commissioners@laramiecountywy.gov>
Cc: Ken Roylance <kenroylance@msn.com>
Subject: Cell Tower PZ-25-00033

Laramie Counting Planning & Development Department

3966 Archer Pkwy

Cheyenne, Wyoming 82009

RE: Project PZ-25-00033 Proposed cell tower location

As a neighbor within one-half mile of the proposed PZ-25-00033 cell tower, living on the north side of Iron Mountain, I am submitting my concerns about the location and associated issues.

1. The proposed cell tower is 150’ high is located approximately 130 foot off of the 2409 Iron Mountain property line to the south of Iron Mountain road. Should the tower fall in one piece to the north, not as engineered to the west, it would have impact of approximately 20 foot over the property line and into the Iron Mountain road right of way or possibly onto an east bound lane of said road. Should the pole fall to the east it will knock down fences and land on property belonging to Galen and Terry Styskal.

2. Communications with real estate agents in Laramie County, I was that the aesthetics of the tower will be obtrusive to the neighbors which will decrease to value of their property. The only property that will be devaluated is that of 2409 Iron Mountain who will be paid for the lease of the cell tower site. It should also be noted that the current

owners of the property, Mike and Lorinda Zumo. It is rumored that they intend to move and sell the property, less the cell tower lease which will make them lease money on said cell tower property.

3. There are proposed to be four companies leasing said cell tower. I have seen nothing as to the amount or strength of the radiation these antennas will be working at or putting out into the atmosphere with their radio frequency waves transmissions. Research studies on cell tower safety and electromagnetic hypersensitivity indicates there is a greater percentage of diagnosed cancer cases within close proximity, one-half mile or less. Nothing has been mentioned about commuters who drive Iron Mountain on daily/weekly basis to travel into Cheyenne or other areas for whatever reasons they use the roadway for. From what I have read, there needs to be more research of cell tower frequency radiation exposures before companied and research organizations have knowledgeable answers to radiation amounts and effects.

4. I agree with the comments of the McMillan letter that the site would be better established on property that would benefit state or county government. Placing the tower with the four pumping wells located on Iron Mountain Road, private property belonging to H.W. Wood Kids LLC will not accomplish this benefit to government benefit.

5. It appears that all letters will go to the Laramie Counting Planning & Development Department and nothing to the Laramie County Commissioners who need to know the feelings of the public. Also if a resident who would be effected by possible construction of said tower doesn't live on the south side of Iron Mountain Road, their comments could not be considered by the planning committee. All comments should also be forwarded to the Laramie County Commissioners.

6. I am attaching articles from "The Healthy Home Economist", Cell Phone Tower, "What Distance is Safe to Live?" and "American Cancer Society" "Cell Phone Towers" articles in reference to radiofrequency waves.

Kenny W. Roylance

11324 Belmont Avenue, Cheyenne, WY 82009

307-631-3722

Cell Phone Towers

The widespread use of cell phones in recent decades has led to a large increase in the number of cell phone towers (also known as **base stations**) being placed in communities. These towers have electronic equipment and antennas that receive and transmit cell phone signals using radiofrequency (RF) waves[1].

Cell phone towers are still relatively new, and many people are understandably concerned about whether the RF waves they give off might possibly have health effects.

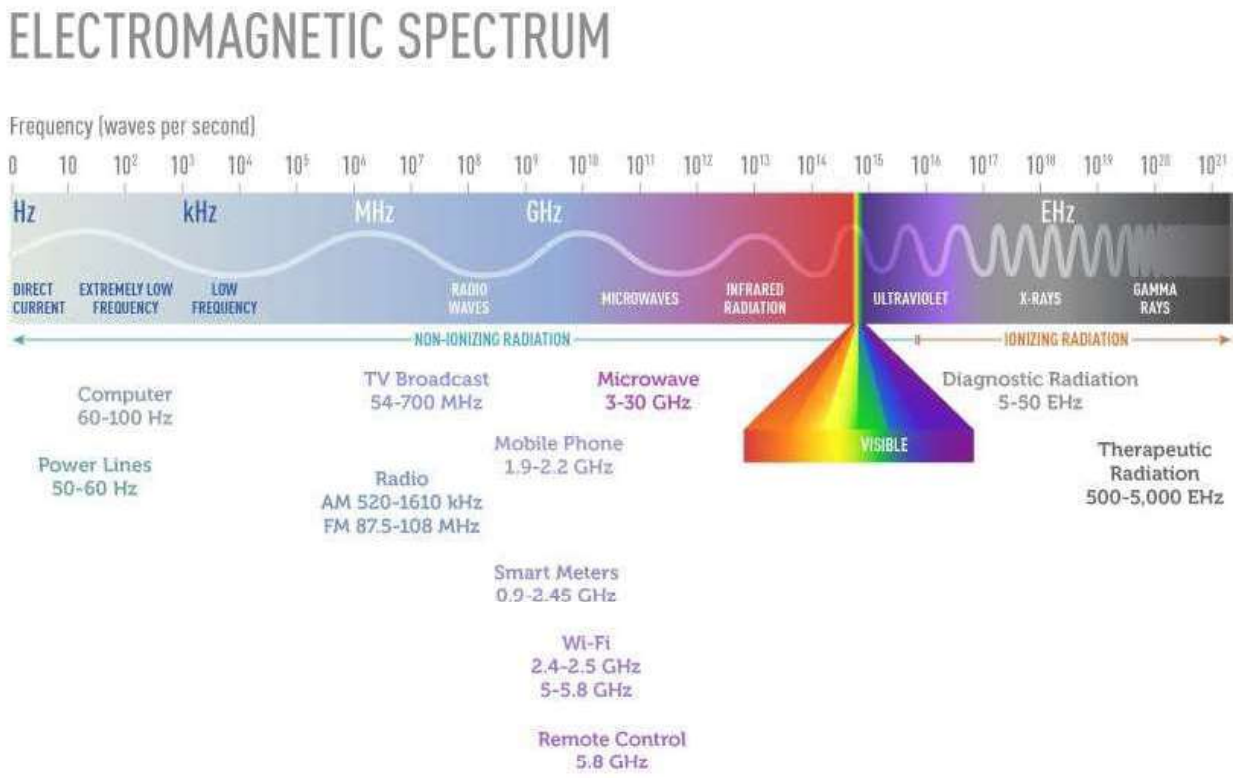
At this time, there's no strong evidence that exposure to RF waves from cell phone towers causes any noticeable health effects. However, this does not mean that the RF waves from cell phone towers have been proven to be absolutely safe. Most expert organizations agree that more research is needed to help clarify this, especially for any possible long-term effects.

How do cell phone towers expose people to RF waves?

Cell phone base stations can be free-standing towers or mounted on existing structures, such as trees, water tanks, or tall buildings. The antennas need to be high enough to adequately cover a certain area. Base stations are usually from 50 to 200 feet high.

Cell phones communicate with nearby cell towers mainly through RF waves, a form of energy in the electromagnetic spectrum between FM radio waves and microwaves. Like FM radio waves, microwaves, visible light, and heat, they are forms of **non-ionizing radiation.** This means they do not directly damage the DNA inside cells, which is how

stronger (**ionizing**) types of radiation such as x-rays, gamma rays[2], and ultraviolet (UV) rays[3] are thought to be able to cause cancer.



The electromagnetic spectrum illustration above shows the possible frequencies of electromagnetic energy, ranging from extremely low frequencies (such as those from power lines) to extremely high frequencies (such as x-rays and gamma rays), and includes both non-ionizing and ionizing radiation.

At very high levels, RF waves can heat up body tissues. But the levels of energy used by cell phones and towers are much lower.

When a person makes a cell phone call, a signal is sent from the phone's antenna to the nearest base station antenna. The base station responds to this signal by assigning it an available RF channel. RF waves transfer the voice information to the base station. The voice signals are then sent to a switching center, which transfers the call to its destination. Voice signals are then relayed back and forth during the call.

When RF signals are transmitted back and forth to the base station during calls, the RF waves produced at the base station are given off into the environment, where people can be exposed to them.

On the ground near a cell phone tower

RF waves from a cell phone tower antenna, like those from other telecommunication antennas, are directed toward the horizon (parallel to the ground), with some downward scatter. Base station antennas use higher power levels than other types of land-mobile antennas, but much lower levels than those from radio and television broadcast stations. The amount of energy from RF waves decreases rapidly as the distance from the antenna increases. As a result, the level of exposure to RF waves at ground level is much lower than the level close to the antenna.

At ground level near typical cellular base stations, the amount of energy from RF waves is hundreds to thousands of times less than the limits for safe exposure set by the US Federal Communication Commission (FCC) and other regulatory authorities. It is very unlikely that a person could be exposed to RF levels in excess of these limits just by being near a cell phone tower.

On a roof with a cellular antenna

When a cellular antenna is mounted on a roof, it is possible that a person on the roof could be exposed to RF levels greater than those typically encountered on the ground. But even then, exposure levels approaching or exceeding the FCC safety guidelines are only likely to be found very close to and directly in front of the antennas. If this is the case, access to these areas should be limited.

Indoors with a base station mounted on the outside of the building

The level of energy from RF waves inside buildings where a base station is mounted is typically much lower than the level outside, depending on the construction materials of the building. Antennas are pointed away from the side of the building, and the energy level **behind** the antenna is hundreds to thousands of times lower than in front. On top of this, wood or cement block reduces the exposure to energy from RF waves by a factor of about 10. Therefore, if an antenna is mounted on the side of a building, the exposure level in the room directly behind the wall is typically well below the recommended exposure limits.

Near a 5G base station

Newer, smaller versions of base stations (often referred to as **small cells**), which are part of fifth generation (5G) cellular networks, are discussed below.

Do cell phone towers cause cancer?

Some people have expressed concern that living, working, or going to school near a cell phone tower might increase the risk of cancer or other health problems. At this time, there isn't a lot of evidence to support this idea. Still, more research is needed to be sure.

What expert agencies say

The American Cancer Society (ACS) does not have any official position or statement on whether or not radiofrequency (RF) radiation from cell phones, cell phone towers, or other sources is a cause of cancer. ACS generally looks to other expert organizations to determine if something causes cancer (that is, if it is a carcinogen), including:

- The **International Agency for Research on Cancer (IARC)**, which is part of the World Health Organization (WHO)
- The **US National Toxicology Program (NTP)**, which is formed from parts of several different government agencies, including the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the Food and Drug Administration (FDA)

Other major organizations might also comment on the ability of certain exposures to cause cancer.

What they say about cell phone towers

So far, neither IARC nor the NTP have classified the cancer-causing potential of RF waves from cell phone towers specifically. However, some other agencies have commented on cell tower safety.

The **US Federal Communications Commission (FCC)** has said this about cell phone towers near homes or schools:

"[R]adiofrequency emissions from antennas used for cellular and PCS [personal communications service] transmissions result in exposure levels on the ground that are typically thousands of times below safety limits. These safety limits were adopted by the FCC based on the recommendations of expert organizations and endorsed by agencies of the Federal Government responsible for health and safety. Therefore, there is no reason to believe that such towers could constitute a potential health hazard to nearby residents or students."

What they say about RF radiation in general

Based on a review of studies published up until 2011, the **International Agency for Research on Cancer (IARC)** has classified RF radiation as "possibly carcinogenic to humans," based on limited evidence of a possible increase in risk for brain tumors among cell phone users, and inadequate evidence for other types of cancer. (For more information on the IARC classification system, see Known and Probable Human Carcinogens[4].)

More recently, the **US Food and Drug Administration (FDA)** issued a technical report based on results of studies published between 2008 and 2018, as well as national trends in cancer rates. The report concluded: "Based on the studies that are described in detail in this report, there is insufficient evidence to support a causal association between radiofrequency radiation (RFR) exposure and [tumor formation]."

So far, the **National Toxicology Program (NTP)** has not included RF radiation in its *Report on Carcinogens*, which lists exposures that are known to be or reasonably anticipated to be human carcinogens.

What studies have shown

Researchers generally use two types of studies when trying to determine if something might cause cancer:

- **Studies looking at groups of people**
- **Studies done in the lab (using lab animals or cell cultures)**

The following is a brief summary of the major studies that have looked at this issue to date. However, this is not a comprehensive review of all studies that have been done.

Studies in people living near cell phone towers

So far, not many studies in people have focused specifically on cellular phone towers and cancer risk, and the results of these studies have not provided clear answers.

- A large British study comparing families of young children with cancer with families of children without cancer found no link between a mother's exposure to the towers during pregnancy (based on the distance from the home to the nearest tower and on the amount of energy from RF waves given off by nearby towers) and the risk of early childhood cancer.

- Researchers in Taiwan compared children with cancer to a group of similar children without cancer. They found slightly higher overall risk of cancer in those who lived in towns that had an estimated RF exposure from cell phone towers that was above the midpoint level in the study. However, this finding was less apparent when RF exposure was categorized in other ways.

Both of these studies relied on estimates of RF exposure. Neither of them measured the actual exposure of people to RF waves from nearby cell phone towers. This limitation makes it harder to know what the results of these studies might mean.

Studies looking at cell phone use

The amount of exposure from living near a cell phone tower typically is many times lower than the exposure from using a cell phone. Several dozen studies have looked at possible links between cell phone use and tumors in people. Most studies to date have not found a link between cell phone use and cancer, although these studies have had some important limitations. This is an area of active research. For more information, see Cellular (Cell) Phones[5].

Lab studies on RF waves

RF waves given off by cell phone towers don't have enough energy to damage DNA directly or to heat body tissues. Because of this, it's not clear how cell phone towers might be able to cause cancer. Some studies have found possible increased rates of certain types of tumors in lab animals exposed to RF radiation, but overall, the results of these types of studies have not provided clear answers so far.

Large studies published in 2018 by the US National Toxicology Program (NTP) and by the Ramazzini Institute in Italy exposed groups of lab rats (as well as mice, in the case of the NTP study) to RF waves over their entire bodies for many hours a day, starting before birth and continuing for most or all of their natural lives. Both studies found an increased risk of uncommon heart tumors called malignant schwannomas in male rats, but not in female rats (nor in male or female mice, in the NTP study). The NTP study also reported possible increased risks of certain types of tumors in the brain and in the adrenal glands.

While both of these studies had strengths, they also had limitations that make it hard to know how they might apply to humans being exposed to RF waves from cell phone towers. A 2019 review of these two studies by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) determined that the limitations of the studies

didn't allow conclusions to be drawn regarding the ability of RF energy to cause cancer.

Still, the results of these studies do not rule out the possibility that the RF waves used in cell phone communication might somehow impact human health.

What about 5G networks?

Fifth generation (5G) cellular networks are now being rolled out in many parts of the United States and in other countries. 5G networks are capable of transmitting much larger amounts of data over shorter periods of time than previous generations (4G, 3G, etc.).

Earlier generation networks have used RF wavelengths below 6 gigahertz (GHz). 5G networks will use some wavelengths in this range, but will also use some higher frequency wavelengths, at the lower end of the **millimeter wave** spectrum (which ranges from 30 GHz to 300 GHz). While these RF waves are higher frequency (higher energy) than those used by older generations, they are still forms of **non-ionizing** radiation, so they still lack the ability to directly damage DNA.

The higher frequency waves used by 5G travel shorter distances and don't go through objects (such as buildings, or even tree leaves) as well as lower frequency waves. Because of this, 5G networks require many more, smaller versions of base stations (often referred to as **small cells**) in some places, especially in densely populated areas. These small cells can be mounted on streetlights, utility poles, buildings, and other structures. This could result in the antennas being closer to people, although small cells typically operate at much lower power levels than the larger (macro) base stations.

The addition of the higher wavelengths from 5G networks could also expose people to more RF waves overall.

At the same time, these higher frequency RF waves are less able to penetrate the body than lower frequency waves, so in theory they might be less likely to have any potential health effects. But so far this issue has not been well studied.

At this time, there has been very little research showing that the RF waves used in 5G networks are any more (or less) of a concern than the other RF wavelengths used in cellular communication.

Hyperlinks

1. ***.cancer.org/cancer/risk-prevention/radiation-exposure/radiofrequency-radiation.html
2. ***.cancer.org/cancer/risk-prevention/radiation-exposure/x-rays-gamma-rays.html
3. ***.cancer.org/cancer/risk-prevention/sun-and-uv/uv-radiation.html
4. ***.cancer.org/cancer/risk-prevention/understanding-cancer-risk/known-and-probable-human-carcinogens.html
5. ***.cancer.org/cancer/risk-prevention/radiation-exposure/cellular-phones.html
6. ***.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety
7. ***.fda.gov/radiation-emitting-products/home-business-and-entertainment-products/cell-phones
8. ***.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet
9. ***.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet
10. ***.niehs.nih.gov/health/topics/agents/emf/index.cfm
11. ***.niehs.nih.gov/health/topics/agents/cellphones/index.cfm

Additional resources

Along with the American Cancer Society, other sources of information include:

Federal Communications Commission RF Safety FAQ: www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety[6]

Food and Drug Administration Cell Phones: www.fda.gov/radiation-emitting-products/home-business-and-entertainment-products/cell-phones[7]

National Cancer Institute Cell Phones and Cancer Risk: www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet[8] Electromagnetic Fields and Cancer: www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet[9]

National Institute of Environmental Health Sciences Electric and Magnetic fields: www.niehs.nih.gov/health/topics/agents/emf/index.cfm[10] Cell Phone Radio Frequency Radiation: www.niehs.nih.gov/health/topics/agents/cellphones/index.cfm[11]

** Inclusion on this list does not imply endorsement by the American Cancer Society*

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Written by

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Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as editors and translators with extensive experience in medical writing.

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How Close Is Too Close to a Cell Phone Tower? Understanding the Hazards of Living Nearby

In today's hyper-connected world, cell phone towers are an essential part of daily life, helping to provide reliable cellular service and internet access. While we depend on these towers for communication and connectivity, the growing number of these structures near homes and neighborhoods raises concerns for many individuals about the potential health risks. So, how close is too close to a cell phone tower? And what are the possible hazards of living near one?

What Are Cell Phone Towers?

Cell phone towers, also known as cell towers, base stations, or cellular antenna masts, are tall structures that transmit radiofrequency (RF) signals to connect mobile devices to the wireless network. They are typically equipped with multiple antennas to cover large areas, ensuring mobile communication services are available.

While these towers are beneficial, they do come with potential risks, especially when located close to residential areas.

The Potential Health Hazards of Living Too Close to a Cell Tower

The main concern people have about living close to a cell tower revolves around the radiation emitted by these structures. Cell phone towers transmit RF radiation, a form of non-ionizing electromagnetic radiation, which is the same type of radiation emitted by your cell phone or Wi-Fi router. While non-ionizing radiation is generally considered less harmful than ionizing radiation (like X-rays or UV rays), the long-term effects of exposure to RF radiation are still being studied.

Here are some of the potential health risks:

1. Increased Exposure to Radiofrequency Radiation

The primary risk of living near a cell tower is the increased exposure to radiofrequency (RF) radiation. Although the radiation emitted by these towers is low compared to other sources like cell phones, living close to a tower can result in higher cumulative exposure over time. Some studies suggest that prolonged exposure to RF radiation may increase the risk of certain health issues.

2. Health Effects on the Brain and Nervous System

There has been concern about the potential impact of RF radiation on the brain, especially for those who live close to cell towers. Some studies have suggested that long-term exposure to RF radiation might affect brain function and may even be linked to an increased risk of brain tumors. While research is still inconclusive, it's important to note that the World Health Organization (WHO) has classified RF radiation as a possible carcinogen (Group 2B), meaning it could potentially cause cancer, though the evidence is not definitive.

3. Sleep Disturbances and Anxiety

Some individuals who live near cell towers report experiencing sleep disturbances, headaches, and even feelings of anxiety or stress. These symptoms are often attributed to “electromagnetic hypersensitivity” (EHS), a condition where individuals claim to experience physical symptoms in response to electromagnetic fields (EMFs). While the scientific community has yet to conclusively link EHS to RF radiation, the psychological impact of living near a cell tower can still affect well-being.

4. Potential Impact on Children and Animals

Children, with their developing brains and bodies, are believed to be more vulnerable to the potential effects of RF radiation than adults. Similarly, pets and animals may also be affected by prolonged exposure to radiation. While studies on this topic are limited, the concern remains that young, developing organisms might experience more significant effects from the radiation emitted by cell towers.

5. Potential for Electromagnetic Interference

RF radiation from nearby cell towers may interfere with household electronics, such as televisions, radios, and microwaves. While this is usually not a major issue, the constant exposure to electromagnetic fields can disrupt electronic devices, potentially creating inconvenience and frustration for residents.

How Close Is Too Close?

The risk posed by cell towers depends on several factors, including the tower’s power, the frequency of the signals, and the distance between the tower and the home. As a general guideline, the further away you are from a cell tower, the lower your exposure to RF radiation.

The Federal Communications Commission (FCC) in the U.S. has set limits for RF radiation exposure from cell towers to ensure safety. These limits are based on the amount of radiation a person can safely be exposed to over time without adverse effects. According to the FCC, typical exposure levels from cell towers are much lower than the limits set for safety. However, many health experts believe that more research is needed to understand the full extent of long-term exposure to low-level RF radiation.

As a rough guideline, most experts recommend living at least 500 meters (about 1,640 feet) away from a cell tower to minimize potential health risks. However, if you are concerned about your proximity to a tower, it’s a good idea to consult with local health authorities or experts in electromagnetic fields (EMF) to get a better understanding of your specific situation.

Mitigating the Risks

If you live near a cell tower and are concerned about the potential health effects, there are a few things you can do to reduce your exposure:

- **Increase the Distance**: Try to avoid placing beds or desks in areas where they are directly exposed to the RF radiation from the tower. Even small changes in your living arrangement can help reduce exposure.

- **Use Radiation Shields**: Some products claim to shield or block radiation. While the efficacy of these products is still debated, they may help reduce exposure to some extent.
- **Limit Time Outdoors Near the Tower**: If you live very close to a tower, limit the time you spend outdoors near it. If possible, try to spend more time in areas that are farther away from the tower.
- **Stay Informed**: Keep up to date on the latest research regarding the health effects of RF radiation. While many studies are still inconclusive, staying informed will help you make educated decisions about your health and safety.

Conclusion

Cell phone towers are an essential part of modern life, but the growing number of these towers near residential areas raises valid concerns about the potential risks associated with RF radiation exposure. While research into the long-term effects of living near a cell tower is still ongoing, it's always a good idea to take precautions and be mindful of your proximity to these structures.

Ultimately, it's about finding a balance between the convenience of modern connectivity and safeguarding your health. If you live near a cell tower and are concerned about potential risks, it's worth consulting with experts or local health officials to assess your situation and make informed decisions about your living environment.

Posted

March 20, 2025 in Uncategorized

by

Safeguard Solutions

Cell Tower proposal PZ-25-00033

Ken Roylance <kenroylance@msn.com

PETITION TO STOP THE PROPOSED CELL TOWER (PZ-25-00033, A PORTION OF SECTION 4 TOWNSHIP 14 NORTH, RANGE 66 WEST, LARAMIE COUNTY, CHEYENNE, WY, 2409 IRON MOUNTAIN ROAD)

We, the undersigned residents of the vicinity surrounding the proposed tower (location stated above) are writing to express our opposition to the proposed cell tower at 2409 Iron Mountain Road. We believe the tower is undesirable due to its potential negative impact on our community, including concerns about property values, health, and aesthetic considerations.

Property Values:

The presence of a cell tower will significantly negatively impact property values in our rural community. The tower's height and unsightly appearance will detract from the aesthetic appeal of our homes and the overall beauty of our rural properties.

Health Concerns:

There are growing concerns about the potential health effects of exposure to non-ionizing radiation emitted by cell towers. We believe the proximity of this tower to our homes and animals poses a risk to the health and well-being of our families, children, pets, and livestock.

Aesthetic Impact:

The proposed tower is an eyesore and will disrupt the natural beauty of our rural neighborhood. It is an inappropriate addition to the landscape and will negatively impact the quality of life for residents.

Alternatives:

- We believe that there are alternative solutions that do not require the construction of this tower. These solutions include the use of underground infrastructure and the exploration of alternative technologies that would be less disruptive to our community.

4

We urge the Laramie County Commissioners and the Laramie County Planning Board to reject the application for the proposed cell tower. We also urge you to prioritize the needs and concerns of the residents by protecting our property values, health and the aesthetics of our neighborhood.

[signature]	2615 Iron MTN Rd 303-547-3933
[signature]	2615 Iron MTN Rd 307-430 9232
[signature]	2811 IRON MTN. Rd.
Doug Franken [signature]	2817 Black Fox Road
Cindy Schneider	2931 Iron Mnt Rd. 214-0730
Kim L. Leiby Kim L. Leiby	2931 Iron Mtn. Rd. 631-3833
Louise D Raimondi	3105 Iron Mountain Rd 635-1592
Susan Cook	10906 Grove Dr. 630-9373

Emma Stone	3020 Iron Mtn. Rd. Cheyenne. Wy 82009	520.239.6130
Edith Vosler	2924 Iron Mtn Rd	Cheyenne, Wy 82009 307-632-0133
Irwin Webb	2819 Iron Mtn Rd	Cheyenne Wy 701-770-8736
Jeff BRAUNSCHWEIG Jeff Braunschweig	2821 Iron Mountain Road	cheyenne WY 82009 cell: 307 630-6680
RICHARD W. COTTRELL R.W. Cottrell	2809 Iron Mountain RD Cheyenne, WY 82009	Cell 307-275-0557 307-634-8611
Christopher Roth	2712 Iron Mtn Road Cheyenne, WY 82009	(307) 365-4920
Kara Roth	2712 Iron Mtn. Road Cheyenne Wy 82009	970 215 6009
Ross & Jinn Smith	3009 Cochise Rd Cheyenne Wy	307-286-6264
Chuck + Joyce Nelson	11315 Geronimo Rd Cheyenne, Wy	307-635-3805
Caleb Schmerge	2913 Sitting Bull Rd	307-631-9704
Cindy Braden	11119 Empire Dr	307-630-2487

Felicia Raimondi	3123 Iron Mt Rd	286-0029
	3123 Iron Mt Rd	421-6537
	3003 IRON MT RD	307-421-1305
	3009 Cochise	307-421-3481
	3009 Cochise	307-214-2009
Jeannie Marais/McMullen	2610 Iron Mtn Road	307-920-1536
Misty McMullen	2610 Iron Mountain Rd	307 220 2076
Dean Breitsman	2290 Iron Mountain Rd	307 421 1807
Shaylin Perry	2304 Iron Mountain Rd	719 334 2483
Josey Perry	2304 Iron Mountain Rd	719 821 1927
Dean M. Gill	2226 Summit Hill ct	307-214-2553

Howard Sellenrick	11320 Empire Dr 82009
Nancy McCann	11504 Empire 82009
Georgia L Tibbetts	2638 E Riding Club Rd
Kristy Denison	2918 Sitting Bull Rd
MARY NOLAN	2607 Sitting Bull Rd
Nancy W Roylance Helen J Roylance	11324 Belmont
PAUL WEBSTER DARLYNE WEBSTER	10616 BEARTOOTH
Dwight Hayes Kathleen Hayes	2616 E. Riding Club Rd
Lance Gleich	2644 E riding club rd
Darlene Tibbetts	321 Muscadine Way (1038 riding Club)

Larry & Cori Hastings 11118 Belmont Ave, Cheyenne, Wy

Michael Bacon 3029 Sitting Bull Rd. Cheyenne, Wy

Lucie and Harry Osborn
2815 Black Fox Road
Cheyenne, WY 82009

Cate Cundall
Laramie County Planning and Development Dept
3966 Archer Pkwy
Cheyenne, WY 82009

Comments re PZ-25-00033

We live in Tract 3 of Black Fox Subdivision and are opposed to the installation of a monopole and supporting communications equipment in an area zoned A-1. A simple site visit would show that the majority of the area is functioning as Rural Residential. The installation of Tower 4 will do nothing good for area property values save for the owner of the parcel to be leased to Rocky Mountain Towers.

We are also curious about the breakpoint technology that is going to make the tower collapse both in a westerly direction and in on itself when the winds are blowing from the north or northwest at velocities that sometimes approach three figures. Is that true?

The most offensive aspect of this project is locating the tower where there is nearby housing within a radius less than that advised for long term exposure to the radiation from potentially four carriers. Whether that radius is a quarter or a half mile, there are homes that will be too close to avoid the elevated risk of a number of medical issues including certain cancers. There are more suitable comparatively empty areas for this tower to the east and the west.

This application should be denied.

Lucie P Osborn

Harry L Osborn

RESEARCH ARTICLE

AMERICAN SCIENTIFIC PUBLISHERS

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Mobile Antenna's and Its Impact on Human Health

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Mobile phones operate by communicating with a base station or cellular antennas. As mobile phone and its base station is a two way radio, they emit radio frequency radiation as a means of communication and hence can expose people near them to these radiations. Several research studies have found a link between cellular antennas and health effects on people living near antennas. These include cardiovascular problems, skin complaints, fatigue, sleep disturbance, memory loss, irritability, visual disruptions, hearing problems, depression, and dizziness. An extensive literature review was done to study the effect of mobile antennas on health including cancer. These studies concluded that incidence of cancer cases was remarkably higher among people who resided in 400 meters from mobile antennas, in comparison to those who lived further away. Females reported statistically more health complaints than males. Inhabitants living close to cellular antennas are also at increased risk for developing neuropsychiatric complaints. There are many proposed national and international criteria, for regulating and approving safety guidelines. All telecommunication companies should follow these safety standards.

Keywords: Cellular Tower, Electromagnetic Radiations, Mobile Phone, Healthcare.

1. INTRODUCTION

Cellular hand phones form an integral part of modern telecommunications and are rapidly becoming a public lifestyle. In some places, they are the only and trustworthy means of communication. The use of mobile phone is becoming popular as they facilitate people to keep uninterrupted communication without disrupting their liberty of movement. Every phone operates by networking with a stable mounted setup called as a cellular station. As the cellular phone and its tower is a two-way broadcast, they operate by emission of radio frequency (RF) radiation as a method of connection and put the people at risk to RF exposure who are living closer to the towers. There is a rapid increase in the erection of these telecommunication towers. As a result, scientists worldwide are worried about the possible health effects related to these towers. Even minor deleterious effects on health can have huge public health repercussions. However, radio frequency is an abstract phenomenon and is not easily appreciated by the community.

Radiation is a type of energy. It is electromagnetic in quality, i.e., it comprises of waves of magnetic along with electric energy which are in motion through space at light speed. Several types of electromagnetic radiation are grouped according to their frequency range. The term "Electromagnetic Field (EMF)" is commonly used to describe fields in the frequency spectrum lesser than 300 GHz. Some home gadgets also produce EMF like cordless phones and radio-operated toys. Mobile Phone operates in a low power, single network broadcasting in two ways. It produces RF radiation to communicate information to the cellular tower. A mobile phone has a "SAR (Specific Absorption Rate)" range, which has a threshold of 1.6 W/Kg. Taking into account the SAR level, an individual should not use a mobile phone more than 24 minutes (1440 seconds) per day according to the safety guidelines.[1] A cellular antenna and its channeling power are fabricated in such a manner that allows proper communication for a mobile phone to emit and receive proper signals in a range of few kilometers.[2]

Most of these towers are erected adjacent to the inhabited places and offices to facilitate enough mobile phone coverage to the consumers. Such cellular antennas operate throughout day and night so emitting radiations 24 hours a day. This will ultimately expose community living inside radius of 10 s of meters from base stations to radiations 10^4 to 10^7 times greater than required for mobile network.[3]

There are a few surveys regarding the effects of cellular towers on wellbeing and health of the community. Although some interventional surveys are performed, but the majority of them tackles

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Mobile Antenna's and Its Impact on Human Health

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with the short term consequences of illness and health. With the rapid rise in the use of the phone, probable health effects concerned with RF radiations have become the focus of attention. This includes results due to exposure to cellular towers. Health risks can be categorized into two broad groups: short term and long term consequences. The short term consequences take into account conditions like sleep, blood pressure, cognitive performance, and brain electrical function.[4] On the other hand, the long term results include fatigue, visual disruptions, headache, sleep disorders, warmth sensitivity, dizziness, scalp impairment, and major problems like brain tumors and cancers.[5,6] In 2011, "*International Agency for Research on Cancer (IARC)*" has labeled RF field as probable carcinogenic to human (group 2B) on the basis of increased incidence for "glioma, a malignant form of brain cancer," related to mobile use.[7]

2. LITERATURE REVIEW

Some of the research surveys have dealt the problem of people residing closer to cellular towers and their effects. These surveys are conducted in some countries which are documented below.

2.1. France

A survey[8] was performed, through a questionnaire on 530 individuals who lived near to cellular installations as listed in Figure 1, having eighteen symptoms categorized as Radio-Frequency illnesses. They were analyzed by the help of the "chi-square test with Yates correction." The outcomes that were concluded depicted that, some specific problems are felt only in the close surroundings of cellular towers i.e., ten meters, like nausea, visual disturbances, appetite lose, while people at further distances from the mobile antennas ranging till 100 meters reported for loss in their sexual desires and feelings of frustration. Moreover, up to 200 meters problems like sleep disorders, headaches, and uneasiness were found. In the nearby areas from 200 to 300 meters, the chief complaint reported is fatigue which is higher than people residing at a distance of 300 meters or those not uncovered (reference Group). In the following figure, female reported more complaints in these mentioned symptoms.

In this survey inhabitants who lived closer to mobile towers had greatest prevalence of the subsequent complaints: fatigue, skin complaints, irritability, sleep disorders, the sensation of discomfort, and trouble in concentrating, feeling of dejection, memory disorders, headaches, visual disorders, hearing issues, cardiovascular illnesses, and dizziness. This survey, according to the symptoms felt by subjects residing in the locality to cellular towers, suggests that the mobile towers should not be positioned nearer than 300 m to the community. This is perhaps not possible in cities, so the option is to decrease the emitted power limit.[8]

2.2. Germany

In a survey[9] the main objective was to study whether communities residing in near proximity to cellular towers were at a greater chance of getting malignant cancers. The scientists concluded that the incidence of cancer was considerably greater in those people who had resided inside 400 m from the mobile antenna site during the last ten years, in comparison to those people who lived away from these installations. It was also noticed that the inhabitants got illness on average eight years prior to expected. Five years later, after functioning of the cellular antennas installations, the comparative chance of cancer incidence had knowingly got more than 3-times for the occupants of the places nearer to towers, as compared to the people who were outside the area. The highest rate was of breast cancer, and the common time of

	Distances from base stations in meters (m)											
	< 10 m		10–50 m		50–100 m		100–200 m		200–300 m		> 300 m	
Symptoms	2	3	2	3	2	3	2	3	2	3	2	3
Fatigue	76*	72*	63.5*	50.9*	60.6	56.6*	64.2	41.1	66.6*	43.7	40.7	27.2
Irritability	32.8	23.2*	41.7*	25.7*	47.2*	44.1*	25.8	4.1	25	9	18	3.3
Headaches	51*	47.8*	40*	26.1*	40.6*	36.7*	60.7*	31.2*	19.3	0	15.6	1.8
Nausea	14.5*	6.9	8.4	3	5.7	3.6	2.4	4.6	0	2.3	3.1	1.1
Loss of appetite	20.4*	8.3	8	5.5	5	5	6.9	0	4.2	0	3.3	3.3
Sleep disturbances	41.3*	57.1*	41.4*	57.5*	46.9*	58.5*	45.8*	50*	33.3	35.5	13.8	21.1
Depressive tendencies	16.9	26.8*	21.6	19.7*	11.6	24*	16.2	3.1	13.6	2.5	10.3	3.7
Feeling of discomfort	28*	45.4*	25.2*	18.9	30.6*	12.8	15.7*	0	9.7	5.1	2.4	8.1
Difficulties in concentration	39.3	28.8*	37.5	16.6	34.2	26.4*	25	12.5	43.3	5.5	26.7	7.1
Memory loss	27.8	25.4*	29.4	26.6*	37.1*	29*	25	15.6	17.2	11.1	17.9	5.8
Skin problems	18.1*	17.1*	6.6	10.8	11.1*	11.1	13.9*	7.5	8.7	0	1.2	4.6
Visual disturbances	14.5	24.3*	23	13.5	22	7.1	2.5	4.9	15	2.8	13.6	4.1
Hearing disturbances	33.3*	17.4	17.7*	12	8.3	15.5	7.7	7.7	11.6	9.5	5.6	8.7
Dizziness	10	12.5*	17.3*	7.5*	9.6	9.6*	12.2	2.7	7.7	5.2	6.2	0
Movement difficulties	5.6	7.7*	8.2	1.7	3	3	0	0	2	0	2.9	1
Cardiovascular problems	10.1*	13*	15.3*	9.6	12.3*	7.1	8.7	0	8.5	6.5	1	3

for 18 non Specific Health Symptoms experienced by 530 people (270 men + 260 women).
* = $P < 0.05$ in comparison to the reference group (> 300 m) for the responses 2 = often and 3 = very often.

Fig. 1. Influence of distances from cellular phone base stations on the percentage of complaints (Santini, 2003).

No. of cases of tumours per year of study	inner area: of the 320 people		outer area: of the 647 people	
	total cases	per 1,000	total cases	per 1,000
1994	–	–	I	1.5
1995	–	–	–	–
1996	II	6.3	I	1.5
1997	I	3.1	III	4.6
1998	II	6.3	III	4.6
1999	II	6.3	I	1.5
2000	IIII	15.6	I	1.5
2001	II	6.3	II	3.1
2002	II	6.3	II	3.1
2003-3/2004	II	6.3	II	3.1

Fig. 2. Summary of the total tumors occurring per year, no. and per thousand.[9]

developing it was noticeably lesser, 50.8 years in comparison to 69.9 years for the individuals residing in the exterior zone. Prostate tumors, lung, gut, skin, pancreas, and blood cancer were all greater than before as listed in Figure 2.[9]

For the purpose of comparison, an 'inner' and 'outer' zone was distributed. The inner area occupied the territory that was within a distance of 400 meters from the mobile tower. The outer area occupied the territory outside 400 m. Approximately 266 m of road distance was covered in the inner zone while 1,026 m in the outer zone. Random selection of identical inhabited streets in the inner and outer zones was carried out. About 90% of the local community gave the data. Every group inquired the names of the people from the selected streets that suffered cancer since 1994. The criterion was that all patients had been residing during the complete study time of 10 years at the same address. The following results apparently explain that people who resided near to towers compared to people, who resided further away from 400 m zone, doubled their chance of contracting cancer. Moreover, the usual age of getting cancer was 64.1 years in the inner zone, whereas in the outer zone the usual age was found to be 72.6 years, bringing a difference of 8.5 years. So it means that in the inner zone (within 400 meters of the towers) tumors develop at a younger age.[9]

2.3. Israel

A survey[10] was done using medical documents of the community residing within 350 meters of the long constructed mobile tower. This survey illustrated four times greater risk of cancer as compared to the general community of Israel, with a significant ten times increase among females. A comparison was done with the neighboring locality situated further away from the tower. Such observation was an epidemiological investigation to establish if the threat of cancer prevalence among people exposed to cellular towers is dissimilar from that anticipated in Israel, in Netanya, or in comparison to people who resided in adjacent areas.

The study subjects were people ($n = 622$), who lived in the area closer to the tower for about 3–7 years and attended a clinic. The contact commenced a year before the survey beginning when the tower first became operational. A subsequent group of subjects ($n = 1222$), who attended their medical treatment from a medical center situated adjacent to very closely matched, workplace, surroundings and environmental features was for purpose of relationship. In zone A, which was zone of exposure, cancer cases were noted in one year period. The ratio of cancer was estimated against both, i.e., 31 cases every in general community and out of 2 per 1222 rates observed in close proximity of area B. In women, the relative risk of cancer was 10.5 in zone A and 0.6 was observed in zone B, while one for the whole township of Netanya. The risk of cancer of females in zone A was thus noticeably greater in comparison to zone B as well as the whole city. An evaluation of the comparative risk showed that overall 4.15 additional patients were found in zone A than in the whole community.[10]

2.4. Spain

Similar research study[11] was conducted in Spain in the nearby proximity of two GSM 900/1800 mobile towers. The E-field computed inside the living room was classified into tertiles (0.02–0.04/0.05–0.22/0.25–1.29 V/m). The results concluded convincing five associations, i.e., fatigue, depressive predisposition, cardiovascular disorders, sleep problems and problems of concentration.

2.5. India

A survey[12] was carried out in Aizawal city, in 2014, at two different locations. Questionnaires were collected at both places. Power densities were calculated in multiple sites at both the places. Frequency spectrum was measured in each place. A comparison of health symptoms between two places was done. The conclusion was that power concentration is much greater in zone of phone base station than the zone where no phone base station is found. As shown in Figure 3, comparison of complaints between Lawpu and Chanmari for the scale of 2 (all the figures are given in percentages).

People residing in areas closer to the mobile station are found to report more health symptoms as compared to areas where mobile antenna does not exist. A total of thirteen symptoms were observed which led to the conclusion that the assessments are statistically observable with probability $P < 0.05$ in three health related symptoms; which are Dizziness, Headache and Muscle pain, out of the observed thirteen health related symptoms. Out of the three highlighted symptoms, two (2) of them—headache and dizziness are significant ($p < 0.05$) only on scale 3 and

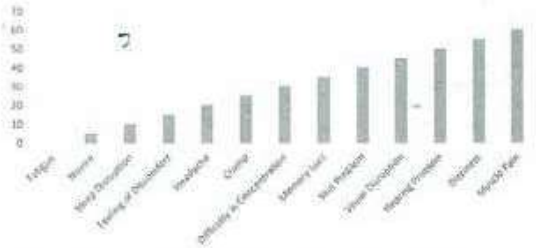

Fig. 3. Health complaints between Lawlpu and Chanmari for the scale of 2 (%).[12]

Table I. Analysis of health related complaints (on scales 2 and 3) between male (M) and female (F) inhabitants in chanmari. Reference: 0 = never, 1 = sometimes, 2 = often, 3 = very often.[12]

S. no.	Symptoms	2		3	
		M	F	M	F
1	Fatigue	2	3	2	2
2	Nausea	3	2	1	5
3	Sleep disruption	2	4	1	3
4	Discomfort feeling	1	2	0	3
5	Headache	3	4	1	5
6	Cramp	0	3	1	1
7	Concentration problem	2	1	1	1
8	Memory loss	1	1	1	1
9	Skin problem	1	2	0	2
10	Visual disturbance	0	2	1	1
11	Hearing disorder	1	2	2	2
12	Dizziness	1	5	2	3
13	Muscular pain	3	8	2	8

2 respectively. Females reported statistically more muscle pain ($p < 0.05$) than males.[12]

2.6. Austria

A cross-sectional survey[13] was conducted, where 365 subjects were investigated. They lived in rural and urban places close to 10 chosen phone masts, for a period of 1 year. An evaluation of few cognitive investigations was done and sleep performance and wellbeing were being assessed. Analysis of a total of 336 subjects bedrooms was carried out, where the power of high frequency band electromagnetic field (HF-EMF) was computed. Total HF-EMF and exposure associated with the cellular network were quite lower than suggested limits (max. 4.1 mW/m^2). Total space from the cellular antenna in the rural area came out to be 24–600 m, while in the urban area distance was 20 to 250 meters. In the rural zone, approximate power strength was recorded higher, (0.05 mW/m^2), than urban places (0.02 mW/m^2).

There was no observable outcome on condition of sleep. Some symptoms were observed to be more frequent at higher levels of exposure; difficulties in concentrating, headaches, cold hands or feet, and to a lesser degree, hunger loss, tremor, and feelings of fatigue depicted increased occurrence after adjustment for confounding variables.[13]

2.7. Egypt

A cross-sectional survey[14] was performed on 85 subjects who lived adjacent to the first installed mobile base station in Egypt. Out of 85, 37 lived in a place under the tower whereas 48 lived opposite the tower. For comparison purpose, a control group, comprising of 80 individuals, were taken who were compared with the subjects for sex, age, educational level, and profession. A structured questionnaire was used which contained personal, medical histories, educational backgrounds, general and nervous system disorders investigations, "Neuro Behavioral Test Battery (NBTB)" including investigations for movement, coordination, speed, issue solving, concentration and memory, in accumulation to "Eysenck personality questionnaire (EPQ)." The primary objective was to discover the probable neurological disorders among subjects living closer to mobile base stations. The prevalence of neuropsychiatric symptoms as depressive symptoms (21.7%), memory alterations (28.2%), vertigo (18.8%), tremors (9.4%), headache (23.5%), and sleep disorders (23.5%) were noticeably greater among exposed people than individuals not exposed: (10%), (5%), (5%), (0%), (8.8%) and (10%), correspondingly.[14]

3. BIOLOGICAL IMPACT OF MICROWAVE RADIATION

Once there is a contact of our body with electromagnetic radiation (EMR), there is the absorption of rays, as our body contains more than 50% of liquid. This is like preparing food inside a microwave oven in which the liquid content in the food material is initially warmed. This phenomenon of Microwave immersion is more obvious in those parts of the body which comprises of more fluid content (water, blood, etc.), similar to the brain which is made up of about 90% of water. This impact is more significant where fluid motion is little, like brain, abdomen, eyes, heart, etc. In addition, the height of humans is much greater than the wavelength of mobile base station emitting frequencies, so numerous resonances in our bodies can be expected, which generate localized heating in the body. This can lead to boils, dehydration of the fluids around eyes, brain, abdomen, joints etc.[15]

Moreover, latest research reveals atmosphere is also effected by EMRs. However, most of the literatures is on the harmful environmental effects of electromagnetic fields and various characteristics of human health.[16] The outcome of cellular phone rays on the wellbeing of humans is the focus of new curiosity and concern due to the global drastic rise in cellular phone usage. Since its introduction, there have been apprehensions about the harmful consequences of the handsets and mobile antennas. Cellular phones operate electromagnetic rays in the microwave limits. Koprivica[17] believed that due to the heavy establishment of community cellular towers, further electromagnetic rays arise in the living environment. Kovach,[18] advocated that EMR exposure is on increase and developing into a crucial wellbeing risk. He also addressed an awful community health disaster intimidating from one specific danger: EMR due to mobile phones, together with the rays from phone sets and from the tower stations transmitting the signals which surveys have associated to diagnosing of genetic injuries, tumors of the brain and other contact-coupled illnesses.[18] Multiple health risks are associated with mobile phones and base stations. Few of health effects studies are explained in the subsequent sub-sections.

3.1. Cancer

The discussion of possible health hazards of low-intensity, less-frequency electromagnetic fields arose in the 1970s with attention primarily on the electric component of these fields. At the end of the 1970s and on the 1980s, scientific interest changed towards the magnetic fields, particularly their association to carcinogenesis. The purpose of this shift was the surfacing of numerous epidemiologic news signifying data indicative of an increase in the incidence of leukemia in children[19–22] and adults[23–27] who are occupants in the nearby places of power distribution lines and of leukemia's[28] and brain tumors[29–36] in "electrical" occupations.

The consequences remain unnoticed in the early years of disclosure as the human body has specific resistance systems and the stress proteins absorb pressure.[37] This denotes that the human body identifies electromagnetic rays as a possible injury. An extra apprehension is that if the anxiety persists for a long time, there is a diminished reaction and the cells have less defense against

the injury. This means continued or regular contacts may be relatively detrimental, even at very less powers. Radiation from cellular base stations has been attributable to enhanced risk in cancer in the brain.[38] The reason behind this is because the cells located in the brain are attached with memory, learning, and motion. In another study[39] the author concluded that feeble electromagnetic fields discharge calcium ions from membranes of the cells. This outflow of calcium ions into the cytosol operates as a metabolic stimulant, which hastens development and curing, but it also supports the swelling of lumps. The deficit of calcium ions generates holes in the membranes of lysosomes, discharging DNA which produces DNA injury.[39] An alternate probability of DNA injury is through greater unbound radical production in cells,[40, 41] which in turn directs cellular injury inside the mitochondria. Therefore, it is suggested that the harmless threshold of rays for humans is up to 50 $\mu W/m^2$ and the higher threshold is 100 $\mu W/m^2$.

Most of public apprehend that contact with microwaves from cellular towers could be damaging to health and can, in specific, lead to cancer. In a Bavarian town, Neila, the general practitioners of the city executed an investigational survey[9] so that to explore a probable relationship between contact from radiation due to cellular towers and cancer risk. The model employed was an advanced environmental one. Two study zones were categorized: one within a circle of 400 m radius around the only cellular antennas of the town, and one area away from 400 m from the phone masts. The risk in the area far away was lesser but not drastically in comparison to the anticipated level. While this self-styled Neila-study used an enhanced environmental model with a unsystematic choice of paths and involving of few ideas of chosen people, it is yet disputable to latent bias as appropriate personal risk factors could not be taken into account in the investigations. A same yet less accurate investigation has been carried out in Netanya, Israel. A researcher[10] chose a place 350 m near to a cellular antenna. The inhabitants within this area belong to an outpatient health care centre of one of the investigators. The group within this zone comprised of 622 subjects residing in this place for at least 3 years at the start of the survey, which was one year after the onset of the functioning of the tower and continued for a period of one year.

The general cancer risk within the survey zone was analyzed with a neighborhood zone, with the entire town of Netanya, and with nationwide measurements. After start of implementation in the next year, 8 patients of tumors were identified in the survey zone. In the neighboring zone with a total of 1222 subjects, 2 patients were detected. As compared to the entire community with an anticipated risk of 31×10^{-4} denotes a significant rise in the research zone with an incidence of 129×10^{-4}. Furthermore as compared to the entire city of Netanya a greater risk was noted particularly in females. The authors also discovered that in the following years 8 new people were diagnosed in the research zone, however in the period 5 years preceding establishment of the cellular towers 2 cases were detected on annual basis. Spot calculations of increased levels of frequency were measured in the houses of tumor patients and levels between 3 and 5 mW/m^2 were calculated. While these levels are quite lower than suggested range, they are considerably higher as compared to general levels assessed in randomly chosen houses.[42] Moreover in the Netanya survey, absence of data on personal risk factors makes analysis complicated. But immigration partiality were not taken into consideration even though only those inhabitants were taken who lived in region for minimum of 3 years. The brief dormancy after initiation of the towers excludes an impact of contact on initiation period of the illness. The survey conducted by physicians from the German city of Naila advocated that tumor of breast was highest in the list, but tumors of the lung, bowel, prostate, skin cancer, pancreas, and blood tumour were all increased.[9]

3.2. Neurodegenerative Disease

Contact with electromagnetic area has discovered to be associated with Alzheimer's disease, motor neuron disease and Parkinson's disease. Almost each and everyone of such illnesses were engaged with the loss of certain nerves and are labeled as neurodegenerative illnesses.[43] Patients residing close to cellular towers were at potential risk for progressing to neuropsychiatric complaints like remembrance disruptions, headache, uneasiness, shivering, nausea, muscle seizures, tingling, numbness, changed reflexes, leg/foot pain, orthopedic pain, feeling of sadness, and sleep disorders. More serious responses include paralysis, tremors, psychosis and stroke.[44] In Ref. [13] the author concluded that problems such as fatigue, headache and difficulty in concentration were more frequent in the people having long time exposures to electromagnetic radiations from surrounding cellular antennas.

3.3. Effect on Skin

Radiations from cellular antennas and mobile phones have an effect on human skin. People who frequently use mobile have a greater amount of the transtyretin protein as compared to those who do not. This specific protein is made up inside the liver; it assists in the transportation of vitamin A in human system and performs a vital function in brain illnesses like Alzheimer's.[45] The signs of *Morgellons* disease indicate those of electromagnetic hypersensitivity (EHS); can be basis of how human body utilizes electric energy to restore injuries to the skin. Patients who experience this disease state a variety of skin complaints like biting, crawling and stinging feelings; cords or blackish spot like stuff above or inside the skin, granules and injuries (like itchiness or infections). EMFs disintegrate the defense mechanism while generating multiple sensitive and infection type reactions. The elevated rays of phone towers can produce an increase inside mast cells that denotes the signs of pain, tingling sensation, swelling and bleeding.[46, 47]

3.4. Other Effects

Irreversible sterility has been noticed in mouse[48] and regular contact has been related with reduced capability in sperm life and movement in about 25 percent of men.[49] Kids are more susceptible to radio frequency rays discharge as their cranium is slender, their brain is yet building and myelin covering still not made. A pregnant lady along with embryo both become susceptible due to the reality that these RF rays uninterruptedly counter with the budding fetus along with emerging cells. Microwave ray injures the placental blockage, suggesting that females during pregnancy should avoid use of mobiles.[50] These rays may have an unfavorable influence on the implantable cardiovascular defibrillators, impulse generators and heart pace maker.[51] These radiations may bring a discontinuity in Pace Maker function from discharging pulses in a way or may produce some type of outside controlling pulsation, bringing the person at risk to death.

Occupational surveys of individuals who come across rays contact in their job (occupational exposure) have revealed that these people have higher degrees of health hazards. A survey showed that employees who are in the top 10% group for EMF exposure are twice at risk of dying due to prostate cancer as compared to those exposed at lesser levels.[52] A survey done in Australia advocated that children living closer to TV and FM transmitting towers were twice at risk of leukemia than the kids residing more than seven miles away from these cellular base stations.[53] Furthermore, a survey revealed about TV signal exposed workers to have greater levels of Immunoglobulin A and G and less T8 cells and lymphocytes, producing a lowering of the immune response.[54]

3.5. Long-Term Exposures and Cumulative Effects

Radio Frequency Radiation (RFR) research can have many crucial biases. Most of the research in this area has reported a short span of time exposure of few minutes to more than a few hours. Less is realized about its health effects on a long span of exposure which can be felt by inhabitants residing closer to cellular towers, specifically with exposures covering months or years. The queries which can arise are like what can be the results of long-term contact? Extensive research is required to study its long term effects as well as short term effects. However, some studies show proof of collective outcomes. Phillips et al. in 1998 observed DNA injury in cells which were exposed 24 hours to low-strength RFR. This leads to gene mutation due to DNA injury which grows further with time. DNA injury can produce gene mutation that builds up with growing time. Similarly, other studies[55, 56] noticed that mouse when it is exposed to low level of RFR effects, its reproductive system is effected and hence become less reproductive. These studies suggest that a short span of time with high strength exposure can generate the approximately same result as long term having low intensity exposure and is another clue that RFR effects can build up over a period of time.[56]

By the end of the 1970s, some Swedish studies presented an idea which pointed to the fact that there was a higher risk of miscarriage and producing children with congenital malformations in families whose husband was employed in the electric power industry.[57] The same report also explained chromosomal injury observed in lymphocytes of switchyard workers[58, 59] and another Norwegian study found chromosome disruptions in high-voltage laboratory cable splicers,[60] indicating a probable chance of increase of genotoxic results in these employees. However, in a German study, no chromosome anomalies were reported in lymphocytes of 380-kV utility workers.[61] However, in another Swedish survey, fertility and family size were found to be different between exposed and unexposed men in utility substation workers. However, these changes were obvious before utility service, and for this purpose, the researchers interpreted the results as negative.[62] In a Chinese study that adjusted for drug utilization, contact with chemicals, and sound,[63] a greater risk of abrupt abortion was found in females handling electric blankets during initial stages of pregnancy. Other surveys have not observed increases in deformities.[64, 65] It has been credibly acknowledged that users of electric blankets have greater magnetic field intensities than nonusers,[66] and numerous large-scale epidemiologic surveys are in pipeline in which the probable confounding by temperature rise will hopefully also be considered.

3.5.1. Residential Exposures

A Finnish case-reference investigation documented an increased risk of early pregnancy loss among females exposed to 50-Hz magnetic fields in their houses.[67] The early pregnancy losses were diagnosed by hormone analysis among women who want to conceive. The 50-Hz magnetic fields were calculated in the houses of 89 patients with early pregnancy loss and 102 referents. A cut-off value of 0.6 JIT produced an odds ratio of 5. *1*(95% CI 1.2–2*1*). A finding of birth deformities in few towns through which high voltage power lines pass did not, however, recorded any increases in congenital defects.[68] In a survey of association between childhood malignancy and maternal field contact with electric blankets during pregnancy, brain cancers were found in excess.[69] In two surveys the risk of brain cancers was higher among children to males occupationally exposed to the fields,[70, 71] while in a third study it was not found.[72] As of childhood neuroblastoma, one study advocated an association with supposed paternal exposure,[73] while two others did not.[74, 75] The outcomes of these late effect studies are conflicting.[76, 77]

4. SAFETY STANDARDS AND LICENSING

For the purpose of safeguarding the community residing near to cellular towers and consumers of cellular phones, statutory and administrative agencies approve some protection guidelines, which dictate constraints on exposure limits under a specific level. There are multiple recommended nationwide and worldwide criteria's, however among those, the "International Commission on Non-Ionizing Radiation Protection (ICNIRP)" is the most appreciated one, and is accepted by more than 80 countries till now. For the purpose of radio bases, ICNIRP recommends two protective limits: one for workplace exposure while other for the entire community. Presently, efforts are in pipeline to synchronize the diverse guidelines in existence.

Many legislative organizations also suggest that challenging cable corporations should accomplish using one shared tower which will ultimately lessen the ecological and esthetic effect. This matter is a deciding aspect for refusal of the establishment of new antennas and towers in societies. In the US the guidelines are given by Federal Communications Commission (FCC). The FCC has based its codes mainly on those principles established by the "Institute of Electrical and Electronics Engineers (IEEE)," especially Subcommittee 4 of the "International Committee on Electromagnetic Safety." The Federal Communications Commission (FCC) is a self-regulating body of the United States government, found by Congressional statute to legalize interstate communications by radio, television, satellite, wire and cable in all states, the District of Columbia and U.S. territories. The FCC aims towards six targets in the areas of competition, broadband, the spectrum, public safety, the media and homeland security.

5. CONCLUSION

Mobile phones operate by communicating with cellular towers thereby emitting radiofrequency radiations. Multiple health hazards from these radiations like visual disturbances sleep disorders, headache, dizziness and cardiovascular problems are reported by different studies. Higher incidence of cancer was also found among people living in the vicinity to these towers. In order to safeguard the community residing around cellular

towers and consumers of mobile phones, governments, and regulatory bodies approve some safety guidelines, which dictate levels on exposure limits below a specific range. Other than this, government and regulatory bodies may compensate the inhabitants in case of serious health conditions, and also provide safety guidelines to people living near the cellular towers.

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Received: xx Xxxx xxxx. Accepted: xx Xxxx xxxx.

Catherine Cundall

From: MCMULLEN, MISTY N SMSgt US Air Force ANG 153 CPTF/LGRM <misty.mcmullen.1@us.af.mil>
Sent: Wednesday, May 21, 2025 3:22 PM
To: Planning
Cc: jnarvais@live.com
Subject: PZ-25-00033 CELL TOWER

Attn Planning Committee

We will be living directly across the street from the proposed cell tower, and we have several significant concerns. What we do know is that the closest distance one should live to any cell tower is 1650'. With my home directly across a two-lane road that puts us closer to being 400 ft away. We have two children and numerous studies have suggested a possible link between radiation exposure from cell towers and various health problems, including headaches, sleep disturbances, fatigue, and even more severe conditions like cancer. Although the scientific community has yet to reach a consensus on the long-term health impacts, the mere possibility of such risks is enough to cause considerable anxiety and stress among those living near cell towers.

In addition, the constant hum of the equipment and frequent maintenance activities contribute to persistent noise pollution, disrupting the tranquility of our rural area. We moved to the county to enjoy a peaceful and quiet environment, and these disturbances would greatly impact our quality of life. At home, we highly value the peace and natural beauty that surrounds us.

The presence of a cell tower not only serves as an eyesore, but also diminishes the aesthetic charm of our rural setting. This could negatively affect the overall value of the area, undermining the very qualities that make it a desirable place to live.

We are also very concerned about the risk of lightning strikes. If lightning were to strike the tower, it could inject a large current into the ground, creating dangerous voltage gradients that could affect not only the tower, but also nearby structures and equipment. This would add more anxiety to our home, especially during severe weather in the summer months. We have experienced this in the past when a nearby lightning strike affected our LED lighting throughout the house and damaged a TV, stereo system, and boiler control panel.

Why hasn't the planning committee considered placing this cell tower on state land near those unsightly oil rigs? Such a location seems more appropriate and could potentially allow for much needed compensation for our State.

With Concerned Regards

The McMullen's

2610 Iron Mountain

Cheyenne Wy 82009

Very Respectfully,

//SIGNED//
MISTY N. MCMULLEN, SMSgt, WY ANG
Operations & Compliance Superintendent
Resource Advisor
153d Logistics Readiness Squadron
☎ Office: 307-772-6076
☎ DSN: 388-6076
☎ Cell: 307-220-2076

Email: misty.mcmullen.1@us.af.mil
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"Continuous effort---not strength or intelligence---is the key to unlocking our potential." Winston Churchill

Catherine Cundall

From: Catherine Cundall
Sent: Thursday, June 5, 2025 5:16 PM
To: Catherine Cundall
Subject: FW: Cell Tower PZ-25-00033

From: michael basom <michaeld257@msn.com>
Sent: Thursday, June 5, 2025 3:29 PM
To: Commissioners <Commissioners@laramiecountywy.gov>
Cc: Planning <planning@laramiecountywy.gov>
Subject: Cell Tower PZ-25-00033

Distinguished Ladies and Gentlemen,

As a neighbor residing a bit outside the one-half mile area of the cell tower proposed for construction under the PZ-25-00033 application I realize that my input does not carry the same weight as that of my neighbors within that area. That said, my wife and I do however drive by the proposed project site multiple times every day and will be impacted by the negative aesthetic changes the project will bring to our neighborhood and the viewscape in particular.

I have read the comments filed by my neighbors regarding this matter and believe them to be accurate and worthy of fair and just consideration when determining whether to proceed with this project or not. To their many astute and relevant points I only wish to add that while communicational means such as towers are a necessary and integral part of the fabric of our modern lives, I believe that Master Sargent McMillan's suggestion that all could be better served if the tower were located in the vicinity of the oil wells to the east and further off the road to the south is the better reasoned developmental approach. Such action would group the non-residential and more industrial activities in an existing area that already hosts the same and thereby preserve the residential and agricultural nature of the area that current residents relied upon when deciding to make major investments in the homes they currently own.

Thank you for your consideration in this matter.

Sincerely,

Michael Basom
3029 Sitting Bull Road
Cheyenne, Wyoming 82009

(307) 421-1553

Catherine Cundall

From: Nancy McCann <ndmccann64@gmail.com>
Sent: Monday, June 9, 2025 3:02 PM
To: Catherine Cundall
Subject: PZ-25-00033 - cell tower objection

Please note my objection to the cell tower submitted by Rocky Mountain Towers and the Zumos.

If this tower is approved by the county commissioners, I am requesting that the carrier be required to disguise the tower as a Large Pine Tree or a Wind Mill or Water Tower structure. In addition, since the proposal talks about one tower with the addition of up to four, the tower folks should be required to notify us each and every time a new carrier is added after the first carrier.

This is not just about improved telecom and safety by having this additional service, its about profits for the carrier and the involved landowner. The community is affected by the standard sales pitch and I don't recall any of our community seeking out this telecom solution, i.e. we never asked for this and we weren't trying to solve a problem, but the carrier is here to help us solve something.

Because a cell tower affects the view shed of our community and it only benefits the landowner involved with the cell carrier, it would be wonderful if the carrier would give back to the community that it is affecting for the rest of our lives under this permanent structure. Too often, utilities, cell carriers and oil and gas, arrive in our community, but never give back anything to those who still live here permanently, so I want to know "What is Rocky Mountain Towers doing for us?" After the cell tower is built and the Zumos dispose of their property, the rest of our community is left holding the bag by having our viewshed interrupted permanently!

This cell tower is a solution that our community didn't ask for, so it should be denied in favor of the quiet enjoyment of our property within this beautiful community.

Thanks
Nancy McCann

Submitted
June 9, 2025

PETITION TO STOP THE PROPOSED CELL TOWER (PZ-25-00033, A PORTION OF SECTION 4 TOWNSHIP 14 NORTH, RANGE 66 WEST, LARAMIE COUNTY, CHEYENNE, WY, 2409 IRON MOUNTAIN ROAD)

We, the undersigned residents of the vicinity surrounding the proposed tower (location stated above) are writing to express our opposition to the proposed cell tower at 2409 Iron Mountain Road. We believe the tower is undesirable due to its potential negative impact on our community, including concerns about property values, health, and aesthetic considerations.

Property Values:

The presence of a cell tower will significantly negatively impact property values in our rural community. The tower's height and unsightly appearance will detract from the aesthetic appeal of our homes and the overall beauty of our rural properties.

Health Concerns:

There are growing concerns about the potential health effects of exposure to non-ionizing radiation emitted by cell towers. We believe the proximity of this tower to our homes and animals poses a risk to the health and well-being of our families, children, pets, and livestock.

Aesthetic Impact:

The proposed tower is an eyesore and will disrupt the natural beauty of our rural neighborhood. It is an inappropriate addition to the landscape and will negatively impact the quality of life for residents.

Alternatives:

- We believe that there are alternative solutions that do not require the construction of this tower. These solutions include the use of underground infrastructure and the exploration of alternative technologies that would be less disruptive to our community.

4

We urge the Laramie County Commissioners and the Laramie County Planning Board to reject the application for the proposed cell tower. We also urge you to prioritize the needs and concerns of the residents by protecting our property values, health and the aesthetics of our neighborhood.

	2615 Iron MTN Rd 303-541-3933
	2615 Iron MTN Rd 307-430 9232
	2811 IRON MTN. Rd.
Doug Franken	2817 Black Fox Road
Cindy Schneider	2931 Iron Mnt Rd. 214-0730
Kim L. Leiby Kim L. Leiby	2931 Iron Mtn. Rd. 631-3833
Louise D. Raimondi	3105 Iron Mountain Rd 635-1592
Susan Cook	10906 Grove Dr. 630-9373

Emma Stone	3020 Iron Mtn. Rd. Cheyenne. Wy 82009	520.239.6139
Edith Vosler	2924 Iron Mtn Rd	Cheyenne, Wy 82009 307-632-0133
Irwin Walsh	2819 Iron Mtn Rd	Cheyenne Wy 701-770-8736
Jeff BRAUNSCHWEIG	2821 IRON MOUNTAIN ROAD	cheyenne WY 82009 cell: 307 630-6680
RICHARD W. GOTTHARD	2809 IRON MOUNTAIN RD Cheyenne, WY 82009	CELL 307-275-0557 307-634-8611
Christopher Roth	2712 Iron Mtn Road Cheyenne, WY 82009	(307) 365-4920
Kara Roth	2712 Iron Mtn. Road Cheyenne WY 82009	970 215 6009
Ross & Gina Smith	3009 Cochise Rd Cheyenne WY	307-286-6264
Chuck + Joyce Nelson	11315 Hermosa Rd Cheyenne, Wy	307-635-3805
Caleb Schmerge	2913 Sitting Bull Rd	307-631-9704
Cindy Bradley	11119 Empire Dr	307-630-2487
	11119 Empire Dr	307 630 2059

Howard Sellenrick	11320 Empire Dr 82009
Nancy McCann	11504 Empire 82009
Georgia L Sibbett	2638 E Riding Club Rd
Kristy Denison	2918 Sitting Bull Rd
MARY NOLAN	2607 Sitting Bull Rd
Henry W Reylance Helen I Reylance	11324 Belmont
PAUL WEBSTER DARLYNE WEBSTER	10616 BEARTOOTH
Dwight Hayes Kathleen Hayes	2616 E Riding Club Rd
Lance Gleich	2644 E Riding Club Rd
Darlene Sibbett	321 Muscadine Way (1038 Riding Club)

Felicia Raimondi	3123 Iron Mt Rd	286-0029
	3123 Iron Mt Rd	421-6537
	3003 IRON MT RD	307-421-1305
	3009 Cochise	307-421-3481
	3009 Cochise	307-214-2009
Jeannie Narvais/McMullen	2610 Iron Mtn Road	307-920-1536
Misty McMullen	2610 Iron Mountain Rd	307 220 2076
Dean Bruetsman	2290 Iron Mountain Rd	307 421 1807
Shaylin Perry	2304 Iron Mountain Rd	719 334 2483
Josh Perry	2304 Iron Mountain Rd	719 821 1927
Dean M. Coll	2226 Summit Hill ct	307-214-2553

John Fox 307-631-9995
2719 Iron Mountain Rd.

Patricia A. Fox 307-631-8808
2719 Iron Mountain Rd.

Catherine Cundall

From: Terry <yaknakterry@gmail.com>
Sent: Wednesday, May 14, 2025 9:51 AM
To: Planning
Subject: Cell Tower PZ-25-00033

Categories: CATE

Good Morning,

This is the second paragraph of the Mission Statement from the Planning site webpage, please pay particular attention to the safe and attractive words.

The intent of these regulations is to create a safe and attractive living and working environment; to promote the economic vitality of the County; to further the orderly development of land; to ensure proper legal descriptions and monumenting of subdivided lands; and to minimize the impact of development on land and water resources.

I am in receipt of a letter from the Laramie County Planning and Development Department indicating a Tower could possibly be erected next to my property.

I am against the erection of this 150 foot tower for the following reasons:

1) This tower will be aesthetically displeasing for everyone that lives near the Zumo property and anyone that will drive on Iron Mountain Road. Even the Zumo family have said they will probably move but keep the property so they can keep collecting the money.
2) This will devalue my property and all properties near the tower or within eyesight of the tower. The towers are an eyesore and completely out of character for a rural subdivision.
3) This is a permanent environmental change for a short term technological issue. There are developments in technology happening all of the time, and this is a short-sighted solution by a commercial enterprise for their benefit, not for the benefit of the taxpayers of
my neighborhood and the surrounding area.
4) A recent 2018 peer-reviewed study by the National Toxicology Program of the National Institutes of Health (the most prestigious health research organization in the world) proved that exposure to radio frequency radiation, the kind emitted from wireless
infrastructure causes cancer and DNA damage. This is a NOT MAYBE. Their language says there was “clear evidence of carcinogenicity.”1. Health Concerns:

- **Non-ionizing radiation:**

  Cell towers emit radio frequency (RF) radiation, a type of non-ionizing radiation that has been linked to various health concerns.

  Potential health effects:

  Documented studies suggest potential links between cell tower radiation and increased cancer risk, cellular stress, headaches, sleep issues, genetic damage, and impacts on the nervous system.

- **Vulnerable populations:**

  Children may be more susceptible to the effects of RF radiation due to their developing nervous systems and brain tissue, according to the American Academy of Pediatrics.

2. Aesthetic and Property Value Impacts:

- **Visual blight:**

  Cell towers can be visually unappealing and detract from the aesthetic appeal of a neighborhood.

Property devaluation:

The presence of a cell tower can negatively impact property values, especially for homes located nearby.

Noise pollution: Cell towers can generate noise from cooling systems or other equipment.

Environmental impacts: The placement of cell towers can have environmental impacts. RF radiation is considered a new form of environmental pollution.

ALTERNATIVE SOLUTIONS

- **Improve existing infrastructure:**

  Explore options for upgrading existing cell towers or networks to improve coverage and reduce the need for new towers.

Small cells:

Consider the use of small cells or other distributed antenna systems (DAS) that can provide coverage without the need for large towers.

Fiber optic cables:

Explore the feasibility of using fiber optic cables to provide connectivity, which can be a more discreet and environmentally friendly option.

Satellite communication:

Consider the potential of satellite communication as an alternative to traditional cell towers, according to a report from IEEE Spectrum.

I am vehemently opposed to the construction of this tower.

Terry Styskal

RESOLUTION # _____

A RESOLUTION FOR A SITE PLAN FOR THE POWDERHOUSE MOUNTAIN CELL TOWER SITE PLAN LOCATED AT A PORTION OF SECTION 4, TOWNSHIP 14 NORTH, RANGE 66 WEST, 6TH P.M., LARAMIE COUNTY, WYOMING.

WHEREAS, Wyoming State Statutes §§18-5-101 to 18-5-107; §§18-5-201 to 18-5-208; §§18-5-301 to 18-5-315 authorize Laramie County, in promoting the public health, safety, morals and general welfare of the county, to regulate the use of land through zoning in unincorporated Laramie County; and

WHEREAS, the Laramie County Board of Commissioners have adopted the Laramie County Land Use Regulations (LCLUR); and

WHEREAS, this application is in compliance with Section 2-2-123 of the LCLUR governing the Wireless Telecommunication Services (WTS); and

WHEREAS, this application meets the criteria for a Site Plan pursuant to Section 2-2-133 of the Laramie County Land Use Regulations; and

WHEREAS, this application is in conformance with Section 4-2-101 of the LCLUR governing the A-1 – Agricultural and Rural Residential Zone District.

NOW THEREFORE BE IT RESOLVED BY THE GOVERNING BODY OF LARAMIE COUNTY, WYOMING, as follows:

The Laramie County Board of Commissioners finds that:

a. This application is in conformance with Section 2-2-123 governing Wireless Telecommunication Services; and,

b. This application is in conformance with Section 2-2-133 governing Site Plans; and,

c. This application is in conformance with Section 4-2-101 governing the A-1 – Agricultural and Rural Residential Zone District.

THEREFORE, the Board places the following conditions on the Powderhouse Mountain Cell Tower Site Plan:

1. **All agency comments must be addressed and corrections made to the Site Plan prior to issuance of a Certificate of Review;**

PRESENTED, READ, AND PASSED, this _____ day of _____, 2025.

LARAMIE COUNTY BOARD OF COMMISSIONERS

_____

Gunnar Malm, Chairman

ATTEST:

_____

Debra K. Lee, Laramie County Clerk

Reviewed and approved as to form:

_____

Laramie County Attorney

CONSTRUCTION DRAWINGS

PROPOSED 150-FT MONOPOLE

ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

SITE NAME

POWDERHOUSE MOUNTAIN

SITE ID

WY001

SITE COORDINATES

41° 13' 04.09" N, 104° 47' 00.68" W

SITE ADDRESS

2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE OVERVIEW

TYPE OF OCCUPANCY:	TELECOMMUNICATIONS
SITE TYPE:	RAWLAND
TOWER TYPE:	MONOPOLE
TOWER HEIGHT:	150-FT +/-
TOWER LATITUDE:	41° 13' 04.09" N (41.217803°)
TOWER LONGITUDE:	104° 47' 00.68" W (-104.783522°)
GROUND ELEVATION:	6179.2-FT +/- AMSL (NAVD 88)
ZONING JURISDICTION:	LARAMIE COUNTY
COUNTY:	LARAMIE
TAX PARCEL ID:	0-0014-0066-04050
ZONED:	A-1
POWER COMPANY:	TBD
TELCO/FIBER COMPANY:	TBD

PROJECT CONTACT DIRECTORY

LAND OWNER:	MICHAEL J. ZUMO AND LORINDA R. ZUMO 2409 IRON MOUNTAIN RD CHEYENNE, WY 82009
TOWER OWNER AND APPLICANT:	ROCKY MOUNTAIN TOWERS, INC. 5150 MAE ANNE AVE RENO, NV 89523 CONTACT: N/A
SITE ENGINEER:	DELTA OAKS GROUP, PLLC 4904 PROFESSIONAL COURT RALEIGH, NC 27609 CONTACT: RHETT BUTLER, PE (919) 342-8247
SCOPE OF WORK:	INSTALLATION OF 150-FT MONOPOLE AND A 80-FT BY 80-FT FENCED COMPOUND

CODE COMPLIANCE

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

1. UNIFORM CONSTRUCTION CODE (UCC)
2. ANSI/TIA/EIA-222-H
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES
5. 2024 WYOMING BUILDING CODE
6. 2024 WYOMING FIRE CODE
7. 2024 WYOMING MECHANICAL CODE
8. 2024 WYOMING FUEL GAS CODE
9. 2021 INTERNATIONAL ENERGY CONSERVATION CODE
10. 2023 WYOMING ELECTRICAL CODE

811 CALL WYOMING ONE 3 WORKING DAYS BEFORE YOU DIG
CALL 811 OR 1-800-332-2344

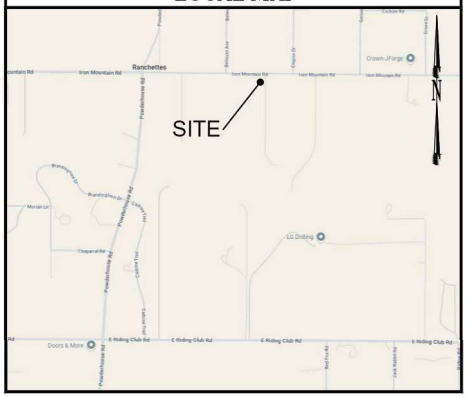
GENERAL NOTES

- THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, THEREFORE HANDICAP ACCESS IS NOT REQUIRED.
- A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE APPROX. ONE TRIP PER MONTH.
- NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED
- NO COMMERCIAL SIGNAGE IS PROPOSED.

SHEET INDEX

VICINITY MAP

LOCAL MAP



DIRECTIONS

FROM CHEYENNE REGIONAL AIRPORT AIRPORT:

HEAD WEST TOWARD AIRPORT PKWY W. TURN RIGHT ONTO E PERSHING BLVD. TURN RIGHT ONTO WARREN AVE. CONTINUE ONTO I-25BL/CENTRAL AVE. CONTINUE STRAIGHT ONTO WY-219 S/YELLOWSTONE RD. TURN RIGHT ONTO IRON MOUNTAIN RD. DESTINATION WILL BE ON THE RIGHT, 2.3 MI

PREPARED FOR:

ROCKY MOUNTAIN TOWERS, INC.
5150 MAE ANNE AVE
RENO, NV 89523

PREPARED BY:

DELTA OAKS GROUP
2724 DISCOVERY DRIVE, STE 110 & 120
RALEIGH, NC 27616
PHONE: (919) 342-8247
WWW.DELTAOAKSGROUP.COM

PRELIMINARY

DRAWN BY: GSB
CHECKED BY: WRB
PROJECT NO: 25-23808

SUBMITTALS

DATE	DESCRIPTION	REV	ISSUED BY
3/19/25	PRELIMINARY	A	GSB
4/2/25	PRELIMINARY	B	GSB
4/3/25	PRELIMINARY	C	GSB
4/4/25	PRELIMINARY	D	GSB

SITE NAME:
POWDERHOUSE MOUNTAIN

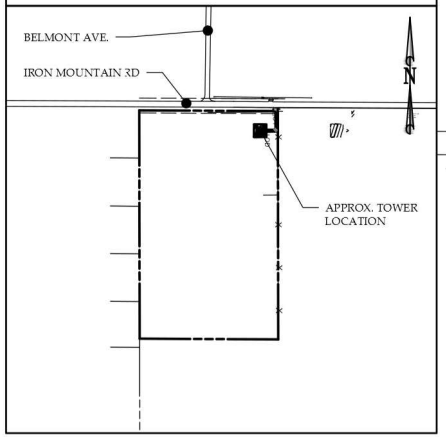
SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
TITLE SHEET

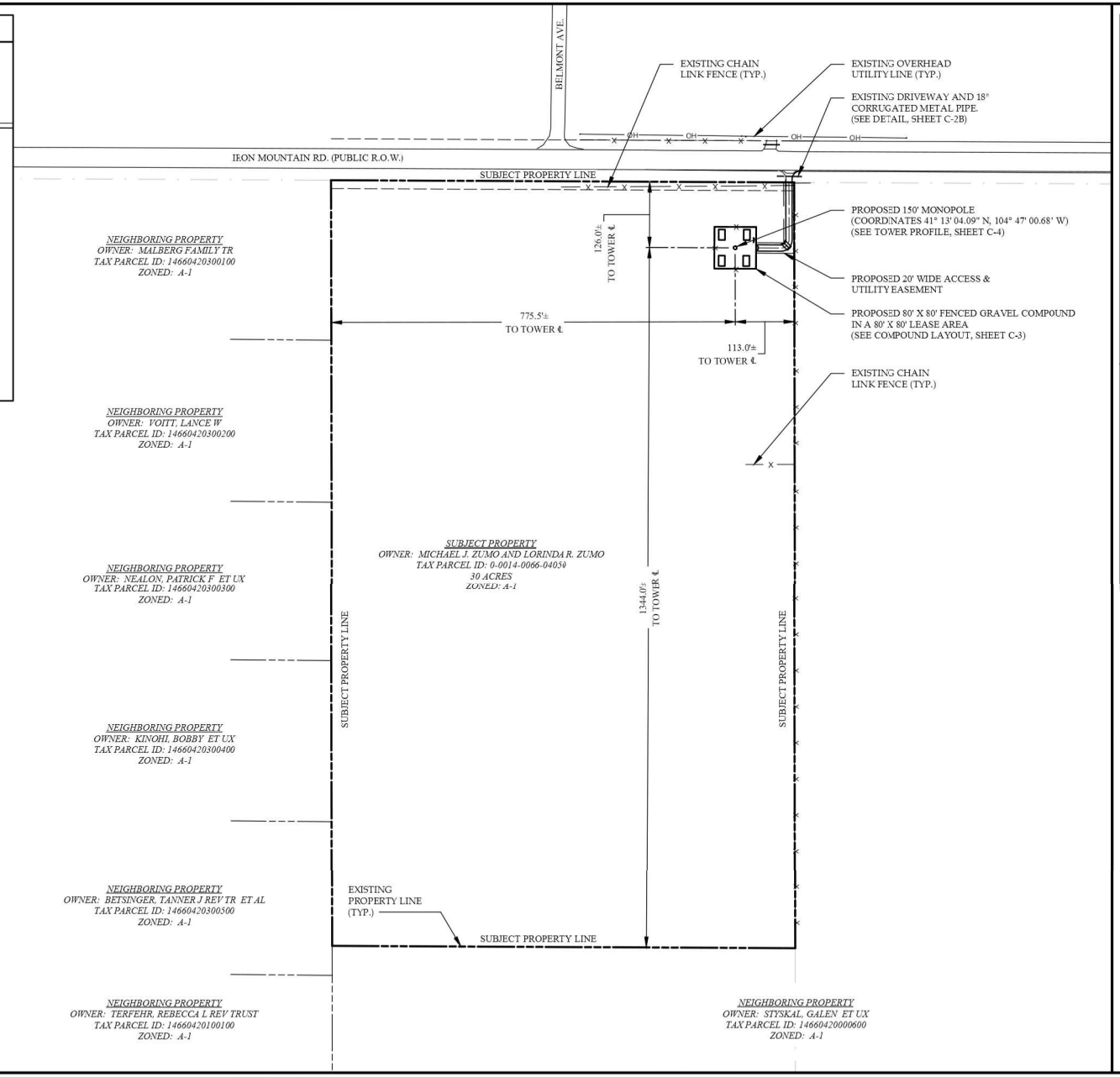
SHEET NUMBER
T-1

AERIAL IMAGE



NOTES

1. SEE GENERAL NOTES ON SHEET GN-1.
2. EXISTING TOPOGRAPHIC, UTILITY, PLANIMETRIC, AND BOUNDARY INFORMATION IS TAKEN FROM A DRAWING ENTITLED "WY00: RANCHETTES" AND DATED FEBRUARY 7, 2025 BY ARROW SURVEY GROUP, INC.



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4/4/25	PRELIMINARY	D	GSB

SITE NAME:
POWDERHOUSE MOUNTAIN

SITE ADDRESS:
2409 IRON MOUNTAIN ROAD
CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
OVERALL PARCEL VIEW

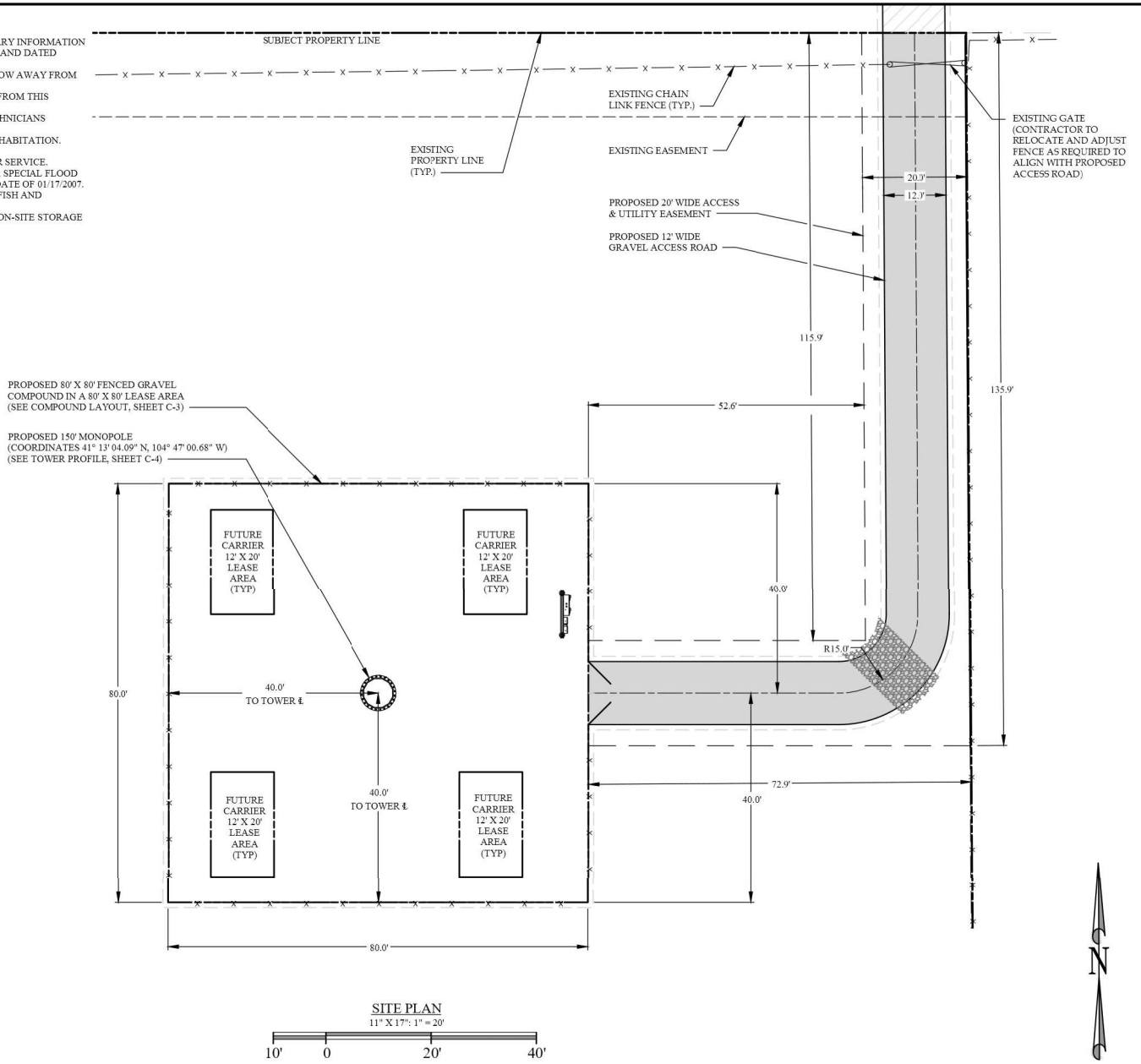
SHEET NUMBER
C-1

NOTES

1. SEE GENERAL NOTES ON SHEET GN-1
2. EXISTING TOPOGRAPHIC, UTILITY, PLANIMETRIC, AND BOUNDARY INFORMATION IS TAKEN FROM A DRAWING ENTITLED "WY001 - RANCHETTES" AND DATED FEBRUARY 7, 2025 BY ARROW SURVEY GROUP, INC.
3. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE PROPOSED EQUIPMENT & TOWER AREA.
4. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
5. THE SITE WILL GENERATE APPROX. 1 TRIPS PER MONTH BY TECHNICIANS PERFORMING ROUTINE MAINTENANCE.
6. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION. THERE IS NO HANDICAP ACCESS REQUIRED.
7. THE FACILITY DOES NOT REQUIRE WATER OR SANITARY SEWER SERVICE.
8. THE PROPOSED TOWER LEASE AREA IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE PER FEMA FIRM #56021C1083F WITH EFFECTIVE DATE OF 01/17/2007.
9. THERE ARE NO WETLANDS WITHIN THE PROJECT AREA PER US FISH AND WILDLIFE SERVICE NATIONAL WETLANDS INVENTORY.
10. THE FACILITY DOES NOT GENERATE SOLID WASTE REQUIRING ON-SITE STORAGE OR DISPOSAL SERVICES.

LEGEND

- PROPERTY LINE/ROW
- EXISTING LOT
- PROPOSED EASEMENT
- PROPOSED LEASE AREA
- WATERBODY
- EXISTING FENCE
- PROPOSED FENCE
- ROADWAY CENTERLINE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- OH — OVERHEAD UTILITY



SITE PLAN

11" X 17": 1" = 20'

10' 0 20' 40'

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RENO, NV 89523

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RALEIGH, NC 27616
PHONE: (919) 342-8247
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PRELIMINARY

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CHEYENNE, WY 82009

SITE ID:
WY001

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-2A

LEGEND

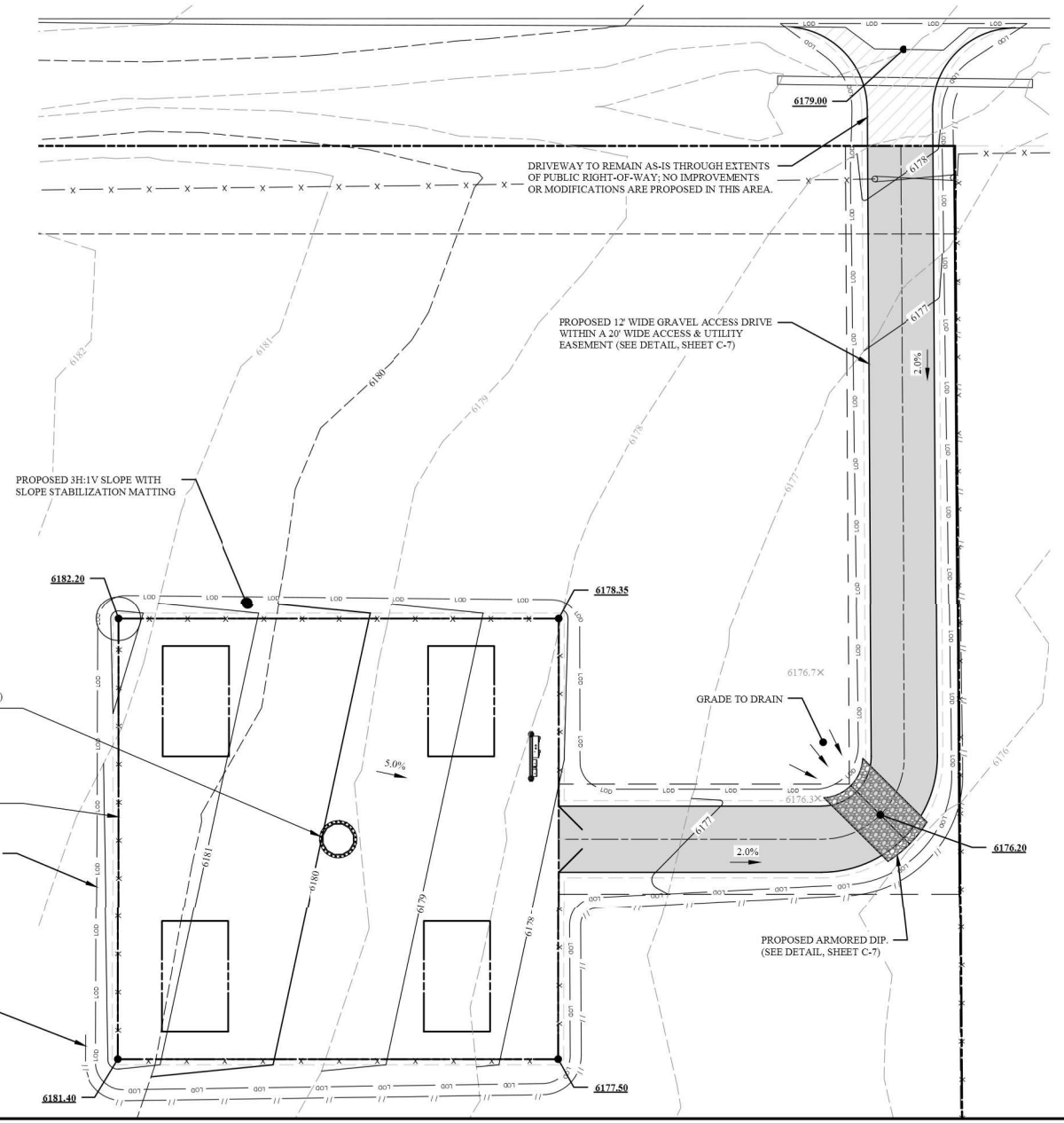
668	EXISTING CONTOUR (MINOR)
660	EXISTING CONTOUR (MAJOR)
676	PROPOSED CONTOUR (MINOR)
670	PROPOSED CONTOUR (MAJOR)
	PROPERTY LINE/ROW
	EXISTING EASEMENT
	PROPOSED EASEMENT
	PROPOSED LEASE AREA
	WATERBODY
	EXISTING FENCE
	PROPOSED FENCE
	ROADWAY CENTERLINE
	EXISTING EDGE OF PAVEMENT
	PROPOSED EDGE OF PAVEMENT
OH	OVERHEAD UTILITY
	EXISTING SLOPE/DRAINAGE
1.7%	PROPOSED SLOPE/DRAINAGE
	PROPOSED DITCH
670.20	PROPOSED SPOT ELEV
× 662.20	EXISTING SPOT ELEV

EROSION AND SEDIMENT CONTROL LEGEND

SF	PROPOSED SILT FENCE
OP	PROPOSED OUTLET PROTECTION
CE	PROPOSED CONSTRUCTION ENTRANCE
LOD	LIMITS OF DISTURBANCE

NOTES

1. SEE GENERAL NOTES ON SHEET GN-1.
2. ALL FILL SLOPES SHOULD HAVE A MAXIMUM GRADE OF 3H:1V.
3. ALL CUT SLOPES SHOULD HAVE A MAXIMUM GRADE OF 2½:1V.
4. PROPOSED SCOPE DOES NOT INCLUDE ANY CHANGES OR MODIFICATIONS IN THE PUBLIC ROW.



GRADING & EROSION CONTROL PLAN

11" X 17": 1" = 20'

10' 0 20' 40'

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SHEET TITLE
GRADING & EROSION CONTROL PLAN

SHEET NUMBER
C-2B