



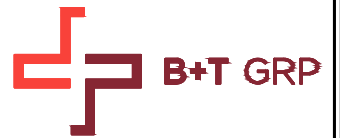
SITE NAME:
SD41 SOUTH MERCER

USID: 11526
FA NUMBER: 10092519
IWM NUMBER:
WSWOR0048001, WSWOR0048429,
WSWOR0048515, WSWOR0048728,
WSWOR0047348, WSWOR0048211,
WSWOR0048336, WSWOR0047874

EXISTING 60'-0" MONOPOLE
CELL SITE RF MODIFICATIONS

RF DATA SHEET

| | |
|----------------|------------|
| RFDS ID | RFDS-83872 |
| ISSUE REVISION | N/A |
| ISSUE DATE | N/A |



USID: 11526
FA: 10092519
SD41 SOUTH MERCER
8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
EXISTING MONOPOLE

PROJECT NO: 174306.001.01
CHECKED BY: LR

| REV | DATE | DRWN | DESCRIPTION |
|-----|---------|------|--------------------|
| A | 12/2/24 | BD | PRELIMINARY REVIEW |
| B | 1/8/25 | BKR | PRELIMINARY REVIEW |

B&T ENGINEERING, INC.
3425
Expires 12/31/25

**THIS DOCUMENT IS
PRELIMINARY IN
NATURE AND IS NOT
A FINAL, SIGNED
AND SEALED
DOCUMENT**

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET TITLE:
TITLE SHEET

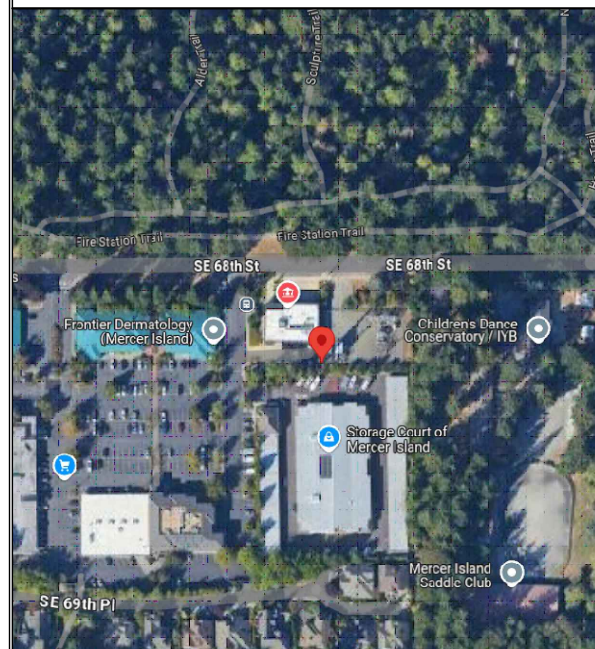
SHEET NUMBER: **T-1** REVISION: **B**

PROJECT SUMMARY

TOWER OWNER: CITY OF MERCER ISLAND, A WASHINGTON MUNICIPAL CORPORATION
ADDRESS: 9611 SE 36TH STREET
MERCER ISLAND, WA 98040-9598
CONTACT: N/A
SITE NUMBER: SD41
SITE ADDRESS: 8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
CUSTOMER/APPLICANT: AT&T WIRELESS
200 NORTH WARNER ROAD
KING OF PRUSSIA, PA 19406

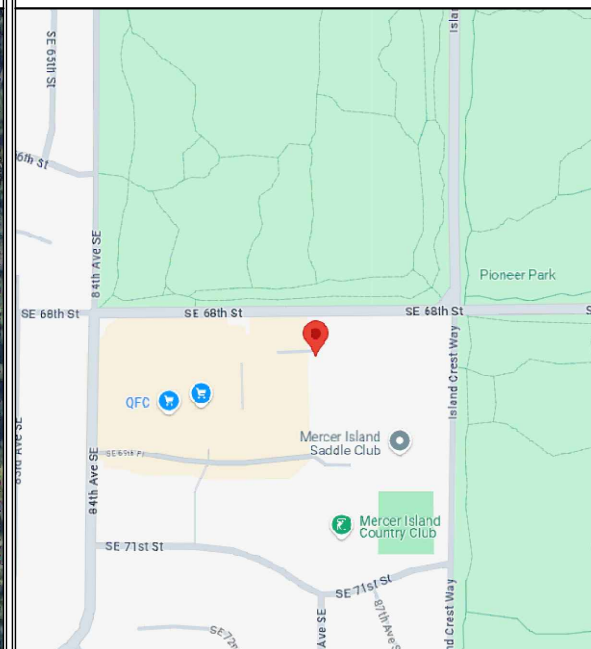
NAD83
LATITUDE: 47.541390° N
LONGITUDE: 122.223890° W
JURISDICTION: CITY OF MERCER ISLAND
COUNTY: KING
GROUND ELEVATION: 348' AMSL
OCCUPANCY TYPE: UNMANNED
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
CONSTRUCTION TYPE: II-B
OCCUPANCY GROUP: U

AERIAL MAP



NO SCALE

VICINITY MAP



NO SCALE

DRAWING INDEX

| SHEET # | SHEET DESCRIPTION |
|-------------|--------------------------------------|
| T-1 | TITLE SHEET |
| GN-1 | GENERAL NOTES |
| C-1 | OVERALL SITE PLAN |
| C-2 | EXISTING & PROPOSED EQUIPMENT PLANS |
| C-3 | EXISTING & PROPOSED SITE ELEVATIONS |
| C-4 | EXISTING ANTENNA PLAN |
| C-5 | PROPOSED ANTENNA PLAN |
| C-5.1 | PROPOSED ANTENNA PLAN |
| C-6 | RFDS SCHEDULE |
| C-7 TO C-11 | PROPOSED EQUIPMENT DETAILS |
| E-1 | PROPOSED POWER CALCULATION WORKSHEET |
| E-2 | WIRING DIAGRAM - GROUND |
| E-3 | WIRING DIAGRAM - TOWER |
| G-1 | GROUNDING DETAILS |
| RF-1 | PLUMBING DIAGRAM |

PROJECT DESCRIPTION

- TOWER SOW:**
- REMOVE (3) BA-A5A5407X65V-01 ANTENNAS FROM A5/B5/C5.
 - REMOVE (3) DS7W4QT8-VT ANTENNAS FROM A6/B6/C6.
 - REMOVE (3) AHFIB RRHs FROM A5/B5/C5.
 - REMOVE (3) AHLBA RRHs FROM A5/B5/C5.
 - REMOVE (3) AHCA RRHs FROM A6/B6/C6.
 - REMOVE (3) RRH4X25-WCS-4R RRHs FROM A6/B6/C6.
 - REMOVE (6) DBC0135F3V92-1 DIPLEXERS FROM A6/B6/C6.
 - REMOVE (3) 2" STD. X 10'-6" ANTENNA MOUNT PIPES W/ ATTACHMENT HARDWARE.
 - RELOCATE (2) DC6 SQUIDS.
 - INSTALL (3) NEW AIR6472 B77G/B77M ANTENNAS W/ INTEGRATED RRHs ON A1/B1/C1.
 - INSTALL (6) NEW 120716 ANTENNAS ON A2/A3, B2/B3 & C2/C3.
 - INSTALL (3) NEW 4490 B5/B12A RRHs ON A2/B2/C2.
 - INSTALL (3) NEW 4890 B25/B66A RRHs ON A2/B2/C2.
 - INSTALL (3) NEW 4494 B14/B29 RRHs ON A3/B3/C3.
 - INSTALL (3) 2.5" STD. X 12'-0" LONG MOUNT PIPES W/ ATTACHMENT HARDWARE.
 - INSTALL (3) UGLM-DCP RRH RING MOUNT W/ (3) NEW 2" STD. X 8'-0" MOUNT PIPES.
- GROUND SOW:**
- INSTALL (9) NEW DUAL RRH MOUNTING BRACKETS.
 - REMOVE (5) +24V CONVERTERS.
 - REMOVE FSM4 FROM LTE RACK.
 - INSTALL (1) RETRO-FIT KIT.
 - INSTALL (1) PS-CONV-48-24 POWERSHIFT.
 - INSTALL (8) -58V CONVERTERS.
 - INSTALL (1) 6672 BBU CARD.
 - INSTALL (1) 6610 SITE CONTROLLER.
 - INSTALL (1) 1X4 GPS SPLITTER.
 - INSTALL (1) SAU ALARM MODULE.
 - INSTALL (1) D2 SIAD.
 - INSTALL (9) 50A DC BREAKERS.
 - INSTALL (3) 35A DC BREAKERS.
 - INSTALL (1) 5A DC BREAKER.
 - INSTALL (1) 15A DC BREAKER.

PENDING STRUCTURAL ANALYSIS - BY OTHERS

CONTACT INFORMATION

A&E FIRM: B+T GROUP
1717 S. BOULDER, STE. 300
TULSA, OK 74119
CONTACT: JASON TOWNLEY
PHONE: (918) 587-4630
ELECTRIC PROVIDER: PUGET SOUND ENERGY INC.
PHONE: 888-225-5773
TELCO PROVIDER: N/A
PHONE: N/A

DRIVING DIRECTIONS

DEPART FROM SEATTLE-TACOMA INTERNATIONAL AIRPORT:
HEAD WEST ON 182ND ST/ARPT EXPY S. USE THE RIGHT 2 LANES TO MERGE WITH WA-518 E VIA THE RAMP TO I-5/I-405/SEATTLE/TACOMA. USE THE LEFT LANE TO TAKE THE RAMP ONTO I-5 N. USE THE RIGHT LANE TO MERGE WITH I-5 N. USE THE RIGHT LANE TO TAKE EXIT 164A FOR I-90 E TOWARD SPOKANE. CONTINUE ONTO I-90 E. KEEP LEFT TO STAY ON I-90 E. TAKE EXIT 7B FOR ISLAND CREST WAY. CONTINUE ONTO ISLAND CREST WAY. TURN RIGHT ONTO SE 68TH ST. TURN LEFT. TURN LEFT. DESTINATION WILL BE ON THE RIGHT.

DO NOT SCALE DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
SEE SHEET GN-1 FOR ADDITIONAL CONSTRUCTION NOTES



CALL WASHINGTON ONE CALL
(800) 424-5555
CALL 3 WORKING DAYS
BEFORE YOU DIG!



CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES:

| CODE TYPE | CODE |
|-------------------|--------------------------|
| BUILDING/DWELLING | IBC 2021 WITH AMENDMENTS |
| STRUCTURAL | IBC 2021 WITH AMENDMENTS |
| MECHANICAL | IMC 2021 WITH AMENDMENTS |
| ELECTRICAL | NEC 2023 WITH AMENDMENTS |

PROJECT COMPLIANCE NOTES:

1. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE AND IS NOT FOR HUMAN HABITAT. (NO HANDICAP ACCESS IS REQUIRED).
2. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
3. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS PROPOSAL, UNLESS DURING EMERGENCY.
4. OUTDOOR STORAGE AND SOLID WASTE CONTAINERS ARE NOT PROPOSED.
5. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST AT&T SYSTEM GROUNDING STANDARDS. TECHNICAL SPECIFICATION FOR CONSTRUCTION OF LTE SITES AND WILL FOLLOW AT&T GROUNDING AND BONDING REQUIREMENTS FOR NETWORK FACILITIES AT&T DOC ID ATT-TP-76416 AND AT&T POLICY LETTER ATT-CEM-13002.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED DURING CONSTRUCTION OPERATION.
7. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM DRAWINGS PROVIDED BY THE APPLICANT REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY TURF VENDOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. NO ADDITIONAL PARKING IS PROPOSED. EXISTING ACCESS AND PARKING WILL BE USED.
10. NO ADDITIONAL LANDSCAPING IS PROPOSED AT THIS SITE.
11. ALL COAXIAL CABLE/FIBER AND DC CABLE INSTALLATION IS TO FOLLOW MANUFACTURER'S INSTRUCTION.

GREENFIELD GROUNDING NOTES:

ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC AND AT&T GROUNDING AND BONDING REQUIREMENTS FOR NETWORK FACILITIES ATT-TP-76416 AND AT&T POLICY LETTER ATT-CEM-13002.

THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH MINIMUM #2 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. TIN STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

EACH CABINET AND FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #2 TIN STRANDED COPPER FOR INDOOR/ROOFTOP APPLICATIONS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR GROUND CABINETS.

CONNECTIONS TO THE GROUND BAR SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BAR ARE PERMITTED.

ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE (2) CONDUCTORS OF #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS; A MINIMUM OF (2) CRIMPS AND WINDOWLESS LUGS FOR OUTDOOR APPLICATIONS AND WINDOWED LUGS FOR INDOOR APPLICATIONS.

ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE GROUNDING RING.

APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

MISCELLANEOUS ELECTRICAL & NON-ELECTRICAL METAL BOXES, FRAMES & SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC AND AT&T GROUNDING & BONDING REQUIREMENTS FOR NETWORK FACILITIES ATT-TP-76416 & AT&T POLICY LETTER ATT-CEM-13002.

BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.

GROUNDS FOR INDOOR SITE EQUIPMENT SHALL BE LANDED ON THE APPROPRIATE SECTION OF THE CRGB OR HALO AS PER ATT-TP-76416 AND AT&T POLICY LETTER ATT-CEM-13002.

GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

ELECTRICAL INSTALLATION NOTES:

ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

WIRING, RACEWAY & SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH PROPER LABELING ID, 145 TYPE FIBER TAG, WITH UV RATED P-TOUCH LABEL, MINIMUM WIDTH OF 1/2". THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).

PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH P-TOUCH LABELS ON 145 TYPE FIBER TAGS.

THERE SHALL BE NO USE OF NYLON TIE CABLE FOR INDOOR USE.

POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.

SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#2 TIN STRANDED OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.

POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.

ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).

RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).

EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.

METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "AT&T WIRELESS".

PROJECT GENERAL NOTES:










1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 TURF VENDOR-
 CONTRACTOR-
 OWNER-
 OEM-
 GENERAL CONTRACTOR (CONSTRUCTION)
 AT&T
 ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY TURF VENDOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE TURF VENDOR.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. CONSTRUCTION SHALL COMPLY WITH AT&T AND MANUFACTURER SPECIFICATIONS.
14. ALL ITEMS REMOVED FROM SERVICE ON SITES THAT HAVE AN AT&T ASSET TAG MUST BE LOGGED BACK IN WITH AT&T.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

- AGL ABOVE GRADE LEVEL
- BTS BASE TRANSCIEVER STATION
- (E) EXISTING
- MIN. MINIMUM
- N.T.S. NOT TO SCALE
- REF REFERENCE
- RF RADIO FREQUENCY
- T.B.D. TO BE DETERMINED
- T.B.R. TO BE RESOLVED
- TYP TYPICAL
- REQ REQUIRED
- EGR EQUIPMENT GROUND RING
- AWG AMERICAN WIRE GAUGE
- MGB MASTER GROUND BAR
- EG EQUIPMENT GROUND
- BCW BARE COPPER WIRE
- SIAD SMART INTEGRATED ACCESS DEVICE
- GEN GENERATOR
- IGR INTERIOR GROUND RING (HALO)
- RBS RADIO BASE STATION

SYMBOLS:

-  SOLID GROUND BUS BAR
-  SOLID NEUTRAL BUS BAR
-  SUPPLEMENTAL GROUND CONDUCTOR
-  2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
-  SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
-  CHEMICAL GROUND ROD
-  TEST WELL
-  DISCONNECT SWITCH
-  METER



USID: 11526
 FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040

EXISTING MONOPOLE

| | |
|-------------|---------------|
| PROJECT NO: | 174306.001.01 |
| CHECKED BY: | LR |

| ISSUED FOR: | | | |
|-------------|---------|------|--------------------|
| REV | DATE | DRWN | DESCRIPTION |
| A | 12/2/24 | BD | PRELIMINARY REVIEW |
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| | | | |
| | | | |

B&T ENGINEERING, INC.
 3425
 Expires 12/31/25

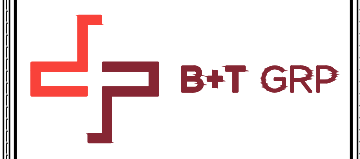
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SHEET TITLE:
 GENERAL NOTES

SHEET NUMBER: **GN-1** REVISION: **B**

SITE PLAN DISCLAIMER:
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS AND ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT.



ERICSSON
 6300 LEGACY DRIVE
 PLANO, TX 75024

USID: 11526
 FA: 10092519
SD41 SOUTH MERCER
 8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040
 EXISTING MONOPOLE

PROJECT NO: 174306.001.01
 CHECKED BY: LR

ISSUED FOR:

| REV | DATE | DRWN | DESCRIPTION |
|-----|---------|------|--------------------|
| A | 12/2/24 | BD | PRELIMINARY REVIEW |
| B | 1/8/25 | BKR | PRELIMINARY REVIEW |

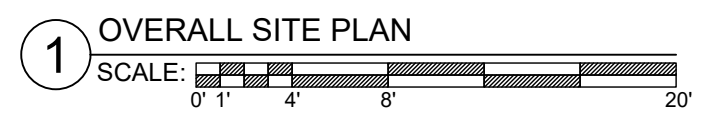
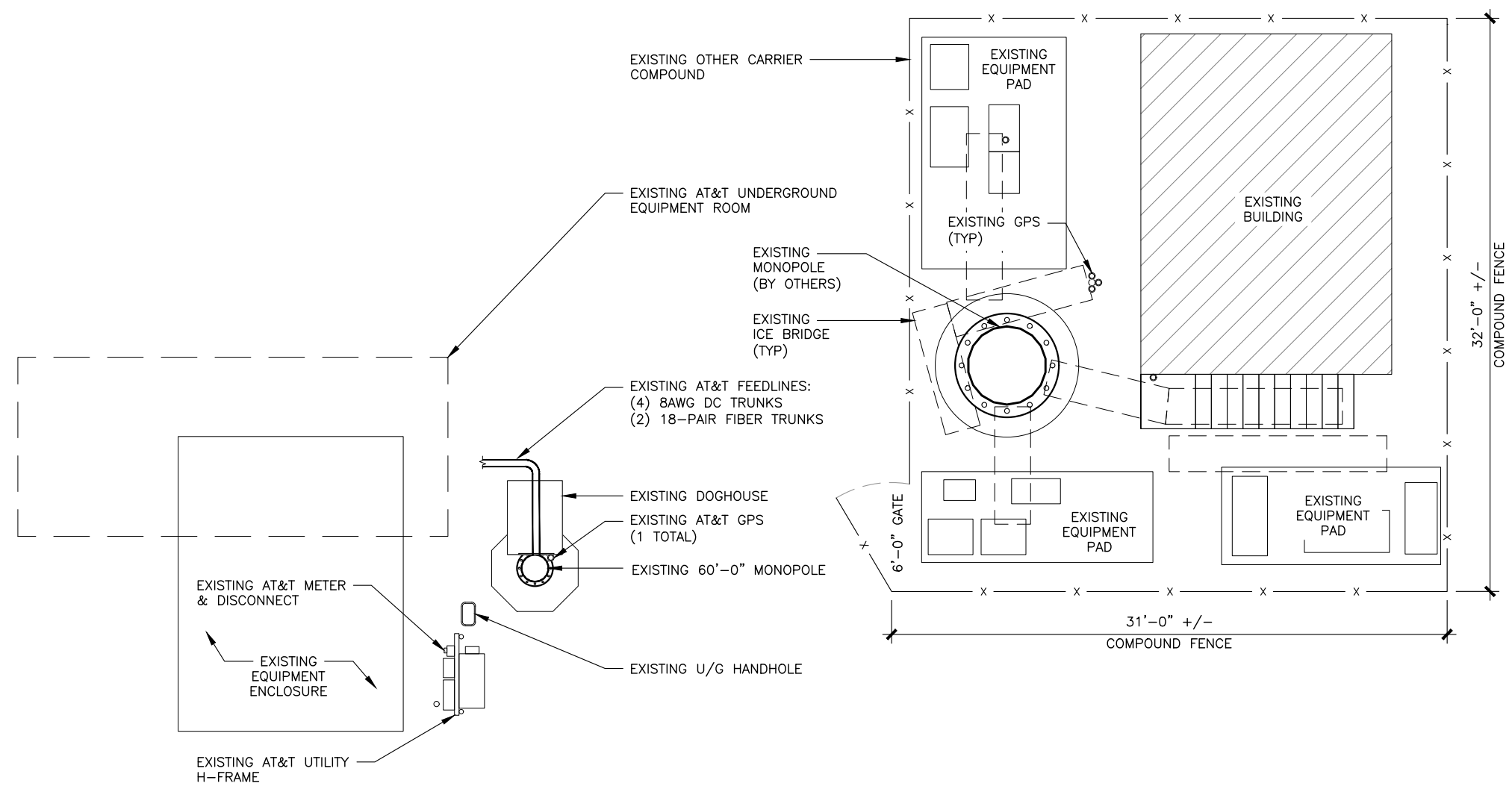
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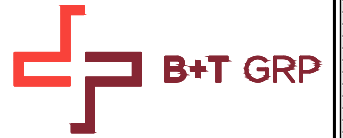
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SHEET TITLE:
 OVERALL SITE PLAN

SHEET NUMBER: **C-1** REVISION: **B**





ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519
SD41 SOUTH MERCER
8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
EXISTING MONOPOLE

PROJECT NO: 174306.001.01
CHECKED BY: LR

ISSUED FOR:

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| B | 1/8/25 | BKR | PRELIMINARY REVIEW |

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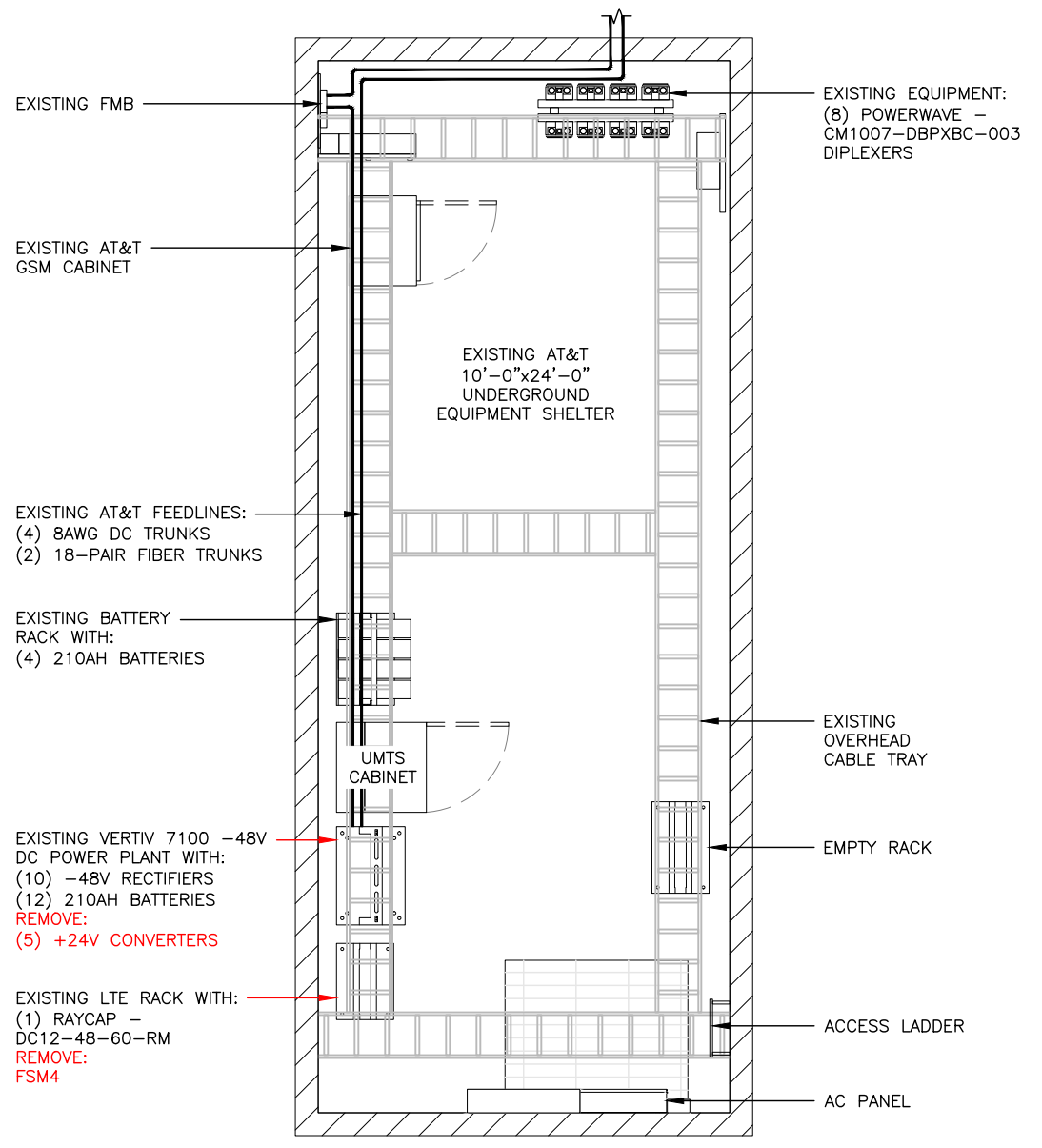
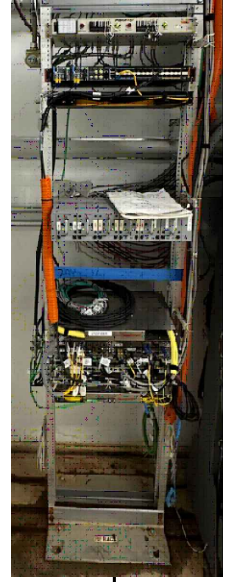
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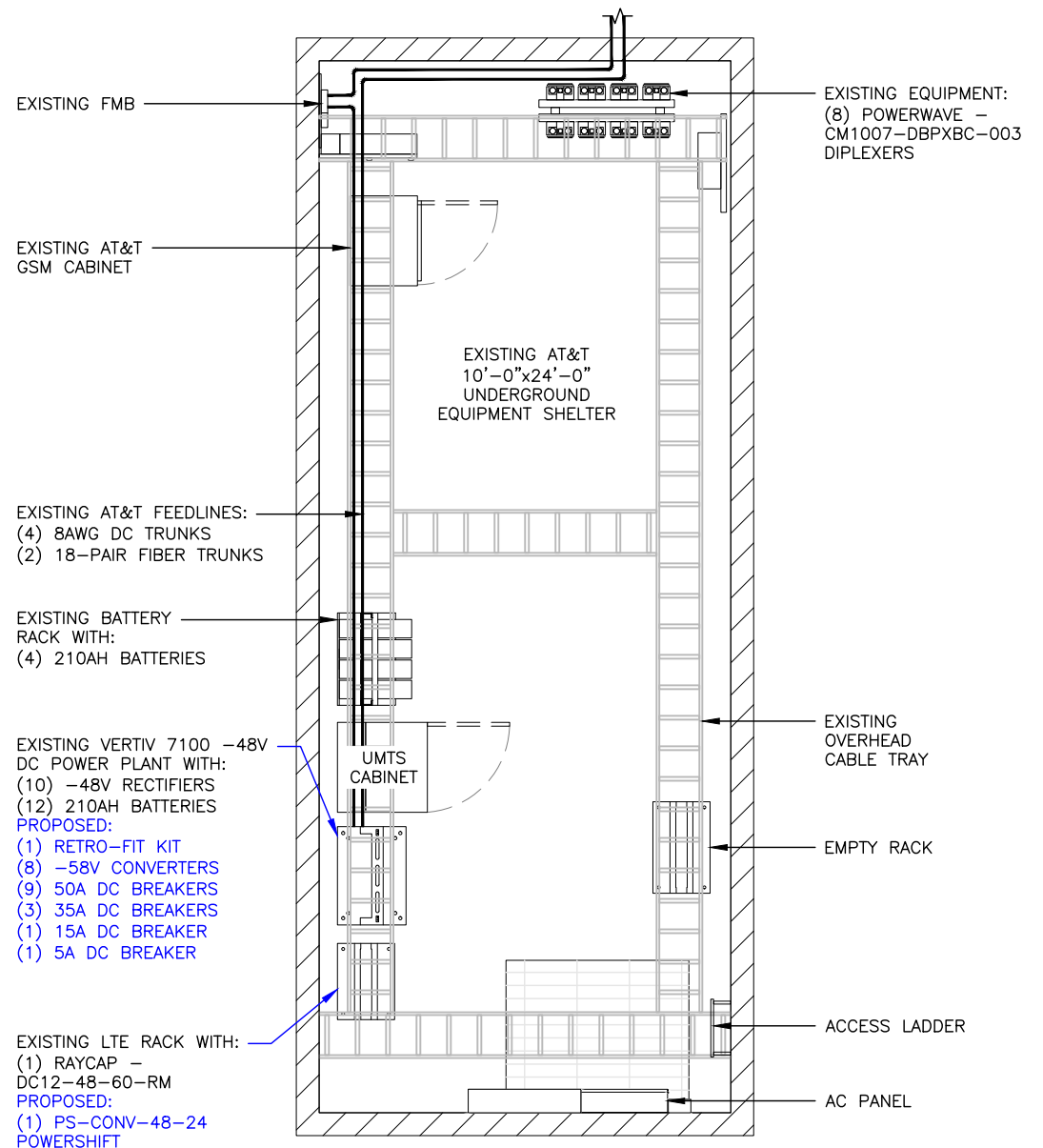
SHEET TITLE:
EXISTING & PROPOSED EQUIPMENT PLANS

SHEET NUMBER: **C-2** REVISION: **B**

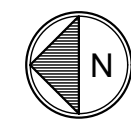
SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OR FROM ASSESSORS MAPS AND ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT.



1 EXISTING EQUIPMENT PLAN
SCALE: 0' 1' 2' 4' 10'



2 PROPOSED EQUIPMENT PLAN
SCALE: 0' 1' 2' 4' 10'



TIP OF EXISTING CARRIER DIPOLE
ELEV. = 80'-0" (FIELD VERIFY)

EXISTING CARRIER DIPOLE
RAD CENTER = 68'-8" (FIELD VERIFY)

EXISTING CARRIER OMNI ANTENNAS
RAD CENTER = 64'-0" (FIELD VERIFY)

TOP OF TOWER
ELEV. = 60'-0"

AT&T ANTENNA TIP HEIGHT
ELEV. = 59'-0"

AT&T ANTENNAS
RAD CENTER = 55'-0"

AT&T ANTENNAS
RAD CENTER = 46'-0"

EXISTING GPS
RAD CENTER = 10'-0" (FIELD VERIFY)

EXISTING AT&T
EQUIPMENT
ENCLOSURE

TOWER SECTION NOT SHOWN FOR CLARITY:
• FROM 13'-0" TO 27'-5"

1/C-4

EXISTING AT&T EQUIPMENT AT 55'-0":

- (1) COLLAR MOUNT ASSEMBLY
RELOCATE:
(2) DC6-48-60-18-8F SQUIDS
REMOVE:
(3) BA-A5A5407X65V-01 ANTENNAS
(3) AHFIB RRHs
(3) AHLBA RRHs
(3) AHCA RRHs
(3) 2" STD. ANTENNA MOUNT PIPES

EXISTING AT&T EQUIPMENT AT 46'-0":

- (1) COLLAR MOUNT ASSEMBLY
REMOVE:
(3) DS7W4QT8-VT ANTENNAS
(3) RRH4X25-WCS-4R RRHs
(6) DBC0135F3V92-1 DIPLEXERS

EXISTING AT&T FEEDLINES:
(4) 8AWG DC TRUNKS
(2) 18-PAIR FIBER TRUNKS

EXISTING 60'-0" MONOPOLE

1 EXISTING TOWER ELEVATION

SCALE: 0' 1' 4' 8' 20'

NOTE:
THESE DRAWINGS ARE NOT INTENDED TO REFLECT THE STRUCTURAL INTEGRITY OF THE TOWER. THE PROPOSED ANTENNAS AND TRANSMISSION LINES SHOWN ARE REPRESENTATIVE IN NATURE AND DO NOT REFLECT THE ACTUAL CONFIGURATIONS REQUIRED. THE CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS OF THIS TOWER SITE FOR THE APPROVED LOCATION AND CONFIGURATION OF ALL ANTENNAS AND TRANSMISSION LINES. ALL ANTENNAS MUST BE MOUNTED AND THE TRANSMISSION LINES CONFIGURED IN STRICT ACCORDANCE WITH THE STRUCTURAL ANALYSIS.

TIP OF EXISTING CARRIER DIPOLE
ELEV. = 80'-0" (FIELD VERIFY)

EXISTING CARRIER DIPOLE
RAD CENTER = 68'-8" (FIELD VERIFY)

EXISTING CARRIER OMNI ANTENNAS
RAD CENTER = 64'-0" (FIELD VERIFY)

TOP OF TOWER
ELEV. = 60'-0"

AT&T ANTENNA TIP HEIGHT
ELEV. = 59'-0"

AT&T ANTENNAS
RAD CENTER = 57'-6"

AT&T ANTENNAS
RAD CENTER = 51'-9"

AT&T ANTENNAS
RAD CENTER = 44'-3"

EXISTING GPS
RAD CENTER = 10'-0" (FIELD VERIFY)

EXISTING AT&T
EQUIPMENT
ENCLOSURE

NOTES:
1. 12" MIN. VERTICAL SEPARATION (TIP TO TOE OF ANTENNA).

1/C-5

1/C-5.1

1/C-5.1

EXISTING AT&T EQUIPMENT AT 57'-6":

- (1) COLLAR MOUNT ASSEMBLY
PROPOSED:
(3) AIR6472 B77G/B77M ANTENNAS W/ INTEGRATED RRHs
(3) 120716 ANTENNAS
(3) 2.5" STD. x 12'-0" LONG MOUNT PIPES W/ ATTACHMENT HARDWARE

EXISTING AT&T EQUIPMENT AT 57'-6":

- PROPOSED:
(3) 120716 ANTENNAS

EXISTING AT&T EQUIPMENT AT 44'-3":

- (1) COLLAR MOUNT ASSEMBLY
PROPOSED:
(3) 120716 ANTENNAS

EXISTING AT&T EQUIPMENT @ 33'-0":

- RELOCATED:
(2) DC6-48-60-18-8F SQUID
PROPOSED:
(3) 4490 B5/B12A RRHs
(3) 4494 B14/B29 RRHs
(3) 4890 B25/B66A RRHs
(1) UGLM-DCP RRH RING MOUNT W/ MOUNTING PIPES
(9) RRH MOUNTING BRACKETS

EXISTING AT&T FEEDLINES:
(4) 8AWG DC TRUNKS
(2) 18-PAIR FIBER TRUNKS

EXISTING 60'-0" MONOPOLE

2 PROPOSED TOWER ELEVATION

SCALE: 0' 1' 4' 8' 20'



6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH
MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

PROJECT NO: 174306.001.01

CHECKED BY: LR

ISSUED FOR:

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SHEET TITLE:
EXISTING & PROPOSED
SITE ELEVATIONS

SHEET NUMBER: C-3

REVISION: B



6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

PROJECT NO: 174306.001.01

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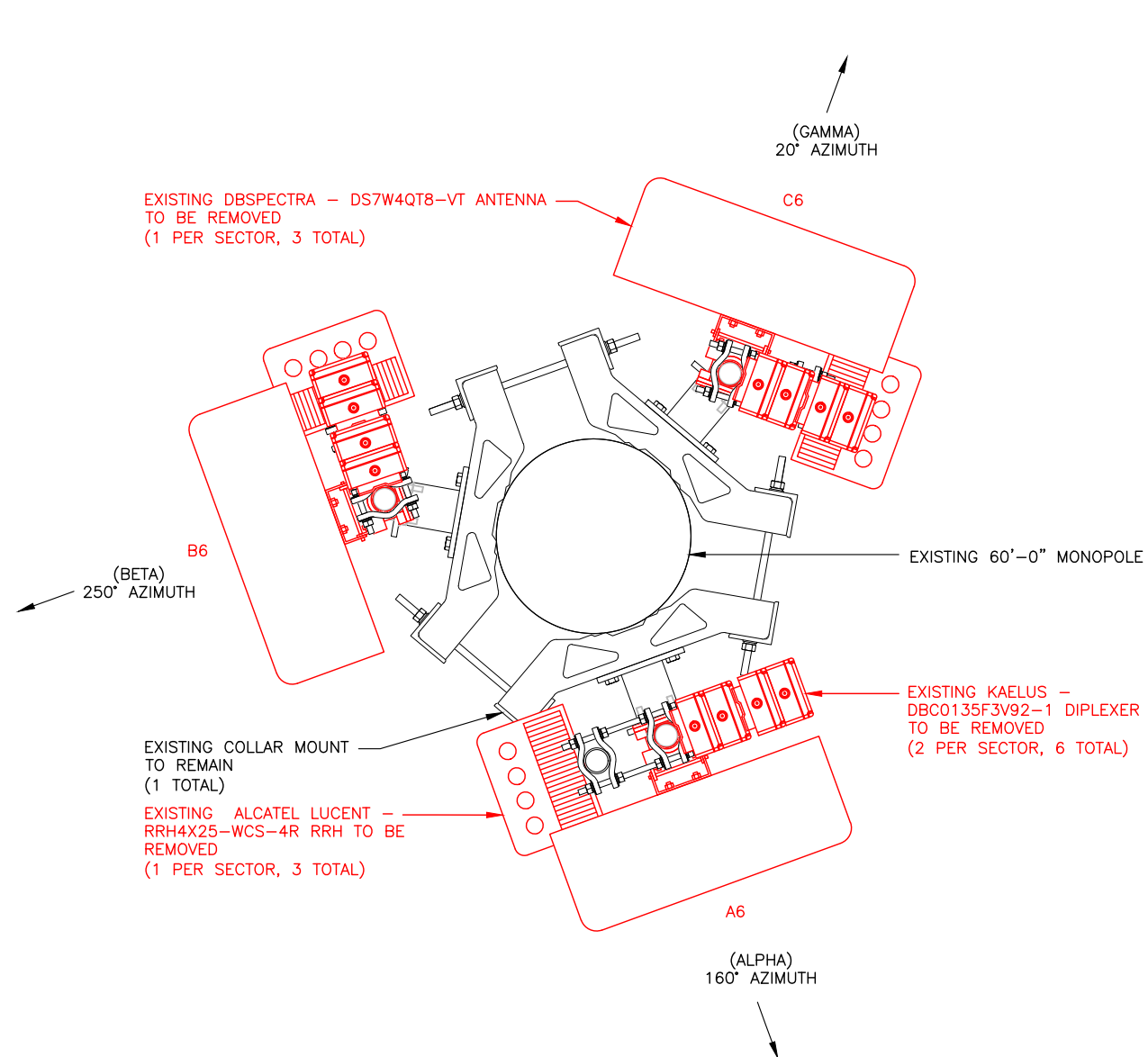
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SHEET TITLE:
EXISTING
ANTENNA PLAN

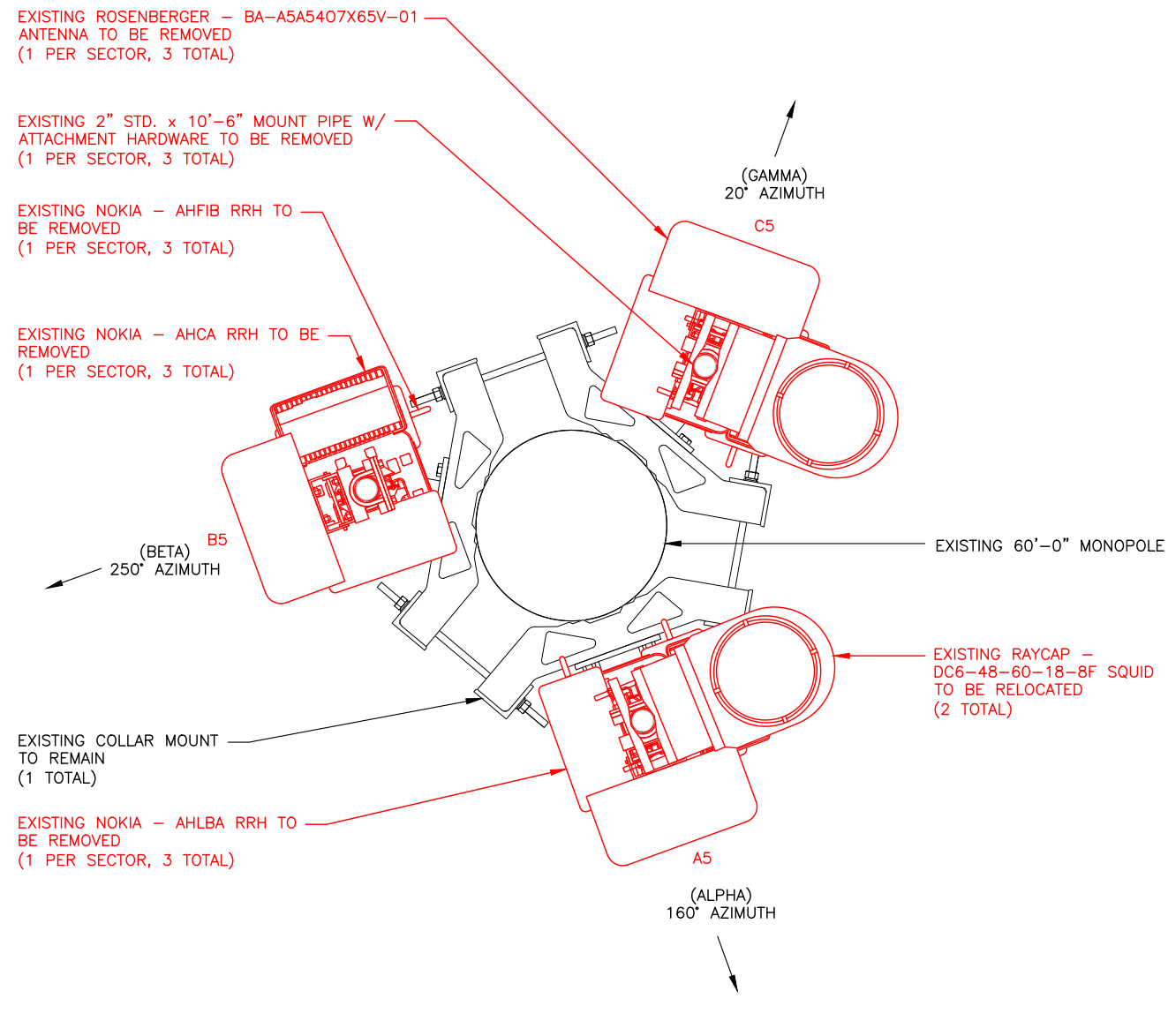
SHEET NUMBER: REVISION:

C-4

B

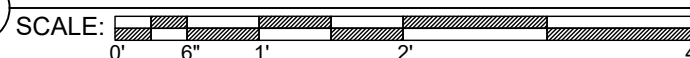


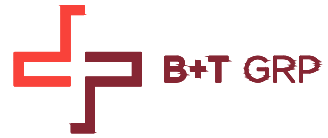
RAD CENTER @ 46'-0"



RAD CENTER @ 55'-0"

1 EXISTING ANTENNA PLAN





6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

PROJECT NO: 174306.001.01

CHECKED BY: LR

ISSUED FOR:

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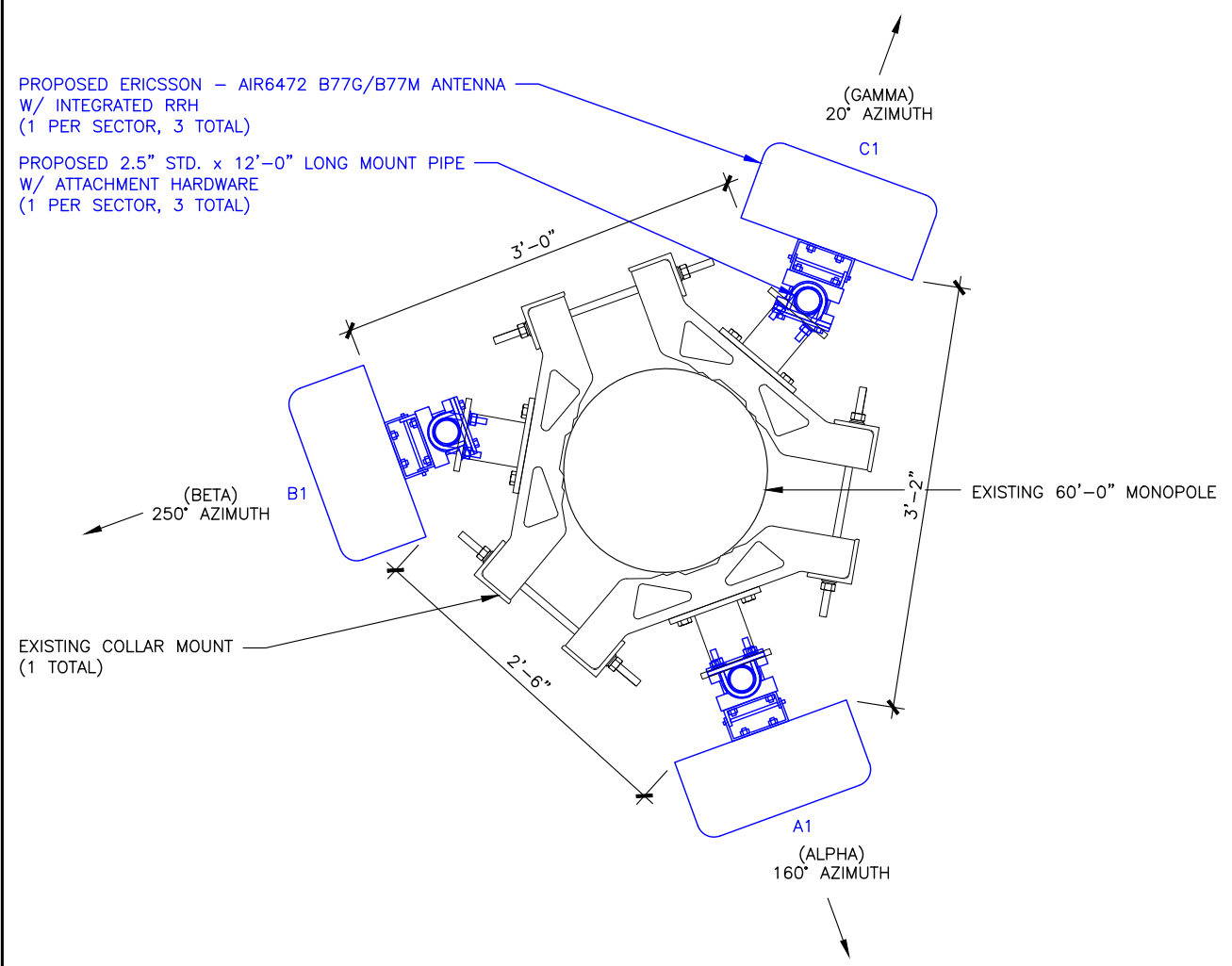
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SHEET TITLE:
PROPOSED
ANTENNA PLAN

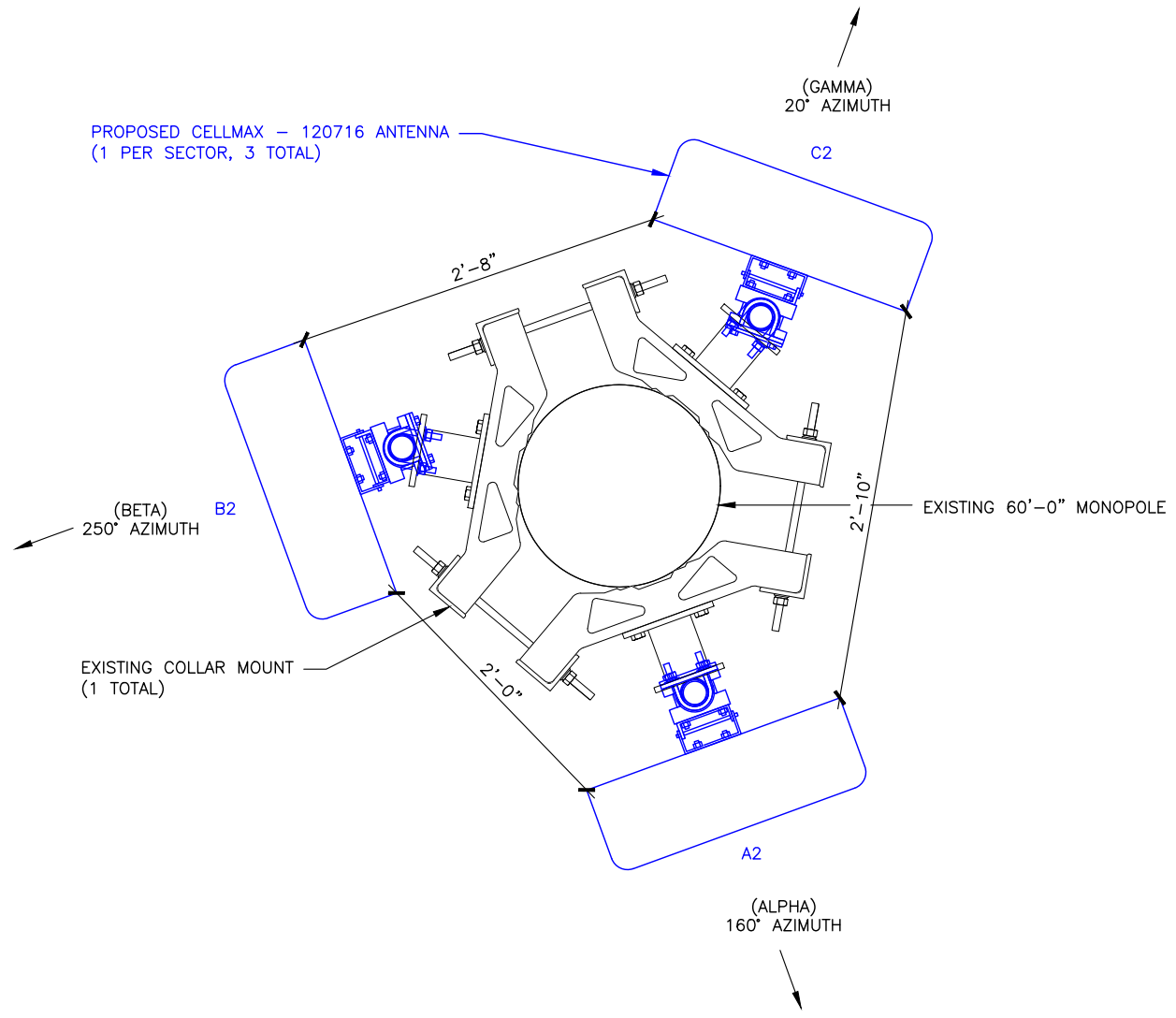
SHEET NUMBER: REVISION:

C-5 **B**

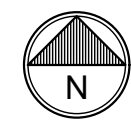
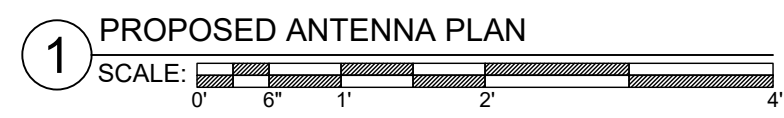
NOTES:
 1. MOUNT NEW RADIOS ON DUAL MOUNT ON NEW RRH RING MOUNT BELOW THE ANTENNAS.
 2. RELOCATE EXISTING SQUIDS TO RRH RING MOUNT BELOW THE ANTENNAS.



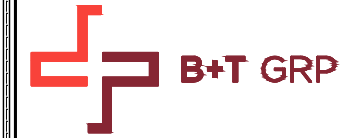
RAD CENTER @ 57'-6"



RAD CENTER @ 51'-9"



NOTES:
 1. MOUNT NEW RADIOS ON DUAL MOUNT ON NEW RRH RING MOUNT BELOW THE ANTENNAS.
 2. RELOCATE EXISTING SQUIDS TO RRH RING MOUNT BELOW THE ANTENNAS.



ERICSSON
 6300 LEGACY DRIVE
 PLANO, TX 75024

USID: 11526
 FA: 10092519
SD41 SOUTH MERCER
 8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040
 EXISTING MONOPOLE

PROJECT NO: 174306.001.01
 CHECKED BY: LR

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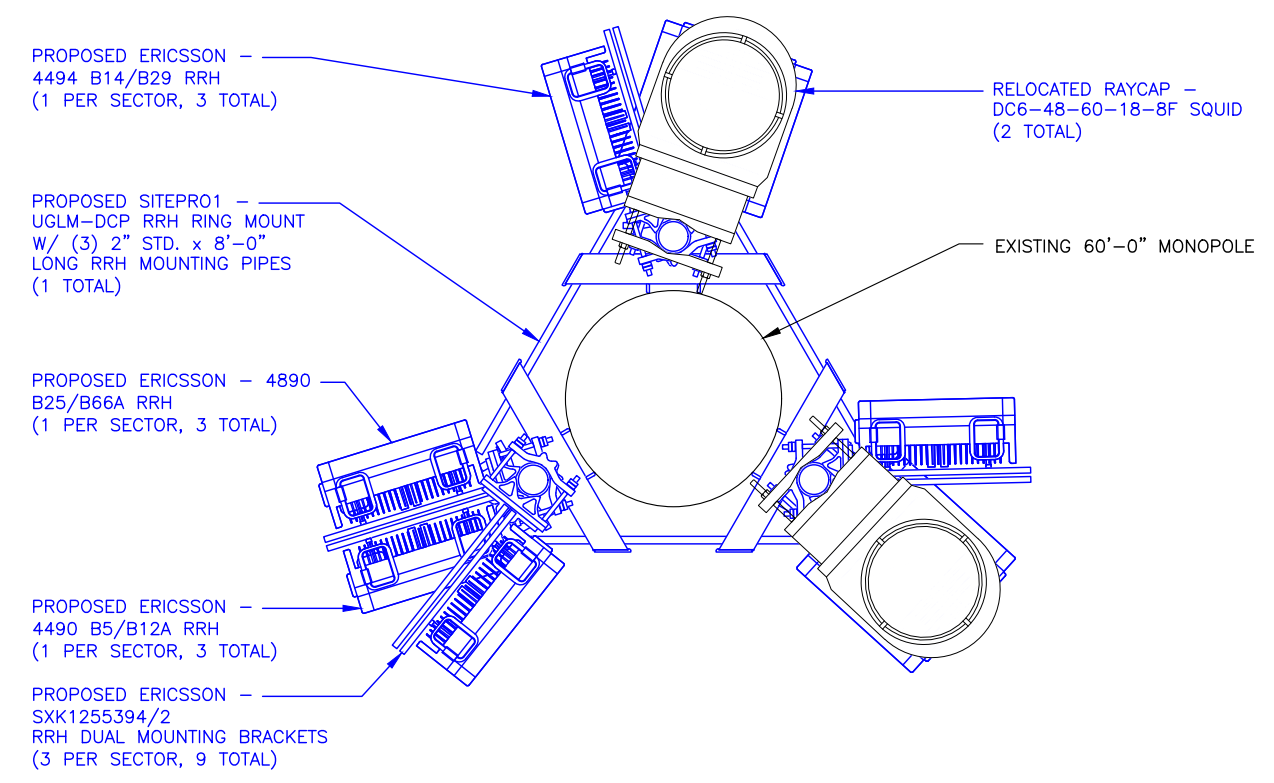
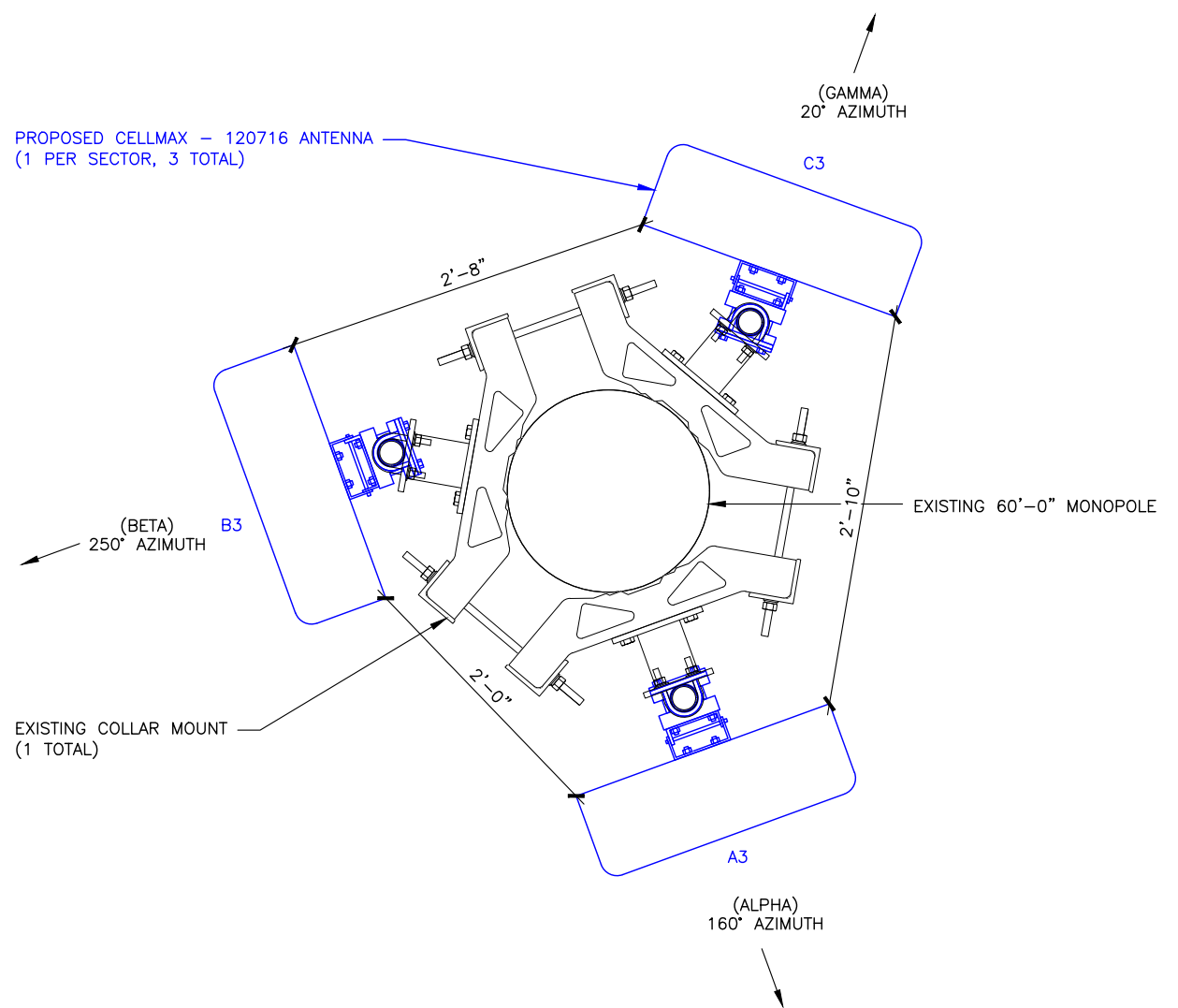
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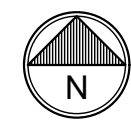
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SHEET TITLE:
 PROPOSED ANTENNA PLAN

SHEET NUMBER: **C-5.1** REVISION: **B**



1 PROPOSED ANTENNA PLAN
 SCALE: 0' 6" 1' 2' 4'





6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

PROJECT NO: 174306.001.01

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SHEET TITLE:
RFDS
SCHEDULE

SHEET NUMBER: REVISION:

C-6

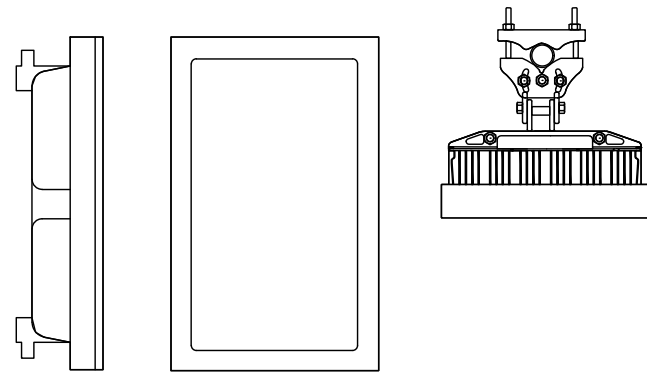
B

EXISTING EQUIPMENT SCHEDULE

| POSITION | BAND | ANTENNA MANUFACTURER MODEL | AZIMUTH | RAD CENTER | RADIO QTY. | RADIO MODEL | RADIO POSITION | CABLE TYPE |
|----------|------|----------------------------------|---------|------------|------------|------------------------|----------------|-----------------------------------|
| ALPHA | | | | | | | | |
| A5 | -- | ROSENBERGER -- BA-A5A5407X65V-01 | 160° | 55'-0" | 1 1 | AHFIB AHLBA | AT ANTENNA | (2) 8 AWG DC (1) 18-PAIR FIBER |
| A6 | -- | DBSPECTRA -- DS7W4QT8-VT | 160° | 46'-0" | 1 1 | AHCA RRH4X25-WCS-4R | AT ANTENNA | SHARED |
| BETA | | | | | | | | |
| B5 | -- | ROSENBERGER -- BA-A5A5407X65V-01 | 250° | 55'-0" | 1 1 | AHFIB AHLBA | AT ANTENNA | (2) 8 AWG DC (1) 18-PAIR FIBER |
| B6 | -- | DBSPECTRA -- DS7W4QT8-VT | 250° | 46'-0" | 1 1 | AHCA RRH4X25-WCS-4R | AT ANTENNA | SHARED |
| GAMMA | | | | | | | | |
| C5 | -- | ROSENBERGER -- BA-A5A5407X65V-01 | 20° | 55'-0" | 1 1 | AHFIB AHLBA | AT ANTENNA | SHARED |
| C6 | -- | DBSPECTRA -- DS7W4QT8-VT | 20° | 46'-0" | 1 1 | AHCA RRH4X25-WCS-4R | AT ANTENNA | SHARED |

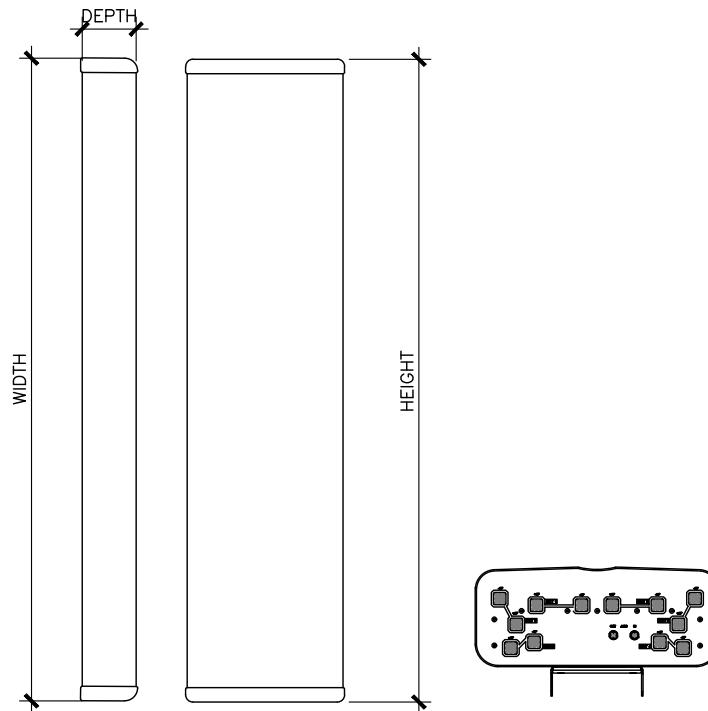
PROPOSED EQUIPMENT SCHEDULE

| POSITION | BAND | ANTENNA MANUFACTURER MODEL | AZIMUTH | RAD CENTER | RADIO QTY. | RADIO MODEL | RADIO POSITION | CABLE TYPE |
|----------|--------------------------|-------------------------------|---------|------------|------------|-------------------------------|-------------------|-----------------------------------|
| ALPHA | | | | | | | | |
| A1 | CBAND | ERICSSON -- AIR6472 B77G/B77M | 160° | 57'-6" | -- | INTEGRATED WITHIN | -- | -- |
| A2 | LTE 700 / 850 / 1900 AWS | CELLMAX -- 120716 | 160° | 51'-9" | 1 1 | 4490 B5/B12A 4890 B25/B66A | AT RRH RING MOUNT | (2) 8 AWG DC (1) 18-PAIR FIBER |
| A3 | LTE 700 | CELLMAX -- 120716 | 160° | 44'-3" | 1 | 4494 B14/B29 | AT RRH RING MOUNT | SHARED |
| BETA | | | | | | | | |
| B1 | CBAND | ERICSSON -- AIR6472 B77G/B77M | 250° | 57'-6" | -- | INTEGRATED WITHIN | -- | -- |
| B2 | LTE 700 / 850 / 1900 AWS | CELLMAX -- 120716 | 250° | 51'-9" | 1 1 | 4490 B5/B12A 4890 B25/B66A | AT RRH RING MOUNT | (2) 8 AWG DC (1) 18-PAIR FIBER |
| B3 | LTE 700 | CELLMAX -- 120716 | 250° | 44'-3" | 1 | 4494 B14/B29 | AT RRH RING MOUNT | SHARED |
| GAMMA | | | | | | | | |
| C1 | CBAND | ERICSSON -- AIR6472 B77G/B77M | 20° | 57'-6" | -- | INTEGRATED WITHIN | -- | -- |
| C2 | LTE 700 / 850 / 1900 AWS | CELLMAX -- 120716 | 20° | 51'-9" | 1 1 | 4490 B5/B12A 4890 B25/B66A | AT RRH RING MOUNT | SHARED |
| C3 | LTE 700 | CELLMAX -- 120716 | 20° | 44'-3" | 1 | 4494 B14/B29 | AT RRH RING MOUNT | SHARED |



ERICSSON - AIR6472 B77G B77M
 WEIGHT: 92.61 LBS
 SIZE (HxWxD): 36.4x16.1x7.5 IN.

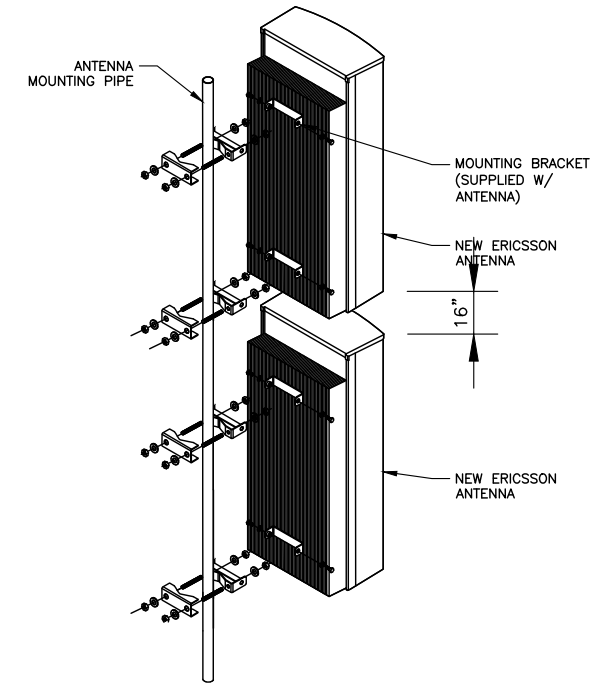
1 ANTENNA DETAIL
 SCALE: N.T.S.



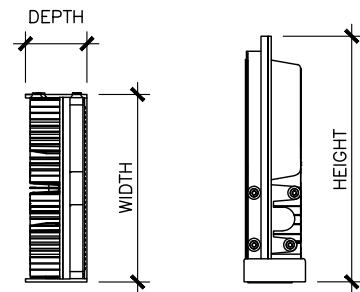
CELLMAX - 120716
 WEIGHT: 143.0 LBS
 SIZE (HxWxD): 77x24x8.0 IN.

2 ANTENNA DETAIL
 SCALE: N.T.S.

INSTALLER NOTE:
 ALL PIPES, BRACKETS, AND MISCELLANEOUS
 HARDWARE TO BE GALVANIZED UNLESS NOTED
 OTHERWISE.

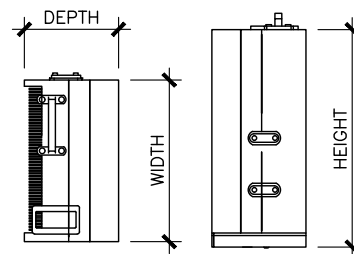


3 STACKED ANTENNA MOUNTING DETAIL
 SCALE: N.T.S.



ERICSSON - RADIO 4490 B5/B12A
 WEIGHT: 65.0 LBS
 SIZE (HxWxD): 20.6x15.6x7.0 IN.

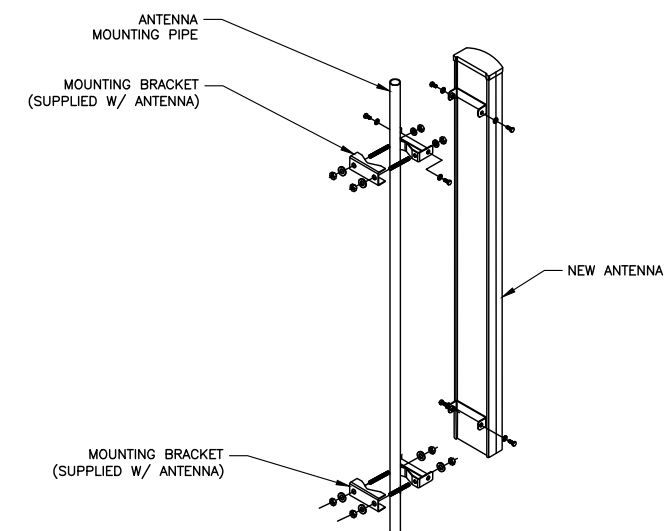
4 RRH DETAIL
 SCALE: N.T.S.



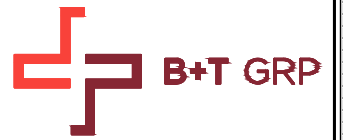
ERICSSON - RADIO 4494 B14/B29
 WEIGHT: 57.33 LBS
 SIZE (HxWxD): 17.48x15.12x5.63 IN.

5 RRH DETAIL
 SCALE: N.T.S.

INSTALLER NOTE:
 ALL PIPES, BRACKETS, AND MISCELLANEOUS
 HARDWARE TO BE GALVANIZED UNLESS NOTED
 OTHERWISE.



6 ANTENNA MOUNTING DETAIL
 SCALE: N.T.S.



ERICSSON
 6300 LEGACY DRIVE
 PLANO, TX 75024

USID: 11526
 FA: 10092519

**SD41 SOUTH
 MERCER**

8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040
 EXISTING MONOPOLE

PROJECT NO: 174306.001.01

CHECKED BY: LR

| ISSUED FOR: | | | |
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| B | 1/8/25 | BKR | PRELIMINARY REVIEW |
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B&T ENGINEERING, INC.
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SHEET TITLE:
 PROPOSED
 EQUIPMENT DETAILS

SHEET NUMBER: **C-7** REVISION: **B**



6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

PROJECT NO: 174306.001.01

CHECKED BY: LR

ISSUED FOR:

| REV | DATE | DRWN | DESCRIPTION |
|-----|---------|------|--------------------|
| A | 12/2/24 | BD | PRELIMINARY REVIEW |
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SHEET TITLE:
PROPOSED
EQUIPMENT DETAILS

SHEET NUMBER: REVISION:

C-8

B

| ITEM | QTY | PART NO. | PART DESCRIPTION | LENGTH | UNIT WT. | NET WT. |
|-------------|-----|----------|--------------------------------|--------|----------|---------|
| 1 | 3 | X-UGLM | MINI RING MOUNT WELDMENT | | 21.67 | 65.00 |
| 2 | 24 | G58FW | 5/8" HDG USS FLATWASHER | | 0.07 | 1.68 |
| 3 | 36 | G58LW | 5/8" HDG LOCKWASHER | | 0.03 | 0.94 |
| 4 | 36 | G58NUT | 5/8" HDG HEAVY 2H HEX NUT | | 0.13 | 4.67 |
| 5 | 6 | G58R-24 | 5/8" x 24" THREADED ROD (HDG.) | | 2.09 | 12.54 |
| 5 | 6 | G58R-14 | 5/8" x 14" THREADED ROD (HDG.) | | 1.22 | 7.32 |
| 6 | 6 | DCP | 5/314" CLAMP HALF, 1/2" THK. | | 2.43 | 14.52 |
| 7 | 12 | G58R-6 | 5/8" x 6" THREADED ROD (HDG.) | | 0.22 | 9.27 |
| TOTAL WT. # | | | | | | 112.96 |

TOLERANCE NOTES
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, BURRAED AND CHAM CUT EDGES (± 0.007)
DRILLED AND REAM OUT HOLES (± 0.007) - NO CORING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010) - NO CORING OF HOLES
MILLS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.007)
ALL OTHER ASSEMBLY (± 0.007)

DESCRIPTION
LIGHTWEIGHT RING MOUNT
AND 5-3/4" V-CLAMP

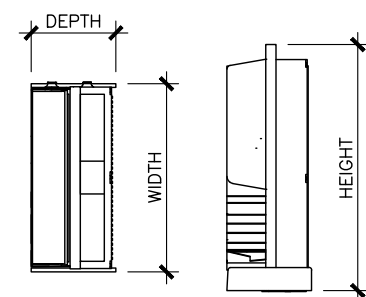
DATE 2/26/2013
BY CEK
SHOP

DATE 2/27/2013
BY BMC
SHOP

PART NO. UGLM-DCP
ENG. NO. UGLM-DCP

1 NOT USED
SCALE: N.T.S.

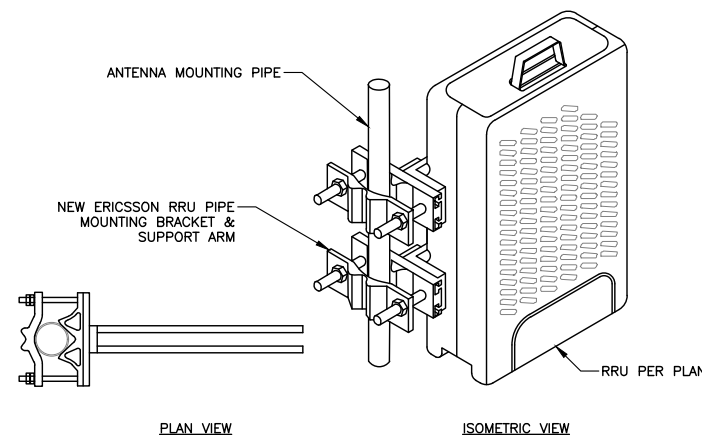
2 SITEPRO1-UGLM-DCP
SCALE: N.T.S.



ERICSSON - RADIO 4890
WEIGHT: 67.24 LBS
SIZE (HxWxD): 20.6x15.6x7.0 IN.

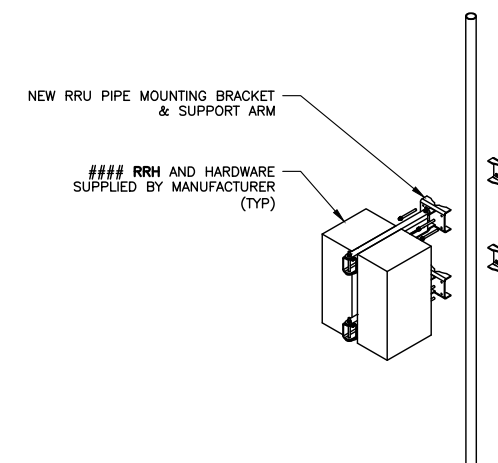
3 RRH DETAIL
SCALE: N.T.S.

- MOUNTING NOTES:**
- REFER TO PRODUCT SPECS FOR BOLT SIZE & PIPE DIAMETER TOLERANCES.
 - THE PART NO. SXK 1255394/2 (OR APPROVED EQUAL) IS REQUIRED FOR (2) RRHs.



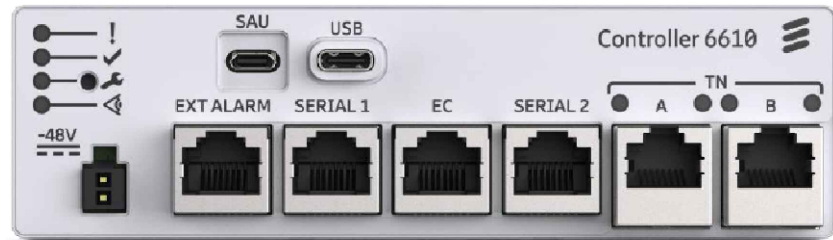
4 DUAL RRH MOUNT BRACKET DETAIL
SCALE: N.T.S.

- INSTALLER NOTES:**
- COMPLY WITH MANUFACTURER'S INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
 - DO NOT OPEN RRH PACKAGES IN THE RAIN.
 - ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



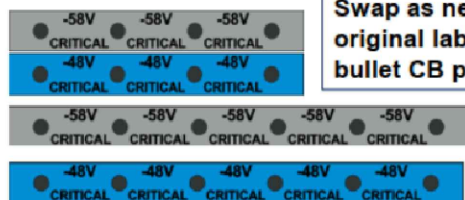
5 DUAL RRH MOUNTING DETAIL
SCALE: N.T.S.

CONTROLLER 6610:
 MANUFACTURER: ERICSSON
 MODEL NO: CONTROLLER 6610
 DIMENSIONS (HxWxD): 1.6"x5.5"x1.26"
 WEIGHT: 0.28LBs

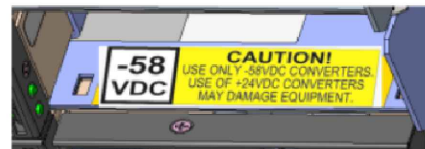


1 6610 SITE CONTROLLER
 SCALE: N.T.S.

NEQ-53008 - NetSure 7100 Field Retrofit Kit 60028017



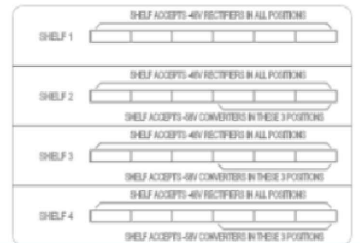
Swap as needed with original labels in bullet CB panels



Qty. (1) per Conv Slot

NetSure™ MODEL 7100
 THIS UNIT HAS BEEN FIELD RETROFITTED FOR USE WITH -58VDC CONVERTERS
 OUTPUT: -48VDC — 1000A / -58VDC 500A
 REFER TO MANUAL 60028017 FOR ADDITIONAL INFORMATION
 VERTIV

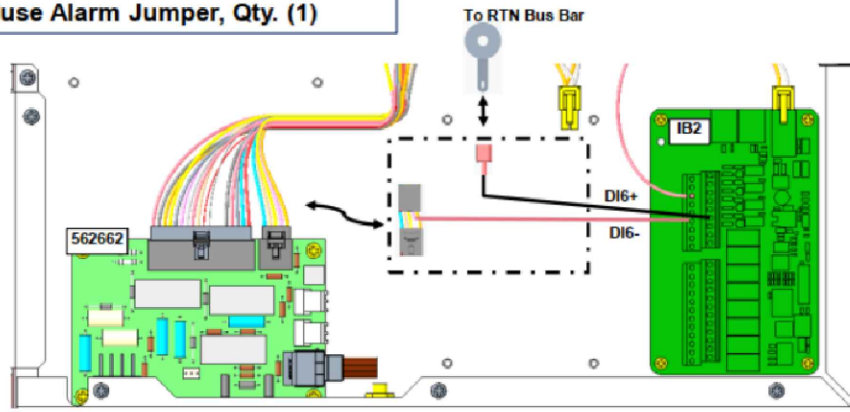
Example add-on for Nameplate



Qty. (2): Front of cabinet, inside cabinet.

- Other Items:
- Configuration file.
 - USB stick & dual lock fastener.
 - Instruction book (printed).
 - Bag with kit number label.

Fuse Alarm Jumper, Qty. (1)

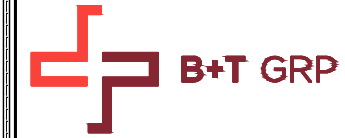


2 -58V RETROFIT KIT
 SCALE: N.T.S.

3 NOT USED
 SCALE: N.T.S.

4 NOT USED
 SCALE: N.T.S.

5 NOT USED
 SCALE: N.T.S.



ERICSSON
 6300 LEGACY DRIVE
 PLANO, TX 75024

USID: 11526
 FA: 10092519
SD41 SOUTH MERCER
 8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040
 EXISTING MONOPOLE

PROJECT NO: 174306.001.01
 CHECKED BY: LR

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SHEET NUMBER: **C-9** REVISION: **B**



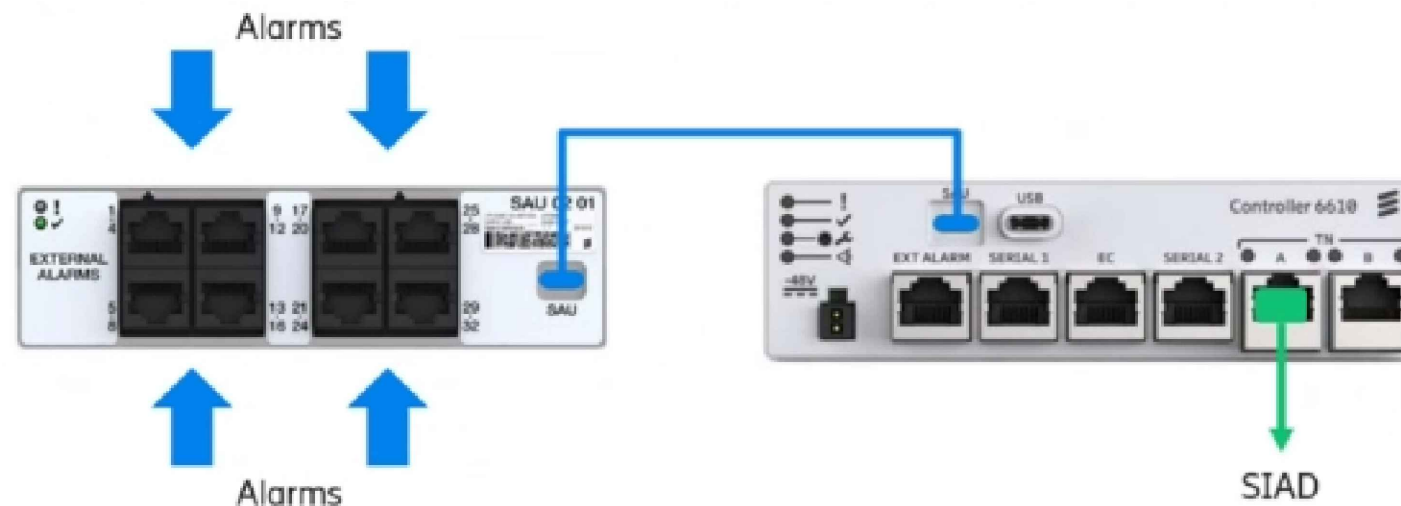
Mechanical

System weight: 6kg / 13.2lbs
 Dimension (H x W x D): 1RU 43.6mm x 442.4mm x 250mm
 Air flow: Filter-less design, Front to Back with field swappable fan tray

Electrical

Power supply DC: -48 V, dual feed
 Power supply AC: 100-240 V, single feed
 Power consumption: Typical 110 Watts, Max 165 Watts

1 6672 BBU
 SCALE: N.T.S.



2 SAU 02 01 ALARMS MODULE & 6610 SITE CONTROLLER
 SCALE: N.T.S.



3 GPS SPLITTER
 SCALE: N.T.S.



4 D2 SIAD
 SCALE: N.T.S.



USID: 11526
 FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
 MERCER ISLAND, WA 98040
 EXISTING MONOPOLE

PROJECT NO: 174306.001.01
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SHEET TITLE:
 PROPOSED EQUIPMENT DETAILS

SHEET NUMBER: **C-10** REVISION: **B**



COMMSCOPE – PS-CONV-48-24 POWERSHIFT
WEIGHT: 6.4 LBS
SIZE (HxWxD): 1.75x17.25x7 IN.

1 PS-CONV-48-24 POWERSHIFT DETAIL
SCALE: N.T.S.



Technical Specifications

| DC Input | C48/58-2000P3 |
|-----------------|--------------------------------------|
| Voltage | 41 VDC to 58.5 VDC, 48 VDC (nominal) |
| Maximum Current | 53 A |

| DC Output | |
|-----------------|---|
| Voltage | 56 VDC to 58 VDC |
| Maximum Power | 2000 W peak, 1600 W average at 40°C, 1280 W average at 65°C |
| Maximum Current | 35.7 A at 2000 W peak (see figure 1), 28.6 A at 1600 W average, 22.9 A at 1280 W average, all at 56 VDC |
| Peak Efficiency | >95% |
| Noise | < 250mV pk-pk; < 20mV rms; <38 dBmC |

| Control and Monitoring | |
|------------------------|---|
| Alarms and Signaling | Alarm and status reported via CAN bus to system controller |
| Visual Indications | Green LED: Normal Operation Yellow LED: Alarm Red LED: Failure Flashing Red LED: Fan Failure |

| Environmental | |
|-----------------------|---|
| Operating Temperature | -40°C to +80°C / -40°F to +176°F (see figure 2) |
| Storage Temperature | -40°C to +85°C / -40°F to +185°F |
| Relative Humidity | 0 to 90% |
| Altitude | 2000 m / 6560 ft at full power |

| Standards Compliance | |
|----------------------|--|
| Safety | UL62368-1, EN62368-1, IEC62368-1 |
| EMC | FCC CFR 47 Part 15 Class A conducted and Class B radiated |
| Environment | REACH, RoHS |

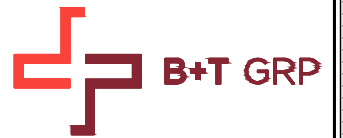
| Mechanics | |
|------------------------|--|
| Dimensions (H x W x D) | 41 x 84.5 x 252.5 mm / 1.61 x 3.33 x 9.94 inches |
| Weight | 1.13 kg / 2.49 lbs |

Ordering Information

| Part Number | Description |
|--------------|---|
| 1C48582000P3 | eSure™ converter, -48 to -58 VDC, 2000 W peak / 1600 W average |

3 VERTIV -48V/-58V CONVERTER DETAIL
SCALE: N.T.S.

4 NOT USED
SCALE: N.T.S.



USID: 11526
FA: 10092519
SD41 SOUTH MERCER
8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
EXISTING MONOPOLE

PROJECT NO: 174306.001.01
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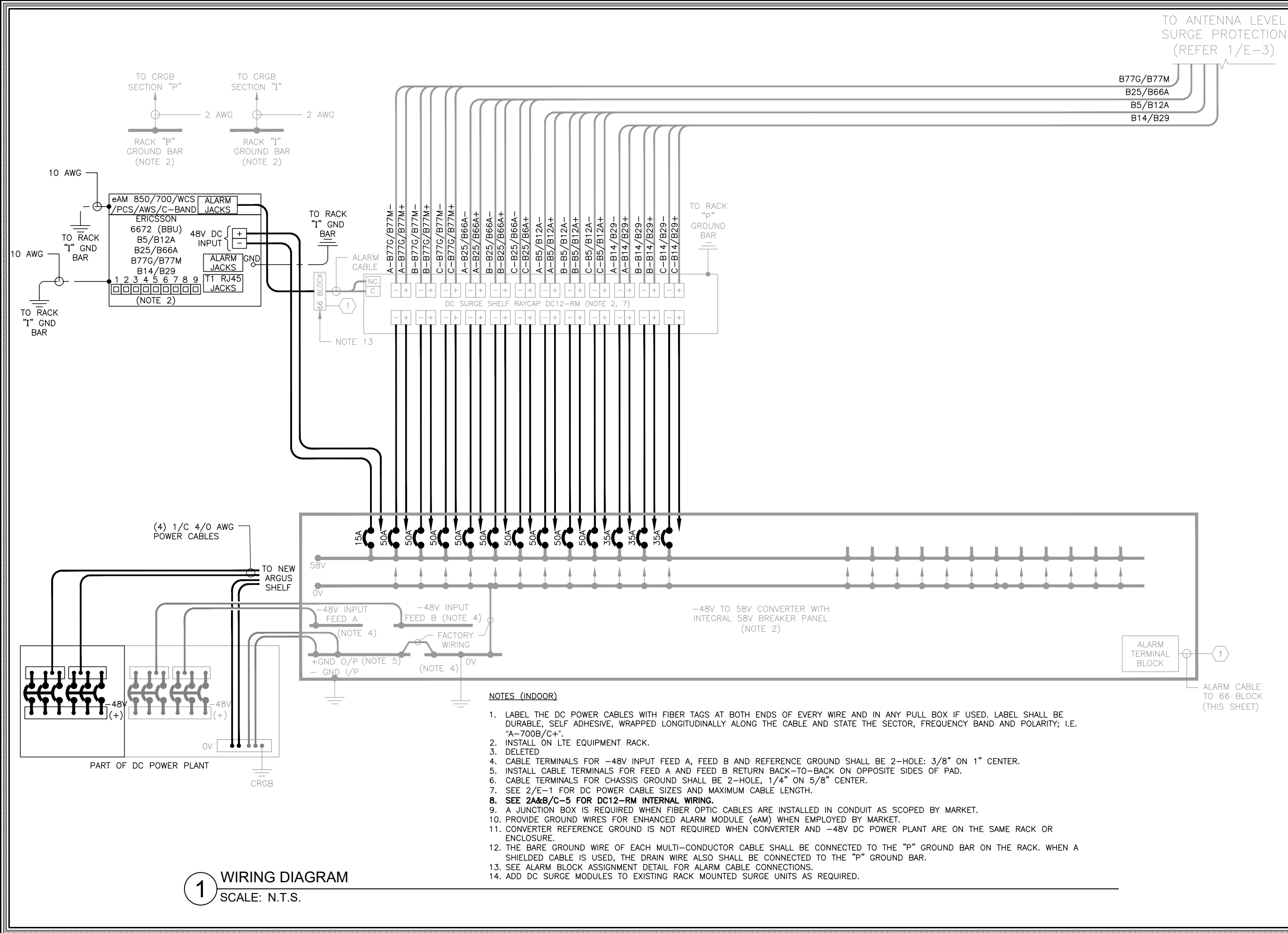
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SHEET NUMBER: **C-11** REVISION: **B**

2 NOT USED
SCALE: N.T.S.

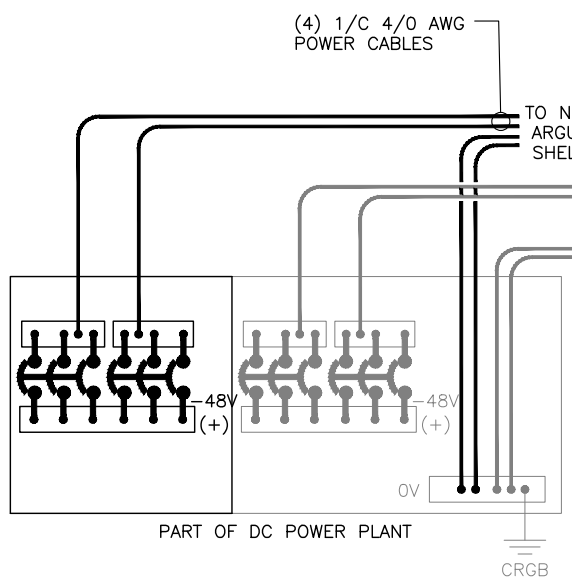
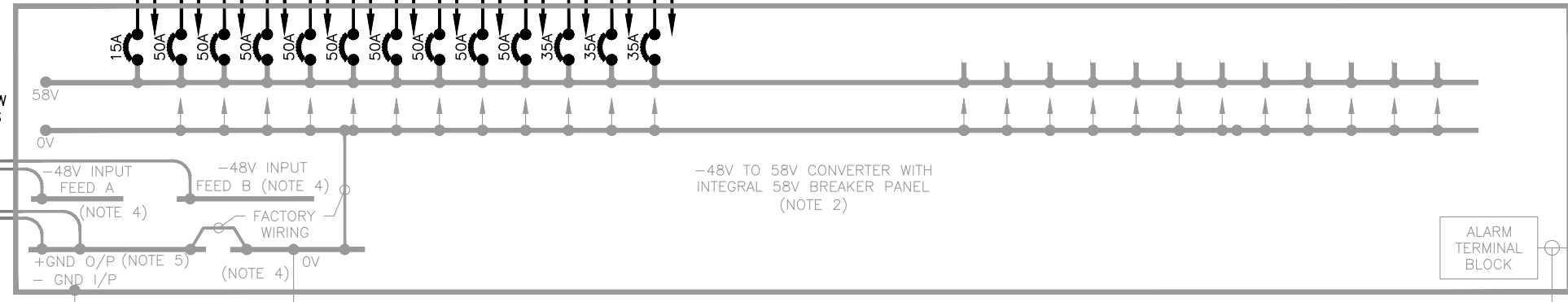
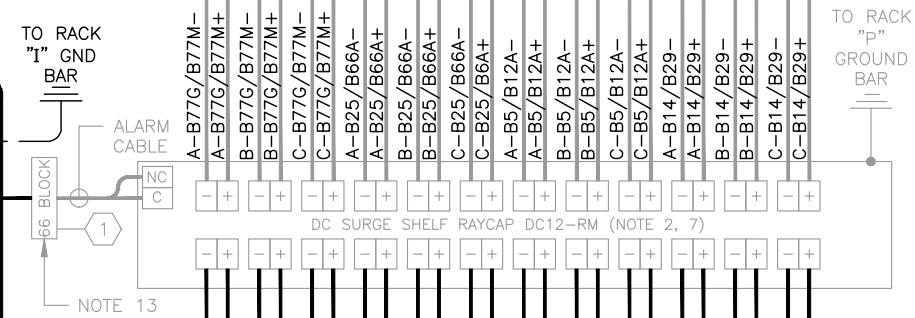
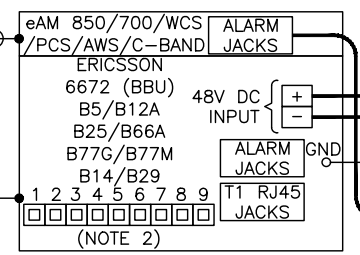


TO ANTENNA LEVEL SURGE PROTECTION (REFER 1/E-3)

B77G/B77M
B25/B66A
B5/B12A
B14/B29

10 AWG
TO RACK "I" GND BAR
TO RACK "I" GND BAR
TO RACK "I" GND BAR

TO CRGB SECTION "P"
TO CRGB SECTION "I"
2 AWG
2 AWG
RACK "P" GROUND BAR (NOTE 2)
RACK "I" GROUND BAR (NOTE 2)



NOTES (INDOOR)

1. LABEL THE DC POWER CABLES WITH FIBER TAGS AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-700B/C+."
2. INSTALL ON LTE EQUIPMENT RACK.
3. DELETED
4. CABLE TERMINALS FOR -48V INPUT FEED A, FEED B AND REFERENCE GROUND SHALL BE 2-HOLE: 3/8" ON 1" CENTER.
5. INSTALL CABLE TERMINALS FOR FEED A AND FEED B RETURN BACK-TO-BACK ON OPPOSITE SIDES OF PAD.
6. CABLE TERMINALS FOR CHASSIS GROUND SHALL BE 2-HOLE, 1/4" ON 5/8" CENTER.
7. SEE 2/E-1 FOR DC POWER CABLE SIZES AND MAXIMUM CABLE LENGTH.
8. SEE 2A&B/C-5 FOR DC12-RM INTERNAL WIRING.
9. A JUNCTION BOX IS REQUIRED WHEN FIBER OPTIC CABLES ARE INSTALLED IN CONDUIT AS SCOPED BY MARKET.
10. PROVIDE GROUND WIRES FOR ENHANCED ALARM MODULE (eAM) WHEN EMPLOYED BY MARKET.
11. CONVERTER REFERENCE GROUND IS NOT REQUIRED WHEN CONVERTER AND -48V DC POWER PLANT ARE ON THE SAME RACK OR ENCLOSURE.
12. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
13. SEE ALARM BLOCK ASSIGNMENT DETAIL FOR ALARM CABLE CONNECTIONS.
14. ADD DC SURGE MODULES TO EXISTING RACK MOUNTED SURGE UNITS AS REQUIRED.

1 WIRING DIAGRAM
SCALE: N.T.S.



USID: 11526
FA: 10092519
SD41 SOUTH MERCER
8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
EXISTING MONOPOLE

PROJECT NO: 174306.001.01
CHECKED BY: LR

ISSUED FOR:

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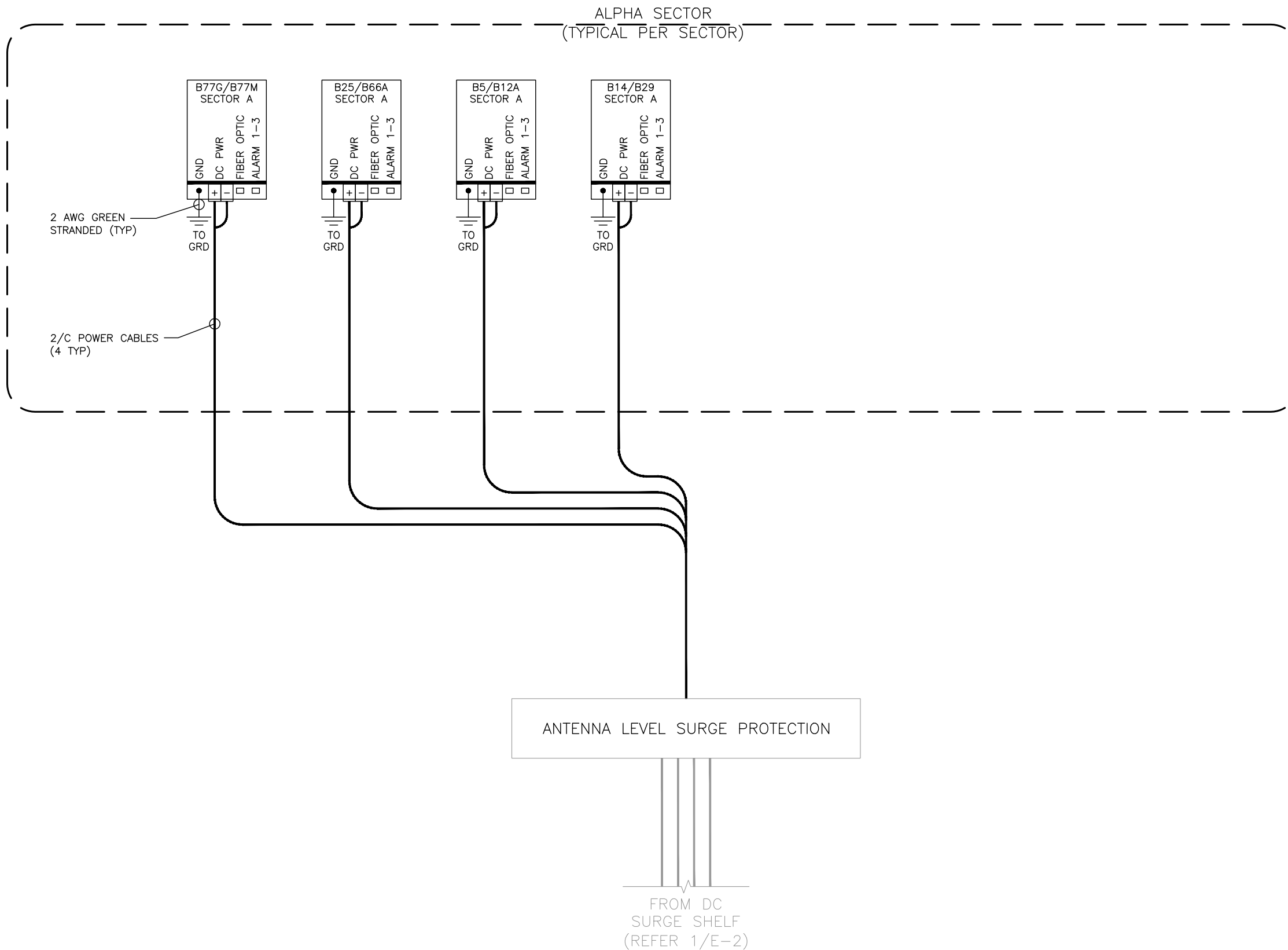
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SHEET TITLE:
WIRING DIAGRAM - GROUND

SHEET NUMBER: E-2
REVISION: B



6300 LEGACY DRIVE
PLANO, TX 75024

USID: 11526
FA: 10092519

SD41 SOUTH MERCER

8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040

EXISTING MONOPOLE

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SHEET TITLE:

WIRING DIAGRAM - TOWER

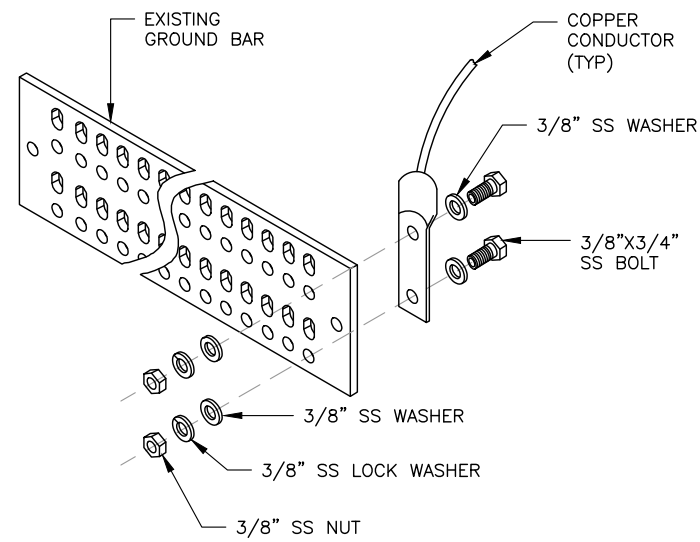
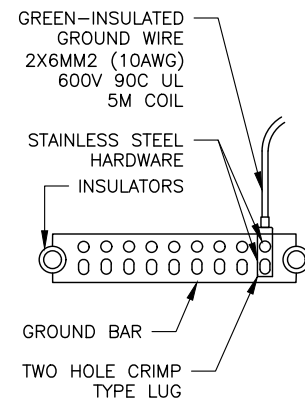
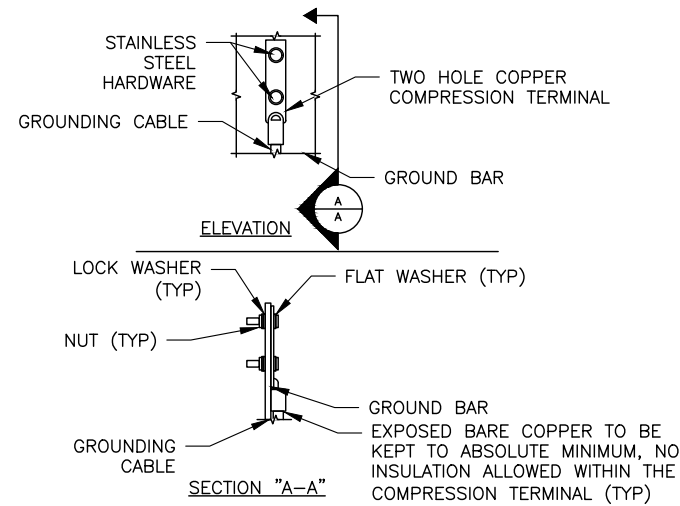
SHEET NUMBER:

E-3

REVISION:

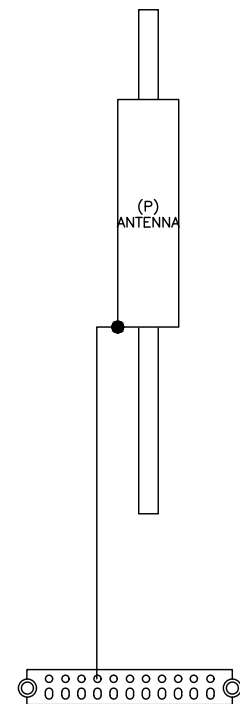
B

1 WIRING DIAGRAM - TOWER
SCALE: N.T.S.



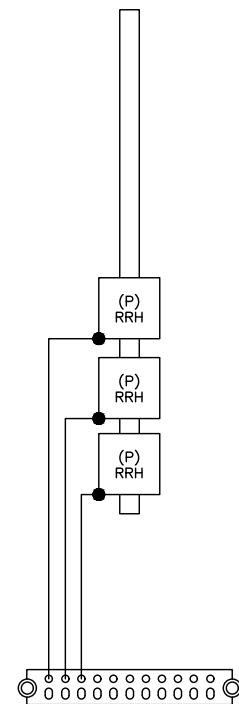
1 GROUNDING BAR DETAILS
SCALE: N.T.S.

2 NOT USED
SCALE: N.T.S.



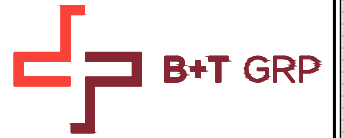
NOTE:
GROUNDING CONFIGURATION IS TYPICAL PER SECTOR
AND GENERIC IN NATURE.

3 ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.



NOTE:
GROUNDING CONFIGURATION IS TYPICAL PER SECTOR
AND GENERIC IN NATURE.

4 RADIOS GROUNDING DIAGRAM
SCALE: N.T.S.



ERICSSON
6300 LEGACY DRIVE
PLANO, TX 75024

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**SD41 SOUTH
MERCER**
8473 SOUTHEAST 68TH STREET
MERCER ISLAND, WA 98040
EXISTING MONOPOLE

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SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER: **G-1** REVISION: **B**



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PLANO, TX 75024

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8473 SOUTHEAST 68TH STREET
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SHEET TITLE:

PLUMBING DIAGRAM

SHEET NUMBER: REVISION:

RF-1

B

NOT AVAILABLE AT TIME OF ISSUE

Tower Bottom Configuration: All Markets 2024 FDD Only

- **Configuration A2.1:** Site FDD only (No TDD). Mix Mode G3 (<= 24 LTE Cells and <= 24 NR Cells)
 - Up to 12 FDD Radios. RANP6651 + CNTR6610 + SAU



- Radio 4490/4449 – B5 (850) and B12 (700) **OR** Radio 4478 B12 (700) **OR** Radio 4478 B5 (850)
- Radio 4890/8843 – B25 (PCS) and B66 (AWS)
- Radio 4494 – B14 (FNET) and B29 (700DE) **OR** Radio 4478 – B14 (FNET)
- Radio 4471 – B30 (WCS) **OR** Radio 4415 – B30 (WCS)

- Utilize Site Controller 6610 for external alarm.

• Site Controller 6610 for External Alarms





January 14, 2025

Carlos Benavides
Ericsson
6300 Legacy Drive
Plano, TX 75024
(469) 266-1205

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject: **Appurtenance Mount Analysis Report**

Carrier Designation: **Site Number:** 10092519
Site Name: SD41 South Mercer
IWM Job Number: WSWOR0048001

Engineering Firm Designation: **B+T Group Project Number:** 174306.001.01.0002

Site Data: **8473 Southeast 68th Street, Mercer Island, WA, 98040, King County**
Latitude 47.54139°, Longitude -122.22389°
60' Monopole Tower
(3) Proposed 12' Pipe mounts
(3) Existing 10.83' Pipe mounts
(1) Proposed SitePro1 Part# UGLM-DCP Ring Mount w/ (3)
Proposed 8' Pipe mounts

Dear Carlos Benavides,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment
Note: See Table 1 for the final loading configuration

Sufficient Capacity
(Passing at 19.9% with Requirements in Section 5)

This analysis has been performed in accordance with the 2021 Washington State Building Code (2021 International Building Code) based upon an ultimate 3-second gust wind speed of 98 mph. Applicable standard references and design criteria are listed in Section 2 - Analysis Criteria.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and Ericsson. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Colton Jung

Respectfully submitted by: B&T Engineering, Inc.
COA: 3425 Expires: 12/31/2025

John W. Kelly III, P.E., S.E.



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1) INTRODUCTION

The appurtenance mount consists of proposed 12' Pipe mounts, existing 10.83' Pipe mounts and Proposed SitePro1 Part# UGLM-DCP Ring Mount w/ (3) Proposed 8' Pipe mounts at 54 ft., 42ft. and 32ft. respectively attached to monopole tower at 8473 Southeast 68th Street, Mercer Island, WA, 98040, King County. The proposed antenna loading information was obtained from Ericsson. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 98 mph with no ice and 30 mph with 1-inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the pipe mounts have been analyzed for various live loading conditions consisting of a 0-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 0-lb man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed and Existing Equipment Information

| Loading | RAD Center Elev. (ft.) | Position | Qty. | Manufacturer | Model / Type | Note |
|----------|------------------------|----------|------|----------------------|--------------------|------|
| Proposed | 57.5 | A, B, C | 3 | Ericsson | AIR 6472 B77G/B77M | 1 |
| | 51.75 | A, B, C | 3 | Cellmax Technologies | 120716 | |
| | 44.25 | A, B, C | 3 | Cellmax Technologies | 120716 | 2 |
| | 33 | - | 3 | Ericsson | 4490 B5/B12A | 3 |
| | | | 3 | Ericsson | 4890 B25/B66A | |
| | | | 3 | Ericsson | 4494 B14/B29 | |
| Existing | 33 | - | 2 | Raycap | DC6-48-60-18-8F | 4 |

A=Alpha B=Beta C=Gamma

Note:

- (1) Proposed Antenna to be installed on the proposed antenna mounting pipes.
- (2) Proposed Antenna to be installed on the existing antenna mounting pipes
- (3) Proposed Equipment to be installed on the proposed equipment mounting pipe attached to proposed ring mount.
- (4) Existing Equipment to be installed on the proposed equipment mounting pipe attached to proposed ring mount.

Table 2 – Documents Provided

| Documents | Remarks | Reference | Source |
|---|--------------------------------------|------------------|----------|
| 10092519_WSWOR0048001_MCA_SD41 SOUTH MERCER_DE130_SCOPING FORM-REH Completed 11_22_23 - DE130 | Existing Loading Proposed Loading | Date: 07/25/2024 | Ericsson |
| CDs by B+T Group | | Date: 01/08/2025 | On File |
| Mount Mapping | B+T Group | Date:02/19/2018 | Ericsson |
| Appurtenance Mount Analysis Report | B+T Group | Date: 03/07/2018 | |

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 22.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
 The following assumptions have been included in the analysis of the mount
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
 - a) Connection Bolts : ASTM A325
 - b) Steel Pipe : ASTM A53 (GR. 35)
 - c) HSS (Round) : ASTM 500 (GR. B-42)
 - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
 - e) Channel : ASTM A36 (GR. 36)
 - f) Steel Solid Rod : ASTM A36 (GR. 36)
 - g) Steel Plate : ASTM A36 (GR. 36)
 - h) Steel Angle : ASTM A36 (GR. 36)
 - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity – 54ft elevation

| Notes | Component | Elevation (ft.) | % Capacity* | Pass / Fail |
|-------|------------------|-----------------|-------------|-------------|
| - | Support Tube | 54 | 3.7 | Pass |
| - | Mount Pipe | 54 | 19.9 | Pass |
| - | Connection Bolts | 54 | 9.1 | Pass |

Note: *Member Capacity based on requirements listed in Section 5.

Table 4 – Mount Component Stresses vs. Capacity – 42ft elevation

| Notes | Component | Elevation (ft.) | % Capacity* | Pass / Fail |
|-------|------------------|-----------------|-------------|-------------|
| - | Support Tube | 42 | 1.3 | Pass |
| - | Mount Pipe | 42 | 10.4 | Pass |
| - | Connection Bolts | 42 | 3.9 | Pass |

Table 5 – Mount Component Stresses vs. Capacity – 32ft elevation

| Notes | Component | Elevation (ft.) | % Capacity* | Pass / Fail |
|-------|------------------|-----------------|-------------|-------------|
| - | Mount Pipe | 32 | 10.9 | Pass |
| - | Connection Bolts | 32 | 2.1 | Pass |

Note: *Member Capacity based on requirements listed in Section 5.

5) REQUIREMENTS

54ft elevation

The proposed 12' pipe mounts have sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed and existing loading. (Refer to the RISA output for the specific members).

1. Remove existing mount pipe and Install (3) new 2-1/2" Std. x 12'-0" long Patriot Supply Part# P28144HD (P/N: BLD.58617) or approved equal antenna mounting pipes attached to existing collar mount.

42ft elevation

The existing 10.83' pipe mounts have sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed and existing loading. (Refer to the RISA output for the specific members).

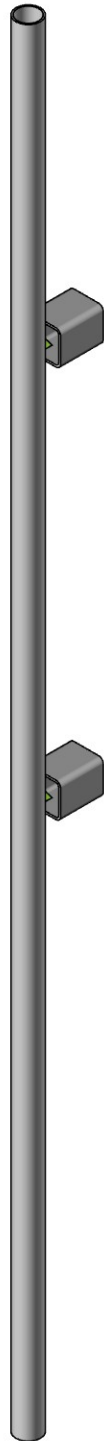
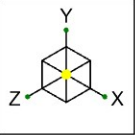
32ft elevation

The proposed SitePro1 Part# UGLM-DCP Ring Mount w/ (3) Proposed 8' Pipe mounts has sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed and existing loading. (Refer to the RISA output for the specific members).

1. Install (3) new 2" Std. x 8'-0" long SitePro1 Part# P296 (P/N: ANT.55983) or approved equal equipment mounting pipes attached to the proposed SitePro1 Part# UGLM-DCP (P/N: ANT.46630) Ring Mount.

APPENDIX A

(RISA-3D Output)



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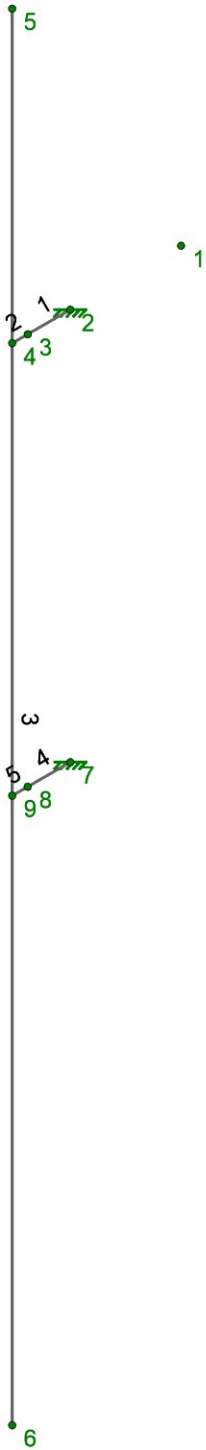
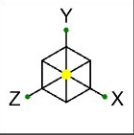
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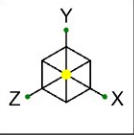
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HSS4X4X4

PIPE_2
HSS4X4X4

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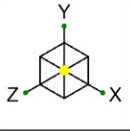
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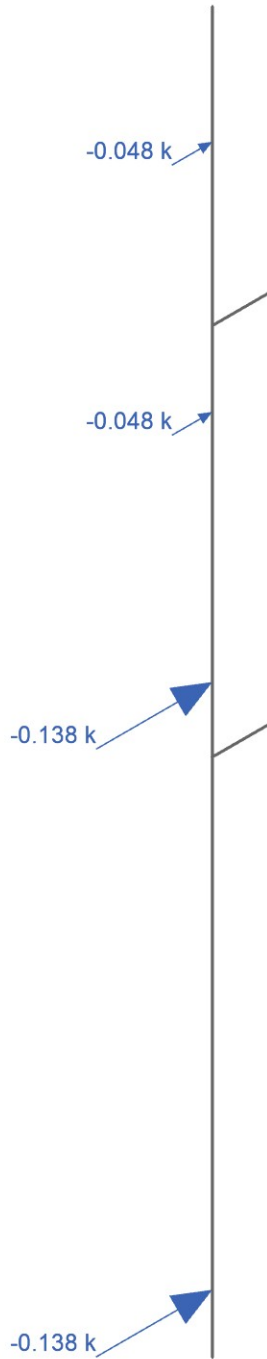
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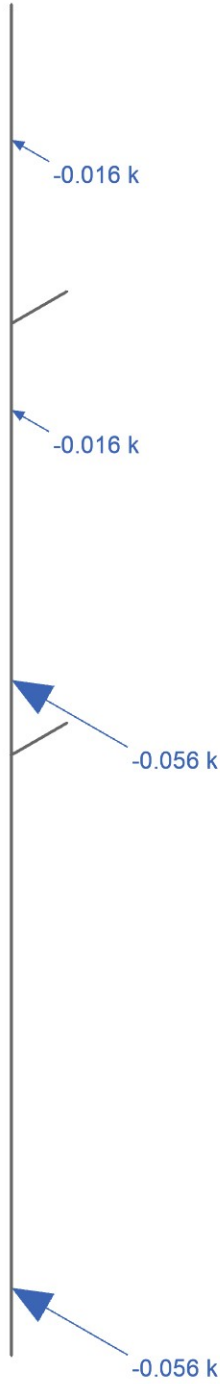
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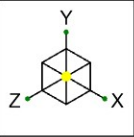
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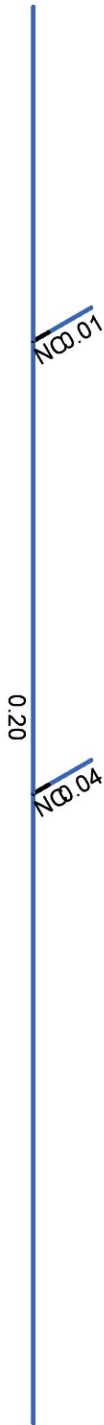


Loads: BLC 5, 90 Wind


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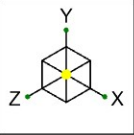


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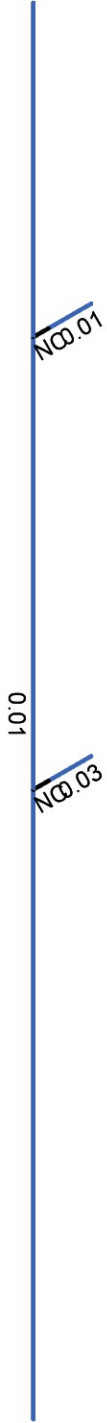
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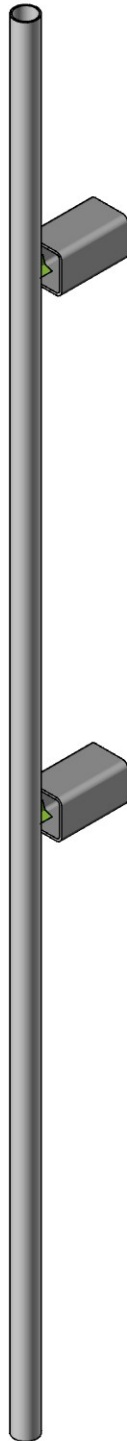
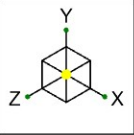
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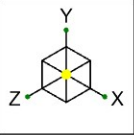
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HSS4X4X4

PIPE_2.0
HSS4X4X4

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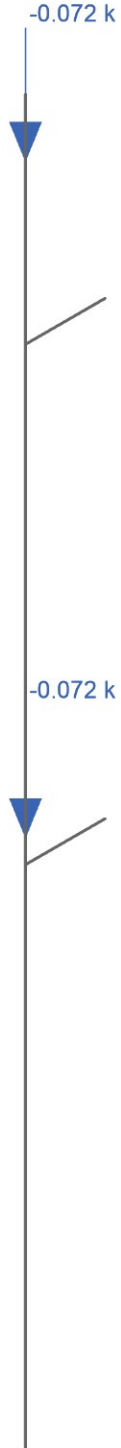
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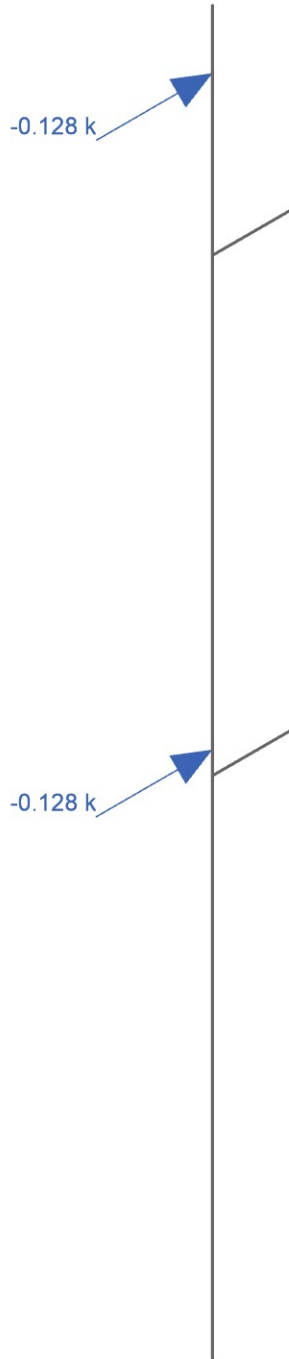
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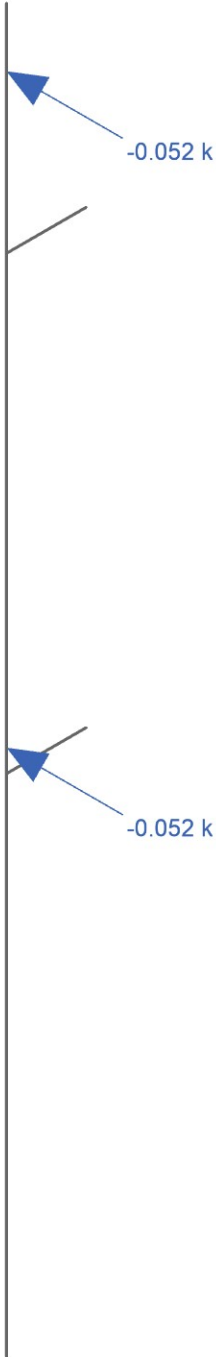
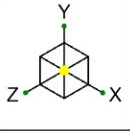
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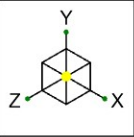
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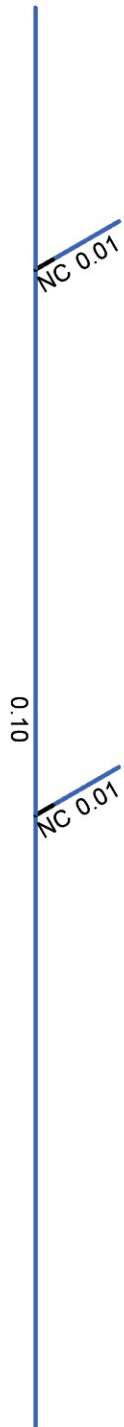


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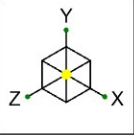


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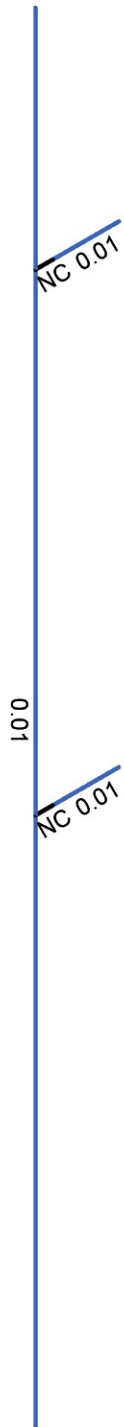
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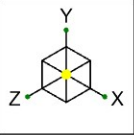
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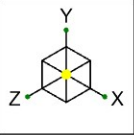
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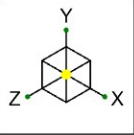
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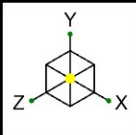
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Loads: BLC 1, Dead

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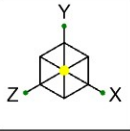
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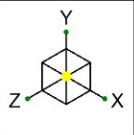
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Loads: BLC 5, 90 Wind

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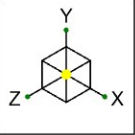
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Node Coordinates

| | Label | X [ft] | Y [ft] | Z [ft] | Detach From Diaphragm |
|---|-------|--------|-----------|----------|-----------------------|
| 1 | 1 | 0 | 0 | 0 | |
| 2 | 2 | 0 | 0 | 1.083333 | |
| 3 | 3 | 0 | 0 | 1.5 | |
| 4 | 4 | 0 | 0 | 1.651041 | |
| 5 | 5 | 0 | 2.833333 | 1.651041 | |
| 6 | 6 | 0 | -9.166667 | 1.651041 | |
| 7 | 7 | 0 | -3.833333 | 1.083333 | |
| 8 | 8 | 0 | -3.833333 | 1.5 | |
| 9 | 9 | 0 | -3.833333 | 1.651041 | |

Node Boundary Conditions

| | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Y Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|---|------------|----------|----------|----------|------------------|------------------|------------------|
| 1 | 7 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 2 | 2 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |

Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm. Coeff. [1e ⁵ F ⁻¹] | Density [k/ft ³] | Yield [ksi] | Ry | Fu [ksi] | Rt |
|----|----------------|---------|---------|-----|--|------------------------------|-------------|-----|----------|-----|
| 1 | A992 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 2 | A36 Gr.36 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 36 | 1.5 | 58 | 1.2 |
| 3 | A572 Gr.50 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A500 Gr.B RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 42 | 1.4 | 58 | 1.3 |
| 5 | A500 Gr.B RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 58 | 1.3 |
| 6 | A500 Gr.C RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 62 | 1.3 |
| 7 | A500 Gr.C RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 50 | 1.4 | 62 | 1.3 |
| 8 | A53 Gr.B | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 35 | 1.6 | 60 | 1.2 |
| 9 | A1085 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.4 | 65 | 1.3 |
| 10 | A913 Gr.65 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 65 | 1.1 | 80 | 1.1 |

Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rule | Area [in ²] | Iyy [in ⁴] | Izz [in ⁴] | J [in ⁴] |
|---|-------|----------|--------|-------------|----------------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 1 | MP | PIPE 2.5 | Column | Pipe | A53 Gr.B | Typical | 1.61 | 1.45 | 1.45 | 2.89 |
| 2 | ST1 | HSS4X4X4 | Beam | Tube | A500 Gr.B RECT | Typical | 3.37 | 7.8 | 7.8 | 12.8 |

Member Primary Data

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|-------|--------|--------|-------------|---------------|--------|-------------|----------------|-------------|
| 1 | 1 | 2 | 3 | | ST1 | Beam | Tube | A500 Gr.B RECT | Typical |
| 2 | 2 | 3 | 4 | | RIGID | None | None | RIGID | Typical |
| 3 | 3 | 5 | 6 | 270 | MP | Column | Pipe | A53 Gr.B | Typical |
| 4 | 4 | 7 | 8 | | ST1 | Beam | Tube | A500 Gr.B RECT | Typical |
| 5 | 5 | 8 | 9 | | RIGID | None | None | RIGID | Typical |

Member Advanced Data

| | Label | Col-Wall Vert Release | Physical | Deflection Ratio Options | Seismic DR |
|---|-------|-----------------------|----------|--------------------------|------------|
| 1 | 1 | | Yes | Default | None |
| 2 | 2 | | Yes | ** NA ** | None |
| 3 | 3 | | Yes | ** NA ** | None |
| 4 | 4 | | Yes | Default | None |
| 5 | 5 | | Yes | ** NA ** | None |

Hot Rolled Steel Design Parameters

| | Label | Shape | Length [ft] | Lcomp top [ft] | Channel Conn. | a [ft] | Function |
|---|-------|-------|-------------|----------------|---------------|--------|----------|
| 1 | 1 | ST1 | 0.417 | Lbyy | N/A | N/A | Lateral |
| 2 | 3 | MP | 12 | Lbyy | N/A | N/A | Lateral |
| 3 | 4 | ST1 | 0.417 | Lbyy | N/A | N/A | Lateral |

Member Point Loads (BLC 1 : Dead)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Y | -0.071 | %50 |
| 2 | 3 | Y | -0.071 | %95 |
| 3 | 3 | Y | 0 | 0 |
| 4 | 3 | Y | 0 | 0 |
| 5 | 3 | Y | 0 | 0 |
| 6 | 3 | Y | -0.046 | %10 |
| 7 | 3 | Y | -0.046 | %30 |
| 8 | 3 | Y | 0 | 0 |
| 9 | 3 | Y | 0 | 0 |
| 10 | 3 | Y | 0 | 0 |

Member Point Loads (BLC 2 : 0 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.138 | %50 |
| 2 | 3 | Z | -0.138 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.048 | %10 |
| 7 | 3 | Z | -0.048 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 3 : 30 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.12 | %50 |
| 2 | 3 | Z | -0.12 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.033 | %10 |
| 7 | 3 | Z | -0.033 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | -0.028 | %50 |
| 12 | 3 | X | -0.028 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | -0.019 | %10 |
| 17 | 3 | X | -0.019 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |

Member Point Loads (BLC 3 : 30 Wind) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 4 : 60 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.069 | %50 |
| 2 | 3 | Z | -0.069 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.012 | %10 |
| 7 | 3 | Z | -0.012 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | -0.048 | %50 |
| 12 | 3 | X | -0.048 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | -0.02 | %10 |
| 17 | 3 | X | -0.02 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 5 : 90 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | X | -0.056 | %50 |
| 2 | 3 | X | -0.056 | %95 |
| 3 | 3 | X | 0 | 0 |
| 4 | 3 | X | 0 | 0 |
| 5 | 3 | X | 0 | 0 |
| 6 | 3 | X | -0.016 | %10 |
| 7 | 3 | X | -0.016 | %30 |
| 8 | 3 | X | 0 | 0 |
| 9 | 3 | X | 0 | 0 |
| 10 | 3 | X | 0 | 0 |

Member Point Loads (BLC 6 : 120 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | 0.069 | %50 |
| 2 | 3 | Z | 0.069 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | 0.012 | %10 |
| 7 | 3 | Z | 0.012 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | -0.048 | %50 |
| 12 | 3 | X | -0.048 | %95 |

Member Point Loads (BLC 6 : 120 Wind) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | -0.021 | %10 |
| 17 | 3 | X | -0.021 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 7 : 150 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | 0.12 | %50 |
| 2 | 3 | Z | 0.12 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | 0.028 | %10 |
| 7 | 3 | Z | 0.028 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | -0.028 | %50 |
| 12 | 3 | X | -0.028 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | -0.016 | %10 |
| 17 | 3 | X | -0.016 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 8 : 180 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | 0.138 | %50 |
| 2 | 3 | Z | 0.138 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | 0.03 | %10 |
| 7 | 3 | Z | 0.03 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 9 : 210 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | 0.12 | %50 |
| 2 | 3 | Z | 0.12 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 9 : 210 Wind) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 6 | 3 | Z | 0.028 | %10 |
| 7 | 3 | Z | 0.028 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | 0.028 | %50 |
| 12 | 3 | X | 0.028 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | 0.016 | %10 |
| 17 | 3 | X | 0.016 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 10 : 240 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | 0.069 | %50 |
| 2 | 3 | Z | 0.069 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | 0.012 | %10 |
| 7 | 3 | Z | 0.012 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | 0.048 | %50 |
| 12 | 3 | X | 0.048 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | 0.021 | %10 |
| 17 | 3 | X | 0.021 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 11 : 270 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | X | 0.056 | %50 |
| 2 | 3 | X | 0.056 | %95 |
| 3 | 3 | X | 0 | 0 |
| 4 | 3 | X | 0 | 0 |
| 5 | 3 | X | 0 | 0 |
| 6 | 3 | X | 0.016 | %10 |
| 7 | 3 | X | 0.016 | %30 |
| 8 | 3 | X | 0 | 0 |
| 9 | 3 | X | 0 | 0 |
| 10 | 3 | X | 0 | 0 |

Member Point Loads (BLC 12 : 300 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.069 | %50 |
| 2 | 3 | Z | -0.069 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.012 | %10 |
| 7 | 3 | Z | -0.012 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | 0.048 | %50 |
| 12 | 3 | X | 0.048 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | 0.02 | %10 |
| 17 | 3 | X | 0.02 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 13 : 330 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.12 | %50 |
| 2 | 3 | Z | -0.12 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.033 | %10 |
| 7 | 3 | Z | -0.033 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |
| 11 | 3 | X | 0.028 | %50 |
| 12 | 3 | X | 0.028 | %95 |
| 13 | 3 | X | 0 | 0 |
| 14 | 3 | X | 0 | 0 |
| 15 | 3 | X | 0 | 0 |
| 16 | 3 | X | 0.019 | %10 |
| 17 | 3 | X | 0.019 | %30 |
| 18 | 3 | X | 0 | 0 |
| 19 | 3 | X | 0 | 0 |
| 20 | 3 | X | 0 | 0 |

Member Point Loads (BLC 14 : 0 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.015 | %50 |
| 2 | 3 | Z | -0.015 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.005 | %10 |

Member Point Loads (BLC 14 : 0 Wind w/Ice) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 7 | 3 | Z | -0.005 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 15 : 90 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | X | -0.007 | %50 |
| 2 | 3 | X | -0.007 | %95 |
| 3 | 3 | X | 0 | 0 |
| 4 | 3 | X | 0 | 0 |
| 5 | 3 | X | 0 | 0 |
| 6 | 3 | X | -0.003 | %10 |
| 7 | 3 | X | -0.003 | %30 |
| 8 | 3 | X | 0 | 0 |
| 9 | 3 | X | 0 | 0 |
| 10 | 3 | X | 0 | 0 |

Member Point Loads (BLC 16 : 0 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.013 | %50 |
| 2 | 3 | Z | -0.013 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.004 | %10 |
| 7 | 3 | Z | -0.004 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 17 : 90 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | X | -0.005 | %50 |
| 2 | 3 | X | -0.005 | %95 |
| 3 | 3 | X | 0 | 0 |
| 4 | 3 | X | 0 | 0 |
| 5 | 3 | X | 0 | 0 |
| 6 | 3 | X | -0.002 | %10 |
| 7 | 3 | X | -0.002 | %30 |
| 8 | 3 | X | 0 | 0 |
| 9 | 3 | X | 0 | 0 |
| 10 | 3 | X | 0 | 0 |

Member Point Loads (BLC 18 : Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Y | -0.109 | %50 |
| 2 | 3 | Y | -0.109 | %95 |
| 3 | 3 | Y | 0 | 0 |
| 4 | 3 | Y | 0 | 0 |

Member Point Loads (BLC 18 : Ice) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 5 | 3 | Y | 0 | 0 |
| 6 | 3 | Y | -0.037 | %10 |
| 7 | 3 | Y | -0.037 | %30 |
| 8 | 3 | Y | 0 | 0 |
| 9 | 3 | Y | 0 | 0 |
| 10 | 3 | Y | 0 | 0 |

Member Point Loads (BLC 19 : 0 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | Z | -0.084 | %50 |
| 2 | 3 | Z | -0.084 | %95 |
| 3 | 3 | Z | 0 | 0 |
| 4 | 3 | Z | 0 | 0 |
| 5 | 3 | Z | 0 | 0 |
| 6 | 3 | Z | -0.054 | %10 |
| 7 | 3 | Z | -0.054 | %30 |
| 8 | 3 | Z | 0 | 0 |
| 9 | 3 | Z | 0 | 0 |
| 10 | 3 | Z | 0 | 0 |

Member Point Loads (BLC 20 : 90 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 3 | X | -0.084 | %50 |
| 2 | 3 | X | -0.084 | %95 |
| 3 | 3 | X | 0 | 0 |
| 4 | 3 | X | 0 | 0 |
| 5 | 3 | X | 0 | 0 |
| 6 | 3 | X | -0.054 | %10 |
| 7 | 3 | X | -0.054 | %30 |
| 8 | 3 | X | 0 | 0 |
| 9 | 3 | X | 0 | 0 |
| 10 | 3 | X | 0 | 0 |

Member Distributed Loads (BLC 14 : 0 Wind w/Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.001 | -0.001 | 0 | %100 |
| 2 | 3 | Z | -0.0004 | -0.0004 | 0 | %100 |
| 3 | 4 | Z | -0.001 | -0.001 | 0 | %100 |

Member Distributed Loads (BLC 15 : 90 Wind w/Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.001 | -0.001 | 0 | %100 |
| 2 | 3 | X | -0.0004 | -0.0004 | 0 | %100 |
| 3 | 4 | X | -0.001 | -0.001 | 0 | %100 |

Member Distributed Loads (BLC 16 : 0 Wind Service)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.0007 | -0.0007 | 0 | %100 |
| 2 | 3 | Z | -0.0002 | -0.0002 | 0 | %100 |



Member Distributed Loads (BLC 16 : 0 Wind Service) (Continued)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 3 | 4 | Z | -0.0007 | -0.0007 | 0 %100 |

Member Distributed Loads (BLC 17 : 90 Wind Service)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.0007 | -0.0007 | 0 %100 |
| 2 | 3 | X | -0.0002 | -0.0002 | 0 %100 |
| 3 | 4 | X | -0.0007 | -0.0007 | 0 %100 |

Member Distributed Loads (BLC 18 : Ice)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Y | -0.009 | -0.009 | 0 %100 |
| 2 | 3 | Y | -0.005 | -0.005 | 0 %100 |
| 3 | 4 | Y | -0.009 | -0.009 | 0 %100 |

Member Distributed Loads (BLC 19 : 0 Seismic)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.007 | -0.007 | 0 %100 |
| 2 | 3 | Z | -0.003 | -0.003 | 0 %100 |
| 3 | 4 | Z | -0.007 | -0.007 | 0 %100 |

Member Distributed Loads (BLC 20 : 90 Seismic)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.007 | -0.007 | 0 %100 |
| 2 | 3 | X | -0.003 | -0.003 | 0 %100 |
| 3 | 4 | X | -0.007 | -0.007 | 0 %100 |

Member Distributed Loads (BLC 21 : 0 Wind (Members))

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.007 | -0.007 | 0 %100 |
| 2 | 3 | Z | -0.005 | -0.005 | 0 %100 |
| 3 | 4 | Z | -0.007 | -0.007 | 0 %100 |

Member Distributed Loads (BLC 22 : 90 Wind (Members))

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.007 | -0.007 | 0 %100 |
| 2 | 3 | X | -0.005 | -0.005 | 0 %100 |
| 3 | 4 | X | -0.007 | -0.007 | 0 %100 |

Member Area Loads

| |
|---------------------|
| No Data to Print... |
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Nodal Loads and Enforced Displacements

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| No Data to Print... |
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Basic Load Cases

| | BLC Description | Category | Y Gravity | Point | Distributed |
|----|-------------------|----------|-----------|-------|-------------|
| 1 | Dead | DL | -1 | 10 | |
| 2 | 0 Wind | WL | | 10 | |
| 3 | 30 Wind | WL | | 20 | |
| 4 | 60 Wind | WL | | 20 | |
| 5 | 90 Wind | WL | | 10 | |
| 6 | 120 Wind | WL | | 20 | |
| 7 | 150 Wind | WL | | 20 | |
| 8 | 180 Wind | WL | | 10 | |
| 9 | 210 Wind | WL | | 20 | |
| 10 | 240 Wind | WL | | 20 | |
| 11 | 270 Wind | WL | | 10 | |
| 12 | 300 Wind | WL | | 20 | |
| 13 | 330 Wind | WL | | 20 | |
| 14 | 0 Wind w/Ice | WL | | 10 | 3 |
| 15 | 90 Wind w/Ice | WL | | 10 | 3 |
| 16 | 0 Wind Service | WL | | 10 | 3 |
| 17 | 90 Wind Service | WL | | 10 | 3 |
| 18 | Ice | OL1 | | 10 | 3 |
| 19 | 0 Seismic | EL | | 10 | 3 |
| 20 | 90 Seismic | EL | | 10 | 3 |
| 21 | 0 Wind (Members) | WL | | | 3 |
| 22 | 90 Wind (Members) | WL | | | 3 |
| 23 | Live Load a | LL | | | |
| 24 | Live Load b | LL | | | |
| 25 | Live Load c | LL | | | |
| 26 | Live Load d | LL | | | |
| 27 | Live Load e | LL | | | |
| 28 | Maint LL 1 | LL | | | |
| 29 | Maint LL 2 | LL | | | |
| 30 | Maint LL 3 | LL | | | |
| 31 | Maint LL 4 | LL | | | |
| 32 | Maint LL 5 | LL | | | |
| 33 | Maint LL 6 | LL | | | |
| 34 | Maint LL 7 | LL | | | |
| 35 | Maint LL 8 | LL | | | |
| 36 | Maint LL 9 | LL | | | |
| 37 | Maint LL 10 | LL | | | |
| 38 | Maint LL 11 | LL | | | |
| 39 | Maint LL 12 | LL | | | |
| 40 | Maint LL 13 | LL | | | |
| 41 | Maint LL 14 | LL | | | |
| 42 | Maint LL 15 | LL | | | |
| 43 | Maint LL 16 | LL | | | |
| 44 | Maint LL 17 | LL | | | |
| 45 | Maint LL 18 | LL | | | |
| 46 | Maint LL 19 | LL | | | |
| 47 | Maint LL 20 | LL | | | |

Load Combinations

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|---|--------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1 | 1.4 Dead | Yes | Y | 1 | 1.4 | | | | | | |
| 2 | 1.2 D + 1.0 - 0 W | Yes | Y | 1 | 1.2 | 2 | 1 | 21 | 1 | | |
| 3 | 1.2 D + 1.0 - 30 W | Yes | Y | 1 | 1.2 | 3 | 1 | 21 | 0.866 | 22 | 0.5 |
| 4 | 1.2 D + 1.0 - 60 W | Yes | Y | 1 | 1.2 | 4 | 1 | 22 | 0.866 | 21 | 0.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 5 | 1.2 D + 1.0 - 90 W | Yes | Y | 1 | 1.2 | 5 | 1 | 22 | 1 | | |
| 6 | 1.2 D + 1.0 - 120 W | Yes | Y | 1 | 1.2 | 6 | 1 | 22 | 0.866 | 21 | -0.5 |
| 7 | 1.2 D + 1.0 - 150 W | Yes | Y | 1 | 1.2 | 7 | 1 | 21 | -0.866 | 22 | 0.5 |
| 8 | 1.2 D + 1.0 - 180 W | Yes | Y | 1 | 1.2 | 8 | 1 | 21 | -1 | | |
| 9 | 1.2 D + 1.0 - 210 W | Yes | Y | 1 | 1.2 | 9 | 1 | 21 | -0.866 | 22 | -0.5 |
| 10 | 1.2 D + 1.0 - 240 W | Yes | Y | 1 | 1.2 | 10 | 1 | 22 | -0.866 | 21 | -0.5 |
| 11 | 1.2 D + 1.0 - 270 W | Yes | Y | 1 | 1.2 | 11 | 1 | 22 | -1 | | |
| 12 | 1.2 D + 1.0 - 300 W | Yes | Y | 1 | 1.2 | 12 | 1 | 22 | -0.866 | 21 | 0.5 |
| 13 | 1.2 D + 1.0 - 330 W | Yes | Y | 1 | 1.2 | 13 | 1 | 21 | 0.866 | 22 | -0.5 |
| 14 | 1.2 D + 1.0 - 0 W/Ice | Yes | Y | 1 | 1.2 | 14 | 1 | | | 18 | 1 |
| 15 | 1.2 D + 1.0 - 30 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | 0.5 | 18 | 1 |
| 16 | 1.2 D + 1.0 - 60 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | 0.5 | 18 | 1 |
| 17 | 1.2 D + 1.0 - 90 W/Ice | Yes | Y | 1 | 1.2 | 15 | 1 | | | 18 | 1 |
| 18 | 1.2 D + 1.0 - 120 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | -0.5 | 18 | 1 |
| 19 | 1.2 D + 1.0 - 150 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | 0.5 | 18 | 1 |
| 20 | 1.2 D + 1.0 - 180 W/Ice | Yes | Y | 1 | 1.2 | 14 | -1 | | | 18 | 1 |
| 21 | 1.2 D + 1.0 - 210 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | -0.5 | 18 | 1 |
| 22 | 1.2 D + 1.0 - 240 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | -0.5 | 18 | 1 |
| 23 | 1.2 D + 1.0 - 270 W/Ice | Yes | Y | 1 | 1.2 | 15 | -1 | | | 18 | 1 |
| 24 | 1.2 D + 1.0 - 300 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | 0.5 | 18 | 1 |
| 25 | 1.2 D + 1.0 - 330 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | -0.5 | 18 | 1 |
| 26 | 1.2 D + 1.0 E - 0 | Yes | Y | 1 | 1.2 | 19 | 1 | | | | |
| 27 | 1.2 D + 1.0 E - 30 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | 0.5 | | |
| 28 | 1.2 D + 1.0 E - 60 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | 0.5 | | |
| 29 | 1.2 D + 1.0 E - 90 | Yes | Y | 1 | 1.2 | 20 | 1 | | | | |
| 30 | 1.2 D + 1.0 E - 120 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | -0.5 | | |
| 31 | 1.2 D + 1.0 E - 150 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | 0.5 | | |
| 32 | 1.2 D + 1.0 E - 180 | Yes | Y | 1 | 1.2 | 19 | -1 | | | | |
| 33 | 1.2 D + 1.0 E - 210 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | -0.5 | | |
| 34 | 1.2 D + 1.0 E - 240 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | -0.5 | | |
| 35 | 1.2 D + 1.0 E - 270 | Yes | Y | 1 | 1.2 | 20 | -1 | | | | |
| 36 | 1.2 D + 1.0 E - 300 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | 0.5 | | |
| 37 | 1.2 D + 1.0 E - 330 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | -0.5 | | |
| 38 | 1.2 D + 1.5 LL a + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 23 | 1.5 |
| 39 | 1.2 D + 1.5 LL a + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 23 | 1.5 |
| 40 | 1.2 D + 1.5 LL a + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 23 | 1.5 |
| 41 | 1.2 D + 1.5 LL a + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 23 | 1.5 |
| 42 | 1.2 D + 1.5 LL a + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 23 | 1.5 |
| 43 | 1.2 D + 1.5 LL a + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 23 | 1.5 |
| 44 | 1.2 D + 1.5 LL a + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 23 | 1.5 |
| 45 | 1.2 D + 1.5 LL a + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 23 | 1.5 |
| 46 | 1.2 D + 1.5 LL a + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 23 | 1.5 |
| 47 | 1.2 D + 1.5 LL a + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 23 | 1.5 |
| 48 | 1.2 D + 1.5 LL a + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 23 | 1.5 |
| 49 | 1.2 D + 1.5 LL a + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 23 | 1.5 |
| 50 | 1.2 D + 1.5 LL b + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 24 | 1.5 |
| 51 | 1.2 D + 1.5 LL b + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 24 | 1.5 |
| 52 | 1.2 D + 1.5 LL b + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 24 | 1.5 |
| 53 | 1.2 D + 1.5 LL b + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 24 | 1.5 |
| 54 | 1.2 D + 1.5 LL b + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 24 | 1.5 |
| 55 | 1.2 D + 1.5 LL b + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 24 | 1.5 |
| 56 | 1.2 D + 1.5 LL b + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 24 | 1.5 |
| 57 | 1.2 D + 1.5 LL b + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 24 | 1.5 |
| 58 | 1.2 D + 1.5 LL b + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 24 | 1.5 |
| 59 | 1.2 D + 1.5 LL b + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 24 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 60 | 1.2 D + 1.5 LL b + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 24 | 1.5 |
| 61 | 1.2 D + 1.5 LL b + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 24 | 1.5 |
| 62 | 1.2 D + 1.5 LL c + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 25 | 1.5 |
| 63 | 1.2 D + 1.5 LL c + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 25 | 1.5 |
| 64 | 1.2 D + 1.5 LL c + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 25 | 1.5 |
| 65 | 1.2 D + 1.5 LL c + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 25 | 1.5 |
| 66 | 1.2 D + 1.5 LL c + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 25 | 1.5 |
| 67 | 1.2 D + 1.5 LL c + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 25 | 1.5 |
| 68 | 1.2 D + 1.5 LL c + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 25 | 1.5 |
| 69 | 1.2 D + 1.5 LL c + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 25 | 1.5 |
| 70 | 1.2 D + 1.5 LL c + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 25 | 1.5 |
| 71 | 1.2 D + 1.5 LL c + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 25 | 1.5 |
| 72 | 1.2 D + 1.5 LL c + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 25 | 1.5 |
| 73 | 1.2 D + 1.5 LL c + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 25 | 1.5 |
| 74 | 1.2 D + 1.5 LL d + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 26 | 1.5 |
| 75 | 1.2 D + 1.5 LL d + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 26 | 1.5 |
| 76 | 1.2 D + 1.5 LL d + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 26 | 1.5 |
| 77 | 1.2 D + 1.5 LL d + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 26 | 1.5 |
| 78 | 1.2 D + 1.5 LL d + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 26 | 1.5 |
| 79 | 1.2 D + 1.5 LL d + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 26 | 1.5 |
| 80 | 1.2 D + 1.5 LL d + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 26 | 1.5 |
| 81 | 1.2 D + 1.5 LL d + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 26 | 1.5 |
| 82 | 1.2 D + 1.5 LL d + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 26 | 1.5 |
| 83 | 1.2 D + 1.5 LL d + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 26 | 1.5 |
| 84 | 1.2 D + 1.5 LL d + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 26 | 1.5 |
| 85 | 1.2 D + 1.5 LL d + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 26 | 1.5 |
| 86 | 1.2 D + 1.5 LL e + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 27 | 1.5 |
| 87 | 1.2 D + 1.5 LL e + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 27 | 1.5 |
| 88 | 1.2 D + 1.5 LL e + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 27 | 1.5 |
| 89 | 1.2 D + 1.5 LL e + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 27 | 1.5 |
| 90 | 1.2 D + 1.5 LL e + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 27 | 1.5 |
| 91 | 1.2 D + 1.5 LL e + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 27 | 1.5 |
| 92 | 1.2 D + 1.5 LL e + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 27 | 1.5 |
| 93 | 1.2 D + 1.5 LL e + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 27 | 1.5 |
| 94 | 1.2 D + 1.5 LL e + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 27 | 1.5 |
| 95 | 1.2 D + 1.5 LL e + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 27 | 1.5 |
| 96 | 1.2 D + 1.5 LL e + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 27 | 1.5 |
| 97 | 1.2 D + 1.5 LL e + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 27 | 1.5 |
| 98 | 1.2 D + 1.5 LL Maint (1) | Yes | Y | 1 | 1.2 | | | | | 28 | 1.5 |
| 99 | 1.2 D + 1.5 LL Maint (2) | Yes | Y | 1 | 1.2 | | | | | 29 | 1.5 |
| 100 | 1.2 D + 1.5 LL Maint (3) | Yes | Y | 1 | 1.2 | | | | | 30 | 1.5 |
| 101 | 1.2 D + 1.5 LL Maint (4) | Yes | Y | 1 | 1.2 | | | | | 31 | 1.5 |
| 102 | 1.2 D + 1.5 LL Maint (5) | Yes | Y | 1 | 1.2 | | | | | 32 | 1.5 |
| 103 | 1.2 D + 1.5 LL Maint (6) | Yes | Y | 1 | 1.2 | | | | | 33 | 1.5 |
| 104 | 1.2 D + 1.5 LL Maint (7) | Yes | Y | 1 | 1.2 | | | | | 34 | 1.5 |
| 105 | 1.2 D + 1.5 LL Maint (8) | Yes | Y | 1 | 1.2 | | | | | 35 | 1.5 |
| 106 | 1.2 D + 1.5 LL Maint (9) | Yes | Y | 1 | 1.2 | | | | | 36 | 1.5 |
| 107 | 1.2 D + 1.5 LL Maint (10) | Yes | Y | 1 | 1.2 | | | | | 37 | 1.5 |
| 108 | 1.2 D + 1.5 LL Maint (11) | Yes | Y | 1 | 1.2 | | | | | 38 | 1.5 |
| 109 | 1.2 D + 1.5 LL Maint (12) | Yes | Y | 1 | 1.2 | | | | | 39 | 1.5 |
| 110 | 1.2 D + 1.5 LL Maint (13) | Yes | Y | 1 | 1.2 | | | | | 40 | 1.5 |
| 111 | 1.2 D + 1.5 LL Maint (14) | Yes | Y | 1 | 1.2 | | | | | 41 | 1.5 |
| 112 | 1.2 D + 1.5 LL Maint (15) | Yes | Y | 1 | 1.2 | | | | | 42 | 1.5 |
| 113 | 1.2 D + 1.5 LL Maint (16) | Yes | Y | 1 | 1.2 | | | | | 43 | 1.5 |
| 114 | 1.2 D + 1.5 LL Maint (17) | Yes | Y | 1 | 1.2 | | | | | 44 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|---------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 115 | 1.2 D + 1.5 LL Maint (18) | Yes | Y | 1 | 1.2 | | | | | 45 | 1.5 |
| 116 | 1.2 D + 1.5 LL Maint (19) | Yes | Y | 1 | 1.2 | | | | | 46 | 1.5 |
| 117 | 1.2 D + 1.5 LL Maint (20) | Yes | Y | 1 | 1.2 | | | | | 47 | 1.5 |

Envelope Node Reactions

| Node Label | | X [k] | LC | Y [k] | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC | |
|------------|---------|-------|--------|-------|--------|-------|--------|-----------|--------|-----------|--------|-----------|--------|----|
| 1 | 7 | max | 0.205 | 29 | 0.527 | 8 | 0.33 | 2 | 0.32 | 8 | 0.115 | 29 | 0.362 | 29 |
| 2 | | min | -0.205 | 35 | -0.133 | 2 | -0.321 | 8 | -0.524 | 2 | -0.115 | 35 | -0.362 | 35 |
| 3 | 2 | max | 0.117 | 29 | 0.507 | 2 | 0.116 | 26 | 0.037 | 8 | 0.066 | 29 | 0.073 | 35 |
| 4 | | min | -0.117 | 35 | -0.154 | 8 | -0.123 | 32 | -0.201 | 2 | -0.066 | 35 | -0.073 | 29 |
| 5 | Totals: | max | 0.322 | 29 | 0.734 | 14 | 0.439 | 2 | | | | | | |
| 6 | | min | -0.322 | 35 | 0.374 | 8 | -0.403 | 8 | | | | | | |

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

| Member | Shape | Code Check | Loc[ft] | LC | Shear | Check | Loc[ft] | Dir | LC | phi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb | Eqn |
|--------|-------|------------|---------|-------|-------|-------|---------|-----|----|-------------|-------------|-------------------|-------------------|-------|-------|
| 1 | 1 | HSS4X4X4 | 0.014 | 0 | 13 | 0.014 | 0 | y | 13 | 139.417 | 139.518 | 16.181 | 16.181 | 1.65 | H1-1b |
| 2 | 3 | PIPE 2.5 | 0.199 | 6.75 | 8 | 0.011 | 6.75 | | 8 | 15.797 | 50.715 | 3.596 | 3.596 | 1 | H1-1b |
| 3 | 4 | HSS4X4X4 | 0.037 | 0.417 | 2 | 0.032 | 0 | z | 35 | 139.417 | 139.518 | 16.181 | 16.181 | 1.041 | H1-1b |

Node Coordinates

| | Label | X [ft] | Y [ft] | Z [ft] | Detach From Diaphragm |
|---|-------|--------|-----------|----------|-----------------------|
| 1 | 1 | 0 | 0 | 0 | |
| 2 | 2 | 0 | 0 | 1.083333 | |
| 3 | 3 | 0 | 0 | 1.666666 | |
| 4 | 4 | 0 | 0 | 1.817666 | |
| 5 | 5 | 0 | -4.166666 | 1.083333 | |
| 6 | 6 | 0 | -4.166666 | 1.666666 | |
| 7 | 7 | 0 | -4.166666 | 1.817666 | |
| 8 | 8 | 0 | 2 | 1.817666 | |
| 9 | 9 | 0 | -8.833333 | 1.817666 | |

Node Boundary Conditions

| | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Y Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|---|------------|----------|----------|----------|------------------|------------------|------------------|
| 1 | 2 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 2 | 5 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |

Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm. Coeff. [1e ⁵ F ⁻¹] | Density [k/ft ³] | Yield [ksi] | Ry | Fu [ksi] | Rt |
|----|----------------|---------|---------|-----|--|------------------------------|-------------|-----|----------|-----|
| 1 | A992 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 2 | A36 Gr.36 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 36 | 1.5 | 58 | 1.2 |
| 3 | A572 Gr.50 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A500 Gr.B RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 42 | 1.4 | 58 | 1.3 |
| 5 | A500 Gr.B RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 58 | 1.3 |
| 6 | A500 Gr.C RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 62 | 1.3 |
| 7 | A500 Gr.C RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 50 | 1.4 | 62 | 1.3 |
| 8 | A53 Gr.B | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 35 | 1.6 | 60 | 1.2 |
| 9 | A1085 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.4 | 65 | 1.3 |
| 10 | A913 Gr.65 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 65 | 1.1 | 80 | 1.1 |

Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rule | Area [in ²] | Iyy [in ⁴] | Izz [in ⁴] | J [in ⁴] |
|---|-------|----------|--------|-------------|----------------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 1 | MP | PIPE 2.0 | Column | Pipe | A53 Gr.B | Typical | 1.02 | 0.627 | 0.627 | 1.25 |
| 2 | ST1 | HSS4X4X4 | Beam | Tube | A500 Gr.B RECT | Typical | 3.37 | 7.8 | 7.8 | 12.8 |

Member Primary Data

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|-------|--------|--------|-------------|---------------|--------|-------------|----------------|-------------|
| 1 | 1 | 2 | 3 | | ST1 | Beam | Tube | A500 Gr.B RECT | Typical |
| 2 | 2 | 3 | 4 | | RIGID | None | None | RIGID | Typical |
| 3 | 3 | 5 | 6 | | ST1 | Beam | Tube | A500 Gr.B RECT | Typical |
| 4 | 4 | 6 | 7 | | RIGID | None | None | RIGID | Typical |
| 5 | 5 | 8 | 9 | 270 | MP | Column | Pipe | A53 Gr.B | Typical |

Member Advanced Data

| | Label | Col-Wall Vert Release | Physical | Deflection Ratio Options | Seismic DR |
|---|-------|-----------------------|----------|--------------------------|------------|
| 1 | 1 | | Yes | Default | None |
| 2 | 2 | | Yes | ** NA ** | None |
| 3 | 3 | | Yes | Default | None |
| 4 | 4 | | Yes | ** NA ** | None |
| 5 | 5 | | Yes | ** NA ** | None |

Hot Rolled Steel Design Parameters

| | Label | Shape | Length [ft] | Lcomp top [ft] | Channel Conn. | a [ft] | Function |
|---|-------|-------|-------------|----------------|---------------|--------|----------|
| 1 | 1 | ST1 | 0.583 | Lbyy | N/A | N/A | Lateral |
| 2 | 3 | ST1 | 0.583 | Lbyy | N/A | N/A | Lateral |
| 3 | 5 | MP | 10.833 | Lbyy | N/A | N/A | Lateral |

Member Point Loads (BLC 1 : Dead)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Y | -0.071 | %5 |
| 2 | 5 | Y | -0.071 | %55 |
| 3 | 5 | Y | 0 | 0 |
| 4 | 5 | Y | 0 | 0 |
| 5 | 5 | Y | 0 | 0 |

Member Point Loads (BLC 2 : 0 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.128 | %5 |
| 2 | 5 | Z | -0.128 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |

Member Point Loads (BLC 3 : 30 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.111 | %5 |
| 2 | 5 | Z | -0.111 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | -0.026 | %5 |
| 7 | 5 | X | -0.026 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 4 : 60 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.064 | %5 |
| 2 | 5 | Z | -0.064 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | -0.045 | %5 |
| 7 | 5 | X | -0.045 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 5 : 90 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | X | -0.052 | %5 |
| 2 | 5 | X | -0.052 | %55 |
| 3 | 5 | X | 0 | 0 |
| 4 | 5 | X | 0 | 0 |
| 5 | 5 | X | 0 | 0 |

Member Point Loads (BLC 6 : 120 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | 0.064 | %5 |
| 2 | 5 | Z | 0.064 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | -0.045 | %5 |
| 7 | 5 | X | -0.045 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 7 : 150 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | 0.111 | %5 |
| 2 | 5 | Z | 0.111 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | -0.026 | %5 |
| 7 | 5 | X | -0.026 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 8 : 180 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | 0.128 | %5 |
| 2 | 5 | Z | 0.128 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |

Member Point Loads (BLC 9 : 210 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | 0.111 | %5 |
| 2 | 5 | Z | 0.111 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | 0.026 | %5 |
| 7 | 5 | X | 0.026 | %55 |

Member Point Loads (BLC 9 : 210 Wind) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 10 : 240 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | 0.064 | %5 |
| 2 | 5 | Z | 0.064 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | 0.045 | %5 |
| 7 | 5 | X | 0.045 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 11 : 270 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | X | 0.052 | %5 |
| 2 | 5 | X | 0.052 | %55 |
| 3 | 5 | X | 0 | 0 |
| 4 | 5 | X | 0 | 0 |
| 5 | 5 | X | 0 | 0 |

Member Point Loads (BLC 12 : 300 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.064 | %5 |
| 2 | 5 | Z | -0.064 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | 0.045 | %5 |
| 7 | 5 | X | 0.045 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 13 : 330 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.111 | %5 |
| 2 | 5 | Z | -0.111 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |
| 6 | 5 | X | 0.026 | %5 |
| 7 | 5 | X | 0.026 | %55 |
| 8 | 5 | X | 0 | 0 |
| 9 | 5 | X | 0 | 0 |
| 10 | 5 | X | 0 | 0 |

Member Point Loads (BLC 14 : 0 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.013 | %5 |
| 2 | 5 | Z | -0.013 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |

Member Point Loads (BLC 15 : 90 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | X | -0.006 | %5 |
| 2 | 5 | X | -0.006 | %55 |
| 3 | 5 | X | 0 | 0 |
| 4 | 5 | X | 0 | 0 |
| 5 | 5 | X | 0 | 0 |

Member Point Loads (BLC 16 : 0 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.012 | %5 |
| 2 | 5 | Z | -0.012 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |

Member Point Loads (BLC 17 : 90 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | X | -0.005 | %5 |
| 2 | 5 | X | -0.005 | %55 |
| 3 | 5 | X | 0 | 0 |
| 4 | 5 | X | 0 | 0 |
| 5 | 5 | X | 0 | 0 |

Member Point Loads (BLC 18 : Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Y | -0.106 | %5 |
| 2 | 5 | Y | -0.106 | %55 |
| 3 | 5 | Y | 0 | 0 |
| 4 | 5 | Y | 0 | 0 |
| 5 | 5 | Y | 0 | 0 |

Member Point Loads (BLC 19 : 0 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | Z | -0.084 | %5 |
| 2 | 5 | Z | -0.084 | %55 |
| 3 | 5 | Z | 0 | 0 |
| 4 | 5 | Z | 0 | 0 |
| 5 | 5 | Z | 0 | 0 |

Member Point Loads (BLC 20 : 90 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 5 | X | -0.084 | %5 |
| 2 | 5 | X | -0.084 | %55 |
| 3 | 5 | X | 0 | 0 |
| 4 | 5 | X | 0 | 0 |
| 5 | 5 | X | 0 | 0 |

Member Distributed Loads (BLC 14 : 0 Wind w/Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.001 | -0.001 | 0 | %100 |
| 2 | 3 | Z | -0.001 | -0.001 | 0 | %100 |
| 3 | 5 | Z | -0.0003 | -0.0003 | 0 | %100 |

Member Distributed Loads (BLC 15 : 90 Wind w/Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.001 | -0.001 | 0 | %100 |
| 2 | 3 | X | -0.001 | -0.001 | 0 | %100 |
| 3 | 5 | X | -0.0003 | -0.0003 | 0 | %100 |

Member Distributed Loads (BLC 16 : 0 Wind Service)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.0006 | -0.0006 | 0 | %100 |
| 2 | 3 | Z | -0.0006 | -0.0006 | 0 | %100 |
| 3 | 5 | Z | -0.0002 | -0.0002 | 0 | %100 |

Member Distributed Loads (BLC 17 : 90 Wind Service)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.0006 | -0.0006 | 0 | %100 |
| 2 | 3 | X | -0.0006 | -0.0006 | 0 | %100 |
| 3 | 5 | X | -0.0002 | -0.0002 | 0 | %100 |

Member Distributed Loads (BLC 18 : Ice)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Y | -0.008 | -0.008 | 0 | %100 |
| 2 | 3 | Y | -0.008 | -0.008 | 0 | %100 |
| 3 | 5 | Y | -0.004 | -0.004 | 0 | %100 |

Member Distributed Loads (BLC 19 : 0 Seismic)

| | Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|---|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.007 | -0.007 | 0 | %100 |
| 2 | 3 | Z | -0.007 | -0.007 | 0 | %100 |
| 3 | 5 | Z | -0.002 | -0.002 | 0 | %100 |



Member Distributed Loads (BLC 20 : 90 Seismic)

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.007 | -0.007 | 0 | %100 |
| 2 | 3 | X | -0.007 | -0.007 | 0 | %100 |
| 3 | 5 | X | -0.002 | -0.002 | 0 | %100 |

Member Distributed Loads (BLC 21 : 0 Wind (Members))

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | Z | -0.006 | -0.006 | 0 | %100 |
| 2 | 3 | Z | -0.006 | -0.006 | 0 | %100 |
| 3 | 5 | Z | -0.004 | -0.004 | 0 | %100 |

Member Distributed Loads (BLC 22 : 90 Wind (Members))

| Member | Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------|-------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 1 | X | -0.006 | -0.006 | 0 | %100 |
| 2 | 3 | X | -0.006 | -0.006 | 0 | %100 |
| 3 | 5 | X | -0.004 | -0.004 | 0 | %100 |

Member Area Loads

No Data to Print...

Nodal Loads and Enforced Displacements

No Data to Print...

Basic Load Cases

| | BLC Description | Category | Y Gravity | Point | Distributed |
|----|-------------------|----------|-----------|-------|-------------|
| 1 | Dead | DL | -1 | 5 | |
| 2 | 0 Wind | WL | | 5 | |
| 3 | 30 Wind | WL | | 10 | |
| 4 | 60 Wind | WL | | 10 | |
| 5 | 90 Wind | WL | | 5 | |
| 6 | 120 Wind | WL | | 10 | |
| 7 | 150 Wind | WL | | 10 | |
| 8 | 180 Wind | WL | | 5 | |
| 9 | 210 Wind | WL | | 10 | |
| 10 | 240 Wind | WL | | 10 | |
| 11 | 270 Wind | WL | | 5 | |
| 12 | 300 Wind | WL | | 10 | |
| 13 | 330 Wind | WL | | 10 | |
| 14 | 0 Wind w/Ice | WL | | 5 | 3 |
| 15 | 90 Wind w/Ice | WL | | 5 | 3 |
| 16 | 0 Wind Service | WL | | 5 | 3 |
| 17 | 90 Wind Service | WL | | 5 | 3 |
| 18 | Ice | OL1 | | 5 | 3 |
| 19 | 0 Seismic | EL | | 5 | 3 |
| 20 | 90 Seismic | EL | | 5 | 3 |
| 21 | 0 Wind (Members) | WL | | | 3 |
| 22 | 90 Wind (Members) | WL | | | 3 |
| 23 | Live Load a | LL | | | |
| 24 | Live Load b | LL | | | |
| 25 | Live Load c | LL | | | |
| 26 | Live Load d | LL | | | |

Basic Load Cases (Continued)

| | BLC Description | Category | Y Gravity | Point | Distributed |
|----|-----------------|----------|-----------|-------|-------------|
| 27 | Live Load e | LL | | | |
| 28 | Maint LL 1 | LL | | | |
| 29 | Maint LL 2 | LL | | | |
| 30 | Maint LL 3 | LL | | | |
| 31 | Maint LL 4 | LL | | | |
| 32 | Maint LL 5 | LL | | | |
| 33 | Maint LL 6 | LL | | | |
| 34 | Maint LL 7 | LL | | | |
| 35 | Maint LL 8 | LL | | | |
| 36 | Maint LL 9 | LL | | | |
| 37 | Maint LL 10 | LL | | | |
| 38 | Maint LL 11 | LL | | | |
| 39 | Maint LL 12 | LL | | | |
| 40 | Maint LL 13 | LL | | | |
| 41 | Maint LL 14 | LL | | | |
| 42 | Maint LL 15 | LL | | | |
| 43 | Maint LL 16 | LL | | | |
| 44 | Maint LL 17 | LL | | | |
| 45 | Maint LL 18 | LL | | | |
| 46 | Maint LL 19 | LL | | | |
| 47 | Maint LL 20 | LL | | | |

Load Combinations

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|-------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1 | 1.4 Dead | Yes | Y | 1 | 1.4 | | | | | | |
| 2 | 1.2 D + 1.0 - 0 W | Yes | Y | 1 | 1.2 | 2 | 1 | 21 | 1 | | |
| 3 | 1.2 D + 1.0 - 30 W | Yes | Y | 1 | 1.2 | 3 | 1 | 21 | 0.866 | 22 | 0.5 |
| 4 | 1.2 D + 1.0 - 60 W | Yes | Y | 1 | 1.2 | 4 | 1 | 22 | 0.866 | 21 | 0.5 |
| 5 | 1.2 D + 1.0 - 90 W | Yes | Y | 1 | 1.2 | 5 | 1 | 22 | 1 | | |
| 6 | 1.2 D + 1.0 - 120 W | Yes | Y | 1 | 1.2 | 6 | 1 | 22 | 0.866 | 21 | -0.5 |
| 7 | 1.2 D + 1.0 - 150 W | Yes | Y | 1 | 1.2 | 7 | 1 | 21 | -0.866 | 22 | 0.5 |
| 8 | 1.2 D + 1.0 - 180 W | Yes | Y | 1 | 1.2 | 8 | 1 | 21 | -1 | | |
| 9 | 1.2 D + 1.0 - 210 W | Yes | Y | 1 | 1.2 | 9 | 1 | 21 | -0.866 | 22 | -0.5 |
| 10 | 1.2 D + 1.0 - 240 W | Yes | Y | 1 | 1.2 | 10 | 1 | 22 | -0.866 | 21 | -0.5 |
| 11 | 1.2 D + 1.0 - 270 W | Yes | Y | 1 | 1.2 | 11 | 1 | 22 | -1 | | |
| 12 | 1.2 D + 1.0 - 300 W | Yes | Y | 1 | 1.2 | 12 | 1 | 22 | -0.866 | 21 | 0.5 |
| 13 | 1.2 D + 1.0 - 330 W | Yes | Y | 1 | 1.2 | 13 | 1 | 21 | 0.866 | 22 | -0.5 |
| 14 | 1.2 D + 1.0 - 0 W/Ice | Yes | Y | 1 | 1.2 | 14 | 1 | | | 18 | 1 |
| 15 | 1.2 D + 1.0 - 30 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | 0.5 | 18 | 1 |
| 16 | 1.2 D + 1.0 - 60 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | 0.5 | 18 | 1 |
| 17 | 1.2 D + 1.0 - 90 W/Ice | Yes | Y | 1 | 1.2 | 15 | 1 | | | 18 | 1 |
| 18 | 1.2 D + 1.0 - 120 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | -0.5 | 18 | 1 |
| 19 | 1.2 D + 1.0 - 150 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | 0.5 | 18 | 1 |
| 20 | 1.2 D + 1.0 - 180 W/Ice | Yes | Y | 1 | 1.2 | 14 | -1 | | | 18 | 1 |
| 21 | 1.2 D + 1.0 - 210 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | -0.5 | 18 | 1 |
| 22 | 1.2 D + 1.0 - 240 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | -0.5 | 18 | 1 |
| 23 | 1.2 D + 1.0 - 270 W/Ice | Yes | Y | 1 | 1.2 | 15 | -1 | | | 18 | 1 |
| 24 | 1.2 D + 1.0 - 300 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | 0.5 | 18 | 1 |
| 25 | 1.2 D + 1.0 - 330 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | -0.5 | 18 | 1 |
| 26 | 1.2 D + 1.0 E - 0 | Yes | Y | 1 | 1.2 | 19 | 1 | | | | |
| 27 | 1.2 D + 1.0 E - 30 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | 0.5 | | |
| 28 | 1.2 D + 1.0 E - 60 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | 0.5 | | |
| 29 | 1.2 D + 1.0 E - 90 | Yes | Y | 1 | 1.2 | 20 | 1 | | | | |
| 30 | 1.2 D + 1.0 E - 120 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | -0.5 | | |
| 31 | 1.2 D + 1.0 E - 150 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | 0.5 | | |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 32 | 1.2 D + 1.0 E - 180 | Yes | Y | 1 | 1.2 | 19 | -1 | | | | |
| 33 | 1.2 D + 1.0 E - 210 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | -0.5 | | |
| 34 | 1.2 D + 1.0 E - 240 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | -0.5 | | |
| 35 | 1.2 D + 1.0 E - 270 | Yes | Y | 1 | 1.2 | 20 | -1 | | | | |
| 36 | 1.2 D + 1.0 E - 300 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | 0.5 | | |
| 37 | 1.2 D + 1.0 E - 330 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | -0.5 | | |
| 38 | 1.2 D + 1.5 LL a + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 23 | 1.5 |
| 39 | 1.2 D + 1.5 LL a + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 23 | 1.5 |
| 40 | 1.2 D + 1.5 LL a + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 23 | 1.5 |
| 41 | 1.2 D + 1.5 LL a + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 23 | 1.5 |
| 42 | 1.2 D + 1.5 LL a + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 23 | 1.5 |
| 43 | 1.2 D + 1.5 LL a + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 23 | 1.5 |
| 44 | 1.2 D + 1.5 LL a + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 23 | 1.5 |
| 45 | 1.2 D + 1.5 LL a + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 23 | 1.5 |
| 46 | 1.2 D + 1.5 LL a + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 23 | 1.5 |
| 47 | 1.2 D + 1.5 LL a + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 23 | 1.5 |
| 48 | 1.2 D + 1.5 LL a + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 23 | 1.5 |
| 49 | 1.2 D + 1.5 LL a + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 23 | 1.5 |
| 50 | 1.2 D + 1.5 LL b + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 24 | 1.5 |
| 51 | 1.2 D + 1.5 LL b + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 24 | 1.5 |
| 52 | 1.2 D + 1.5 LL b + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 24 | 1.5 |
| 53 | 1.2 D + 1.5 LL b + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 24 | 1.5 |
| 54 | 1.2 D + 1.5 LL b + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 24 | 1.5 |
| 55 | 1.2 D + 1.5 LL b + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 24 | 1.5 |
| 56 | 1.2 D + 1.5 LL b + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 24 | 1.5 |
| 57 | 1.2 D + 1.5 LL b + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 24 | 1.5 |
| 58 | 1.2 D + 1.5 LL b + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 24 | 1.5 |
| 59 | 1.2 D + 1.5 LL b + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 24 | 1.5 |
| 60 | 1.2 D + 1.5 LL b + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 24 | 1.5 |
| 61 | 1.2 D + 1.5 LL b + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 24 | 1.5 |
| 62 | 1.2 D + 1.5 LL c + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 25 | 1.5 |
| 63 | 1.2 D + 1.5 LL c + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 25 | 1.5 |
| 64 | 1.2 D + 1.5 LL c + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 25 | 1.5 |
| 65 | 1.2 D + 1.5 LL c + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 25 | 1.5 |
| 66 | 1.2 D + 1.5 LL c + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 25 | 1.5 |
| 67 | 1.2 D + 1.5 LL c + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 25 | 1.5 |
| 68 | 1.2 D + 1.5 LL c + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 25 | 1.5 |
| 69 | 1.2 D + 1.5 LL c + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 25 | 1.5 |
| 70 | 1.2 D + 1.5 LL c + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 25 | 1.5 |
| 71 | 1.2 D + 1.5 LL c + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 25 | 1.5 |
| 72 | 1.2 D + 1.5 LL c + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 25 | 1.5 |
| 73 | 1.2 D + 1.5 LL c + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 25 | 1.5 |
| 74 | 1.2 D + 1.5 LL d + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 26 | 1.5 |
| 75 | 1.2 D + 1.5 LL d + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 26 | 1.5 |
| 76 | 1.2 D + 1.5 LL d + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 26 | 1.5 |
| 77 | 1.2 D + 1.5 LL d + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 26 | 1.5 |
| 78 | 1.2 D + 1.5 LL d + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 26 | 1.5 |
| 79 | 1.2 D + 1.5 LL d + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 26 | 1.5 |
| 80 | 1.2 D + 1.5 LL d + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 26 | 1.5 |
| 81 | 1.2 D + 1.5 LL d + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 26 | 1.5 |
| 82 | 1.2 D + 1.5 LL d + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 26 | 1.5 |
| 83 | 1.2 D + 1.5 LL d + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 26 | 1.5 |
| 84 | 1.2 D + 1.5 LL d + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 26 | 1.5 |
| 85 | 1.2 D + 1.5 LL d + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 26 | 1.5 |
| 86 | 1.2 D + 1.5 LL e + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 27 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 87 | 1.2 D + 1.5 LL e + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 27 | 1.5 |
| 88 | 1.2 D + 1.5 LL e + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 27 | 1.5 |
| 89 | 1.2 D + 1.5 LL e + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 27 | 1.5 |
| 90 | 1.2 D + 1.5 LL e + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 27 | 1.5 |
| 91 | 1.2 D + 1.5 LL e + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 27 | 1.5 |
| 92 | 1.2 D + 1.5 LL e + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 27 | 1.5 |
| 93 | 1.2 D + 1.5 LL e + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 27 | 1.5 |
| 94 | 1.2 D + 1.5 LL e + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 27 | 1.5 |
| 95 | 1.2 D + 1.5 LL e + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 27 | 1.5 |
| 96 | 1.2 D + 1.5 LL e + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 27 | 1.5 |
| 97 | 1.2 D + 1.5 LL e + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 27 | 1.5 |
| 98 | 1.2 D + 1.5 LL Maint (1) | Yes | Y | 1 | 1.2 | | | | | 28 | 1.5 |
| 99 | 1.2 D + 1.5 LL Maint (2) | Yes | Y | 1 | 1.2 | | | | | 29 | 1.5 |
| 100 | 1.2 D + 1.5 LL Maint (3) | Yes | Y | 1 | 1.2 | | | | | 30 | 1.5 |
| 101 | 1.2 D + 1.5 LL Maint (4) | Yes | Y | 1 | 1.2 | | | | | 31 | 1.5 |
| 102 | 1.2 D + 1.5 LL Maint (5) | Yes | Y | 1 | 1.2 | | | | | 32 | 1.5 |
| 103 | 1.2 D + 1.5 LL Maint (6) | Yes | Y | 1 | 1.2 | | | | | 33 | 1.5 |
| 104 | 1.2 D + 1.5 LL Maint (7) | Yes | Y | 1 | 1.2 | | | | | 34 | 1.5 |
| 105 | 1.2 D + 1.5 LL Maint (8) | Yes | Y | 1 | 1.2 | | | | | 35 | 1.5 |
| 106 | 1.2 D + 1.5 LL Maint (9) | Yes | Y | 1 | 1.2 | | | | | 36 | 1.5 |
| 107 | 1.2 D + 1.5 LL Maint (10) | Yes | Y | 1 | 1.2 | | | | | 37 | 1.5 |
| 108 | 1.2 D + 1.5 LL Maint (11) | Yes | Y | 1 | 1.2 | | | | | 38 | 1.5 |
| 109 | 1.2 D + 1.5 LL Maint (12) | Yes | Y | 1 | 1.2 | | | | | 39 | 1.5 |
| 110 | 1.2 D + 1.5 LL Maint (13) | Yes | Y | 1 | 1.2 | | | | | 40 | 1.5 |
| 111 | 1.2 D + 1.5 LL Maint (14) | Yes | Y | 1 | 1.2 | | | | | 41 | 1.5 |
| 112 | 1.2 D + 1.5 LL Maint (15) | Yes | Y | 1 | 1.2 | | | | | 42 | 1.5 |
| 113 | 1.2 D + 1.5 LL Maint (16) | Yes | Y | 1 | 1.2 | | | | | 43 | 1.5 |
| 114 | 1.2 D + 1.5 LL Maint (17) | Yes | Y | 1 | 1.2 | | | | | 44 | 1.5 |
| 115 | 1.2 D + 1.5 LL Maint (18) | Yes | Y | 1 | 1.2 | | | | | 45 | 1.5 |
| 116 | 1.2 D + 1.5 LL Maint (19) | Yes | Y | 1 | 1.2 | | | | | 46 | 1.5 |
| 117 | 1.2 D + 1.5 LL Maint (20) | Yes | Y | 1 | 1.2 | | | | | 47 | 1.5 |

Envelope Node Reactions

| Node Label | X [k] | LC | Y [k] | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC | | |
|------------|---------|-----|--------|----|-------|----|-----------|----|-----------|----|-----------|----|--------|----|
| 1 | 5 | max | 0.099 | 29 | 0.259 | 20 | 0.156 | 2 | -0.03 | 2 | 0.071 | 29 | 0.028 | 5 |
| 2 | | min | -0.099 | 35 | 0.027 | 2 | -0.153 | 8 | -0.177 | 20 | -0.071 | 35 | -0.028 | 11 |
| 3 | 2 | max | 0.099 | 29 | 0.258 | 14 | 0.15 | 2 | 0.036 | 2 | 0.071 | 29 | 0.116 | 35 |
| 4 | | min | -0.099 | 35 | 0.026 | 8 | -0.153 | 8 | -0.194 | 8 | -0.071 | 35 | -0.116 | 29 |
| 5 | Totals: | max | 0.198 | 29 | 0.499 | 20 | 0.307 | 2 | | | | | | |
| 6 | | min | -0.198 | 35 | 0.234 | 2 | -0.307 | 8 | | | | | | |

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

| Member | Shape | Code Check | Loc[ft] | LC | Shear | Check | Loc[ft] | Dir | LC | phi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb | Eqn |
|--------|-------|------------|---------|-------|-------|-------|---------|-----|----|-------------|-------------|-------------------|-------------------|-------|-------|
| 1 | 1 | HSS4X4X4 | 0.013 | 0 | 9 | 0.012 | 0 | y | 35 | 139.319 | 139.518 | 16.181 | 16.181 | 1.049 | H1-1b |
| 2 | 3 | HSS4X4X4 | 0.011 | 0 | 21 | 0.007 | 0 | y | 21 | 139.319 | 139.518 | 16.181 | 16.181 | 1.507 | H1-1b |
| 3 | 5 | PIPE 2.0 | 0.104 | 1.918 | 8 | 0.014 | 1.918 | | 8 | 8.381 | 32.13 | 1.872 | 1.872 | 1 | H1-1b |

Node Coordinates

| | Label | X [ft] | Y [ft] | Z [ft] | Detach From Diaphragm |
|---|-------|--------|--------|----------|-----------------------|
| 1 | 1 | 0 | 0 | 0 | |
| 2 | 2 | 0 | 0 | 0.958333 | |
| 3 | 3 | 0 | 0 | 1.057333 | |
| 4 | 4 | 0 | 4 | 1.057333 | |
| 5 | 5 | 0 | -4 | 1.057333 | |

Node Boundary Conditions

| | Node Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot [k-ft/rad] | Y Rot [k-ft/rad] | Z Rot [k-ft/rad] |
|---|------------|----------|----------|----------|------------------|------------------|------------------|
| 1 | 2 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |

Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm. Coeff. [1e ⁵ F ⁻¹] | Density [k/ft ³] | Yield [ksi] | Ry | Fu [ksi] | Rt |
|----|----------------|---------|---------|-----|--|------------------------------|-------------|-----|----------|-----|
| 1 | A992 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 2 | A36 Gr.36 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 36 | 1.5 | 58 | 1.2 |
| 3 | A572 Gr.50 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A500 Gr.B RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 42 | 1.4 | 58 | 1.3 |
| 5 | A500 Gr.B RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 58 | 1.3 |
| 6 | A500 Gr.C RND | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 46 | 1.4 | 62 | 1.3 |
| 7 | A500 Gr.C RECT | 29000 | 11154 | 0.3 | 0.65 | 0.527 | 50 | 1.4 | 62 | 1.3 |
| 8 | A53 Gr.B | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 35 | 1.6 | 60 | 1.2 |
| 9 | A1085 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 50 | 1.4 | 65 | 1.3 |
| 10 | A913 Gr.65 | 29000 | 11154 | 0.3 | 0.65 | 0.49 | 65 | 1.1 | 80 | 1.1 |

Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rule Area [in ²] | Iyy [in ⁴] | Izz [in ⁴] | J [in ⁴] | |
|---|-------|----------|--------|-------------|----------|-------------------------------------|------------------------|------------------------|----------------------|------|
| 1 | MP | PIPE_2.0 | Column | Pipe | A53 Gr.B | Typical | 1.02 | 0.627 | 0.627 | 1.25 |

Member Primary Data

| | Label | I Node | J Node | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rule |
|---|-------|--------|--------|-------------|---------------|--------|-------------|----------|-------------|
| 1 | 1 | 2 | 3 | | RIGID | None | None | RIGID | Typical |
| 2 | 2 | 4 | 5 | 270 | MP | Column | Pipe | A53 Gr.B | Typical |

Member Advanced Data

| | Label | Col-Wall Vert Release | Physical | Deflection Ratio Options | Seismic DR |
|---|-------|-----------------------|----------|--------------------------|------------|
| 1 | 1 | | Yes | ** NA ** | None |
| 2 | 2 | | Yes | ** NA ** | None |

Hot Rolled Steel Design Parameters

| | Label | Shape | Length [ft] | Lcomp top [ft] | Channel Conn. | a [ft] | Function |
|---|-------|-------|-------------|----------------|---------------|--------|----------|
| 1 | 2 | MP | 8 | Lbyy | N/A | N/A | Lateral |

Member Point Loads (BLC 1 : Dead)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Y | -0.057 | %90 |
| 2 | 2 | Y | -0.067 | %60 |

Member Point Loads (BLC 1 : Dead) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 3 | 2 | Y | -0.065 | %60 |
| 4 | 2 | Y | -0.019 | %15 |
| 5 | 2 | Y | 0 | 0 |

Member Point Loads (BLC 2 : 0 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.013 | %90 |
| 2 | 2 | Z | -0.018 | %60 |
| 3 | 2 | Z | -0.018 | %60 |
| 4 | 2 | Z | -0.013 | %15 |
| 5 | 2 | Z | 0 | 0 |

Member Point Loads (BLC 3 : 30 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.011 | %90 |
| 2 | 2 | Z | -0.016 | %60 |
| 3 | 2 | Z | -0.016 | %60 |
| 4 | 2 | Z | -0.011 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | -0.017 | %90 |
| 7 | 2 | X | -0.02 | %60 |
| 8 | 2 | X | -0.02 | %60 |
| 9 | 2 | X | -0.006 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 4 : 60 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.006 | %90 |
| 2 | 2 | Z | -0.009 | %60 |
| 3 | 2 | Z | -0.009 | %60 |
| 4 | 2 | Z | -0.006 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | -0.029 | %90 |
| 7 | 2 | X | -0.035 | %60 |
| 8 | 2 | X | -0.035 | %60 |
| 9 | 2 | X | -0.011 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 5 : 90 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | X | -0.033 | %90 |
| 2 | 2 | X | -0.04 | %60 |
| 3 | 2 | X | -0.04 | %60 |
| 4 | 2 | X | -0.013 | %15 |
| 5 | 2 | X | 0 | 0 |



Member Point Loads (BLC 6 : 120 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | 0.006 | %90 |
| 2 | 2 | Z | 0.009 | %60 |
| 3 | 2 | Z | 0.009 | %60 |
| 4 | 2 | Z | 0.006 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | -0.029 | %90 |
| 7 | 2 | X | -0.035 | %60 |
| 8 | 2 | X | -0.035 | %60 |
| 9 | 2 | X | -0.011 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 7 : 150 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | 0.011 | %90 |
| 2 | 2 | Z | 0.016 | %60 |
| 3 | 2 | Z | 0.016 | %60 |
| 4 | 2 | Z | 0.011 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | -0.017 | %90 |
| 7 | 2 | X | -0.02 | %60 |
| 8 | 2 | X | -0.02 | %60 |
| 9 | 2 | X | -0.006 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 8 : 180 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | 0.013 | %90 |
| 2 | 2 | Z | 0.018 | %60 |
| 3 | 2 | Z | 0.018 | %60 |
| 4 | 2 | Z | 0.013 | %15 |
| 5 | 2 | Z | 0 | 0 |

Member Point Loads (BLC 9 : 210 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | 0.011 | %90 |
| 2 | 2 | Z | 0.016 | %60 |
| 3 | 2 | Z | 0.016 | %60 |
| 4 | 2 | Z | 0.011 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | 0.017 | %90 |
| 7 | 2 | X | 0.02 | %60 |
| 8 | 2 | X | 0.02 | %60 |
| 9 | 2 | X | 0.006 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 10 : 240 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | 0.006 | %90 |
| 2 | 2 | Z | 0.009 | %60 |

Member Point Loads (BLC 10 : 240 Wind) (Continued)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 3 | 2 | Z | 0.009 | %60 |
| 4 | 2 | Z | 0.006 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | 0.029 | %90 |
| 7 | 2 | X | 0.035 | %60 |
| 8 | 2 | X | 0.035 | %60 |
| 9 | 2 | X | 0.011 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 11 : 270 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | X | 0.033 | %90 |
| 2 | 2 | X | 0.04 | %60 |
| 3 | 2 | X | 0.04 | %60 |
| 4 | 2 | X | 0.013 | %15 |
| 5 | 2 | X | 0 | 0 |

Member Point Loads (BLC 12 : 300 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.006 | %90 |
| 2 | 2 | Z | -0.009 | %60 |
| 3 | 2 | Z | -0.009 | %60 |
| 4 | 2 | Z | -0.006 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | 0.029 | %90 |
| 7 | 2 | X | 0.035 | %60 |
| 8 | 2 | X | 0.035 | %60 |
| 9 | 2 | X | 0.011 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 13 : 330 Wind)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|----|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.011 | %90 |
| 2 | 2 | Z | -0.016 | %60 |
| 3 | 2 | Z | -0.016 | %60 |
| 4 | 2 | Z | -0.011 | %15 |
| 5 | 2 | Z | 0 | 0 |
| 6 | 2 | X | 0.017 | %90 |
| 7 | 2 | X | 0.02 | %60 |
| 8 | 2 | X | 0.02 | %60 |
| 9 | 2 | X | 0.006 | %15 |
| 10 | 2 | X | 0 | 0 |

Member Point Loads (BLC 14 : 0 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.002 | %90 |
| 2 | 2 | Z | -0.002 | %60 |
| 3 | 2 | Z | -0.002 | %60 |
| 4 | 2 | Z | -0.002 | %15 |
| 5 | 2 | Z | 0 | 0 |

Member Point Loads (BLC 15 : 90 Wind w/Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | X | -0.004 | %90 |
| 2 | 2 | X | -0.005 | %60 |
| 3 | 2 | X | -0.005 | %60 |
| 4 | 2 | X | -0.002 | %15 |
| 5 | 2 | X | 0 | 0 |

Member Point Loads (BLC 16 : 0 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.001 | %90 |
| 2 | 2 | Z | -0.002 | %60 |
| 3 | 2 | Z | -0.002 | %60 |
| 4 | 2 | Z | -0.001 | %15 |
| 5 | 2 | Z | 0 | 0 |

Member Point Loads (BLC 17 : 90 Wind Service)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | X | -0.003 | %90 |
| 2 | 2 | X | -0.004 | %60 |
| 3 | 2 | X | -0.004 | %60 |
| 4 | 2 | X | -0.001 | %15 |
| 5 | 2 | X | 0 | 0 |

Member Point Loads (BLC 18 : Ice)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Y | -0.03 | %90 |
| 2 | 2 | Y | -0.038 | %60 |
| 3 | 2 | Y | -0.038 | %60 |
| 4 | 2 | Y | -0.027 | %15 |
| 5 | 2 | Y | 0 | 0 |

Member Point Loads (BLC 19 : 0 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | Z | -0.034 | %90 |
| 2 | 2 | Z | -0.039 | %60 |
| 3 | 2 | Z | -0.038 | %60 |
| 4 | 2 | Z | -0.011 | %15 |
| 5 | 2 | Z | 0 | 0 |

Member Point Loads (BLC 20 : 90 Seismic)

| | Member Label | Direction | Magnitude [k, k-ft] | Location [(ft, %)] |
|---|--------------|-----------|---------------------|--------------------|
| 1 | 2 | X | -0.034 | %90 |
| 2 | 2 | X | -0.039 | %60 |
| 3 | 2 | X | -0.038 | %60 |
| 4 | 2 | X | -0.011 | %15 |
| 5 | 2 | X | 0 | 0 |



Member Distributed Loads (BLC 14 : 0 Wind w/Ice)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | Z | -0.0003 | -0.0003 | 0 %100 |

Member Distributed Loads (BLC 15 : 90 Wind w/Ice)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | X | -0.0003 | -0.0003 | 0 %100 |

Member Distributed Loads (BLC 16 : 0 Wind Service)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | Z | -0.0002 | -0.0002 | 0 %100 |

Member Distributed Loads (BLC 17 : 90 Wind Service)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | X | -0.0002 | -0.0002 | 0 %100 |

Member Distributed Loads (BLC 18 : Ice)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | Y | -0.004 | -0.004 | 0 %100 |

Member Distributed Loads (BLC 19 : 0 Seismic)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | Z | -0.002 | -0.002 | 0 %100 |

Member Distributed Loads (BLC 20 : 90 Seismic)

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | X | -0.002 | -0.002 | 0 %100 |

Member Distributed Loads (BLC 21 : 0 Wind (Members))

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | Z | -0.004 | -0.004 | 0 %100 |

Member Distributed Loads (BLC 22 : 90 Wind (Members))

| Member Label | Direction | Start Magnitude [k/ft, F, ksf, k-ft/ft] | End Magnitude [k/ft, F, ksf, k-ft/ft] | Start Location [(ft, %)] | End Location [(ft, %)] |
|--------------|-----------|---|---------------------------------------|--------------------------|------------------------|
| 1 | 2 | X | -0.004 | -0.004 | 0 %100 |

Member Area Loads

| | | | | | |
|---------------------|--|--|--|--|--|
| No Data to Print... | | | | | |
|---------------------|--|--|--|--|--|

Nodal Loads and Enforced Displacements

| | | | | | |
|---------------------|--|--|--|--|--|
| No Data to Print... | | | | | |
|---------------------|--|--|--|--|--|



Basic Load Cases

| | BLC Description | Category | Y Gravity | Point | Distributed |
|----|-------------------|----------|-----------|-------|-------------|
| 1 | Dead | DL | -1 | 5 | |
| 2 | 0 Wind | WL | | 5 | |
| 3 | 30 Wind | WL | | 10 | |
| 4 | 60 Wind | WL | | 10 | |
| 5 | 90 Wind | WL | | 5 | |
| 6 | 120 Wind | WL | | 10 | |
| 7 | 150 Wind | WL | | 10 | |
| 8 | 180 Wind | WL | | 5 | |
| 9 | 210 Wind | WL | | 10 | |
| 10 | 240 Wind | WL | | 10 | |
| 11 | 270 Wind | WL | | 5 | |
| 12 | 300 Wind | WL | | 10 | |
| 13 | 330 Wind | WL | | 10 | |
| 14 | 0 Wind w/Ice | WL | | 5 | 1 |
| 15 | 90 Wind w/Ice | WL | | 5 | 1 |
| 16 | 0 Wind Service | WL | | 5 | 1 |
| 17 | 90 Wind Service | WL | | 5 | 1 |
| 18 | Ice | OL1 | | 5 | 1 |
| 19 | 0 Seismic | EL | | 5 | 1 |
| 20 | 90 Seismic | EL | | 5 | 1 |
| 21 | 0 Wind (Members) | WL | | | 1 |
| 22 | 90 Wind (Members) | WL | | | 1 |
| 23 | Live Load a | LL | | | |
| 24 | Live Load b | LL | | | |
| 25 | Live Load c | LL | | | |
| 26 | Live Load d | LL | | | |
| 27 | Live Load e | LL | | | |
| 28 | Maint LL 1 | LL | | | |
| 29 | Maint LL 2 | LL | | | |
| 30 | Maint LL 3 | LL | | | |
| 31 | Maint LL 4 | LL | | | |
| 32 | Maint LL 5 | LL | | | |
| 33 | Maint LL 6 | LL | | | |
| 34 | Maint LL 7 | LL | | | |
| 35 | Maint LL 8 | LL | | | |
| 36 | Maint LL 9 | LL | | | |
| 37 | Maint LL 10 | LL | | | |
| 38 | Maint LL 11 | LL | | | |
| 39 | Maint LL 12 | LL | | | |
| 40 | Maint LL 13 | LL | | | |
| 41 | Maint LL 14 | LL | | | |
| 42 | Maint LL 15 | LL | | | |
| 43 | Maint LL 16 | LL | | | |
| 44 | Maint LL 17 | LL | | | |
| 45 | Maint LL 18 | LL | | | |
| 46 | Maint LL 19 | LL | | | |
| 47 | Maint LL 20 | LL | | | |

Load Combinations

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|---|--------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1 | 1.4 Dead | Yes | Y | 1 | 1.4 | | | | | | |
| 2 | 1.2 D + 1.0 - 0 W | Yes | Y | 1 | 1.2 | 2 | 1 | 21 | 1 | | |
| 3 | 1.2 D + 1.0 - 30 W | Yes | Y | 1 | 1.2 | 3 | 1 | 21 | 0.866 | 22 | 0.5 |
| 4 | 1.2 D + 1.0 - 60 W | Yes | Y | 1 | 1.2 | 4 | 1 | 22 | 0.866 | 21 | 0.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 5 | 1.2 D + 1.0 - 90 W | Yes | Y | 1 | 1.2 | 5 | 1 | 22 | 1 | | |
| 6 | 1.2 D + 1.0 - 120 W | Yes | Y | 1 | 1.2 | 6 | 1 | 22 | 0.866 | 21 | -0.5 |
| 7 | 1.2 D + 1.0 - 150 W | Yes | Y | 1 | 1.2 | 7 | 1 | 21 | -0.866 | 22 | 0.5 |
| 8 | 1.2 D + 1.0 - 180 W | Yes | Y | 1 | 1.2 | 8 | 1 | 21 | -1 | | |
| 9 | 1.2 D + 1.0 - 210 W | Yes | Y | 1 | 1.2 | 9 | 1 | 21 | -0.866 | 22 | -0.5 |
| 10 | 1.2 D + 1.0 - 240 W | Yes | Y | 1 | 1.2 | 10 | 1 | 22 | -0.866 | 21 | -0.5 |
| 11 | 1.2 D + 1.0 - 270 W | Yes | Y | 1 | 1.2 | 11 | 1 | 22 | -1 | | |
| 12 | 1.2 D + 1.0 - 300 W | Yes | Y | 1 | 1.2 | 12 | 1 | 22 | -0.866 | 21 | 0.5 |
| 13 | 1.2 D + 1.0 - 330 W | Yes | Y | 1 | 1.2 | 13 | 1 | 21 | 0.866 | 22 | -0.5 |
| 14 | 1.2 D + 1.0 - 0 W/Ice | Yes | Y | 1 | 1.2 | 14 | 1 | | | 18 | 1 |
| 15 | 1.2 D + 1.0 - 30 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | 0.5 | 18 | 1 |
| 16 | 1.2 D + 1.0 - 60 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | 0.5 | 18 | 1 |
| 17 | 1.2 D + 1.0 - 90 W/Ice | Yes | Y | 1 | 1.2 | 15 | 1 | | | 18 | 1 |
| 18 | 1.2 D + 1.0 - 120 W/Ice | Yes | Y | 1 | 1.2 | 15 | 0.866 | 14 | -0.5 | 18 | 1 |
| 19 | 1.2 D + 1.0 - 150 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | 0.5 | 18 | 1 |
| 20 | 1.2 D + 1.0 - 180 W/Ice | Yes | Y | 1 | 1.2 | 14 | -1 | | | 18 | 1 |
| 21 | 1.2 D + 1.0 - 210 W/Ice | Yes | Y | 1 | 1.2 | 14 | -0.866 | 15 | -0.5 | 18 | 1 |
| 22 | 1.2 D + 1.0 - 240 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | -0.5 | 18 | 1 |
| 23 | 1.2 D + 1.0 - 270 W/Ice | Yes | Y | 1 | 1.2 | 15 | -1 | | | 18 | 1 |
| 24 | 1.2 D + 1.0 - 300 W/Ice | Yes | Y | 1 | 1.2 | 15 | -0.866 | 14 | 0.5 | 18 | 1 |
| 25 | 1.2 D + 1.0 - 330 W/Ice | Yes | Y | 1 | 1.2 | 14 | 0.866 | 15 | -0.5 | 18 | 1 |
| 26 | 1.2 D + 1.0 E - 0 | Yes | Y | 1 | 1.2 | 19 | 1 | | | | |
| 27 | 1.2 D + 1.0 E - 30 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | 0.5 | | |
| 28 | 1.2 D + 1.0 E - 60 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | 0.5 | | |
| 29 | 1.2 D + 1.0 E - 90 | Yes | Y | 1 | 1.2 | 20 | 1 | | | | |
| 30 | 1.2 D + 1.0 E - 120 | Yes | Y | 1 | 1.2 | 20 | 0.866 | 19 | -0.5 | | |
| 31 | 1.2 D + 1.0 E - 150 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | 0.5 | | |
| 32 | 1.2 D + 1.0 E - 180 | Yes | Y | 1 | 1.2 | 19 | -1 | | | | |
| 33 | 1.2 D + 1.0 E - 210 | Yes | Y | 1 | 1.2 | 19 | -0.866 | 20 | -0.5 | | |
| 34 | 1.2 D + 1.0 E - 240 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | -0.5 | | |
| 35 | 1.2 D + 1.0 E - 270 | Yes | Y | 1 | 1.2 | 20 | -1 | | | | |
| 36 | 1.2 D + 1.0 E - 300 | Yes | Y | 1 | 1.2 | 20 | -0.866 | 19 | 0.5 | | |
| 37 | 1.2 D + 1.0 E - 330 | Yes | Y | 1 | 1.2 | 19 | 0.866 | 20 | -0.5 | | |
| 38 | 1.2 D + 1.5 LL a + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 23 | 1.5 |
| 39 | 1.2 D + 1.5 LL a + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 23 | 1.5 |
| 40 | 1.2 D + 1.5 LL a + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 23 | 1.5 |
| 41 | 1.2 D + 1.5 LL a + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 23 | 1.5 |
| 42 | 1.2 D + 1.5 LL a + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 23 | 1.5 |
| 43 | 1.2 D + 1.5 LL a + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 23 | 1.5 |
| 44 | 1.2 D + 1.5 LL a + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 23 | 1.5 |
| 45 | 1.2 D + 1.5 LL a + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 23 | 1.5 |
| 46 | 1.2 D + 1.5 LL a + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 23 | 1.5 |
| 47 | 1.2 D + 1.5 LL a + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 23 | 1.5 |
| 48 | 1.2 D + 1.5 LL a + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 23 | 1.5 |
| 49 | 1.2 D + 1.5 LL a + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 23 | 1.5 |
| 50 | 1.2 D + 1.5 LL b + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 24 | 1.5 |
| 51 | 1.2 D + 1.5 LL b + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 24 | 1.5 |
| 52 | 1.2 D + 1.5 LL b + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 24 | 1.5 |
| 53 | 1.2 D + 1.5 LL b + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 24 | 1.5 |
| 54 | 1.2 D + 1.5 LL b + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 24 | 1.5 |
| 55 | 1.2 D + 1.5 LL b + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 24 | 1.5 |
| 56 | 1.2 D + 1.5 LL b + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 24 | 1.5 |
| 57 | 1.2 D + 1.5 LL b + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 24 | 1.5 |
| 58 | 1.2 D + 1.5 LL b + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 24 | 1.5 |
| 59 | 1.2 D + 1.5 LL b + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 24 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|------------------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 60 | 1.2 D + 1.5 LL b + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 24 | 1.5 |
| 61 | 1.2 D + 1.5 LL b + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 24 | 1.5 |
| 62 | 1.2 D + 1.5 LL c + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 25 | 1.5 |
| 63 | 1.2 D + 1.5 LL c + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 25 | 1.5 |
| 64 | 1.2 D + 1.5 LL c + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 25 | 1.5 |
| 65 | 1.2 D + 1.5 LL c + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 25 | 1.5 |
| 66 | 1.2 D + 1.5 LL c + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 25 | 1.5 |
| 67 | 1.2 D + 1.5 LL c + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 25 | 1.5 |
| 68 | 1.2 D + 1.5 LL c + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 25 | 1.5 |
| 69 | 1.2 D + 1.5 LL c + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 25 | 1.5 |
| 70 | 1.2 D + 1.5 LL c + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 25 | 1.5 |
| 71 | 1.2 D + 1.5 LL c + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 25 | 1.5 |
| 72 | 1.2 D + 1.5 LL c + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 25 | 1.5 |
| 73 | 1.2 D + 1.5 LL c + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 25 | 1.5 |
| 74 | 1.2 D + 1.5 LL d + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 26 | 1.5 |
| 75 | 1.2 D + 1.5 LL d + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 26 | 1.5 |
| 76 | 1.2 D + 1.5 LL d + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 26 | 1.5 |
| 77 | 1.2 D + 1.5 LL d + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 26 | 1.5 |
| 78 | 1.2 D + 1.5 LL d + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 26 | 1.5 |
| 79 | 1.2 D + 1.5 LL d + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 26 | 1.5 |
| 80 | 1.2 D + 1.5 LL d + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 26 | 1.5 |
| 81 | 1.2 D + 1.5 LL d + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 26 | 1.5 |
| 82 | 1.2 D + 1.5 LL d + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 26 | 1.5 |
| 83 | 1.2 D + 1.5 LL d + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 26 | 1.5 |
| 84 | 1.2 D + 1.5 LL d + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 26 | 1.5 |
| 85 | 1.2 D + 1.5 LL d + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 26 | 1.5 |
| 86 | 1.2 D + 1.5 LL e + Service - 0 W | Yes | Y | 1 | 1.2 | 16 | 1 | | | 27 | 1.5 |
| 87 | 1.2 D + 1.5 LL e + Service - 30 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | 0.5 | 27 | 1.5 |
| 88 | 1.2 D + 1.5 LL e + Service - 60 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | 0.5 | 27 | 1.5 |
| 89 | 1.2 D + 1.5 LL e + Service - 90 W | Yes | Y | 1 | 1.2 | 17 | 1 | | | 27 | 1.5 |
| 90 | 1.2 D + 1.5 LL e + Service - 120 W | Yes | Y | 1 | 1.2 | 17 | 0.866 | 16 | -0.5 | 27 | 1.5 |
| 91 | 1.2 D + 1.5 LL e + Service - 150 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | 0.5 | 27 | 1.5 |
| 92 | 1.2 D + 1.5 LL e + Service - 180 W | Yes | Y | 1 | 1.2 | 16 | -1 | | | 27 | 1.5 |
| 93 | 1.2 D + 1.5 LL e + Service - 210 W | Yes | Y | 1 | 1.2 | 16 | -0.866 | 17 | -0.5 | 27 | 1.5 |
| 94 | 1.2 D + 1.5 LL e + Service - 240 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | -0.5 | 27 | 1.5 |
| 95 | 1.2 D + 1.5 LL e + Service - 270 W | Yes | Y | 1 | 1.2 | 17 | -1 | | | 27 | 1.5 |
| 96 | 1.2 D + 1.5 LL e + Service - 300 W | Yes | Y | 1 | 1.2 | 17 | -0.866 | 16 | 0.5 | 27 | 1.5 |
| 97 | 1.2 D + 1.5 LL e + Service - 330 W | Yes | Y | 1 | 1.2 | 16 | 0.866 | 17 | -0.5 | 27 | 1.5 |
| 98 | 1.2 D + 1.5 LL Maint (1) | Yes | Y | 1 | 1.2 | | | | | 28 | 1.5 |
| 99 | 1.2 D + 1.5 LL Maint (2) | Yes | Y | 1 | 1.2 | | | | | 29 | 1.5 |
| 100 | 1.2 D + 1.5 LL Maint (3) | Yes | Y | 1 | 1.2 | | | | | 30 | 1.5 |
| 101 | 1.2 D + 1.5 LL Maint (4) | Yes | Y | 1 | 1.2 | | | | | 31 | 1.5 |
| 102 | 1.2 D + 1.5 LL Maint (5) | Yes | Y | 1 | 1.2 | | | | | 32 | 1.5 |
| 103 | 1.2 D + 1.5 LL Maint (6) | Yes | Y | 1 | 1.2 | | | | | 33 | 1.5 |
| 104 | 1.2 D + 1.5 LL Maint (7) | Yes | Y | 1 | 1.2 | | | | | 34 | 1.5 |
| 105 | 1.2 D + 1.5 LL Maint (8) | Yes | Y | 1 | 1.2 | | | | | 35 | 1.5 |
| 106 | 1.2 D + 1.5 LL Maint (9) | Yes | Y | 1 | 1.2 | | | | | 36 | 1.5 |
| 107 | 1.2 D + 1.5 LL Maint (10) | Yes | Y | 1 | 1.2 | | | | | 37 | 1.5 |
| 108 | 1.2 D + 1.5 LL Maint (11) | Yes | Y | 1 | 1.2 | | | | | 38 | 1.5 |
| 109 | 1.2 D + 1.5 LL Maint (12) | Yes | Y | 1 | 1.2 | | | | | 39 | 1.5 |
| 110 | 1.2 D + 1.5 LL Maint (13) | Yes | Y | 1 | 1.2 | | | | | 40 | 1.5 |
| 111 | 1.2 D + 1.5 LL Maint (14) | Yes | Y | 1 | 1.2 | | | | | 41 | 1.5 |
| 112 | 1.2 D + 1.5 LL Maint (15) | Yes | Y | 1 | 1.2 | | | | | 42 | 1.5 |
| 113 | 1.2 D + 1.5 LL Maint (16) | Yes | Y | 1 | 1.2 | | | | | 43 | 1.5 |
| 114 | 1.2 D + 1.5 LL Maint (17) | Yes | Y | 1 | 1.2 | | | | | 44 | 1.5 |

Load Combinations (Continued)

| | Description | Solve | P-Delta | BLC | Factor | BLC | Factor | BLC | Factor | BLC | Factor |
|-----|---------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-----|--------|
| 115 | 1.2 D + 1.5 LL Maint (18) | Yes | Y | 1 | 1.2 | | | | | 45 | 1.5 |
| 116 | 1.2 D + 1.5 LL Maint (19) | Yes | Y | 1 | 1.2 | | | | | 46 | 1.5 |
| 117 | 1.2 D + 1.5 LL Maint (20) | Yes | Y | 1 | 1.2 | | | | | 47 | 1.5 |

Envelope Node Reactions

| Node Label | X [k] | LC | Y [k] | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|---------------|--------|----|-------|----|--------|----|-----------|----|-----------|----|-----------|----|
| 1 2 max | 0.154 | 5 | 0.449 | 22 | 0.139 | 26 | 0.109 | 32 | 0.015 | 5 | 0.137 | 29 |
| 2 min | -0.154 | 11 | 0.283 | 3 | -0.139 | 32 | -0.165 | 26 | -0.015 | 11 | -0.137 | 35 |
| 3 Totals: max | 0.154 | 5 | 0.449 | 22 | 0.139 | 26 | | | | | | |
| 4 min | -0.154 | 11 | 0.283 | 3 | -0.139 | 32 | | | | | | |

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

| Member | Shape | Code | CheckLoc[ft] | LC | Shear | CheckLoc[ft] | LC | phi*Pnc [k] | phi*Pnt [k] | phi*Mn y-y [k-ft] | phi*Mn z-z [k-ft] | Cb | Eqn |
|--------|----------|-------|--------------|----|-------|--------------|----|-------------|-------------|-------------------|-------------------|----|-------|
| 1 2 | PIPE 2.0 | 0.109 | 4 | 11 | 0.013 | 4 | 11 | 14.916 | 32.13 | 1.872 | 1.872 | 1 | H1-1b |

APPENDIX B

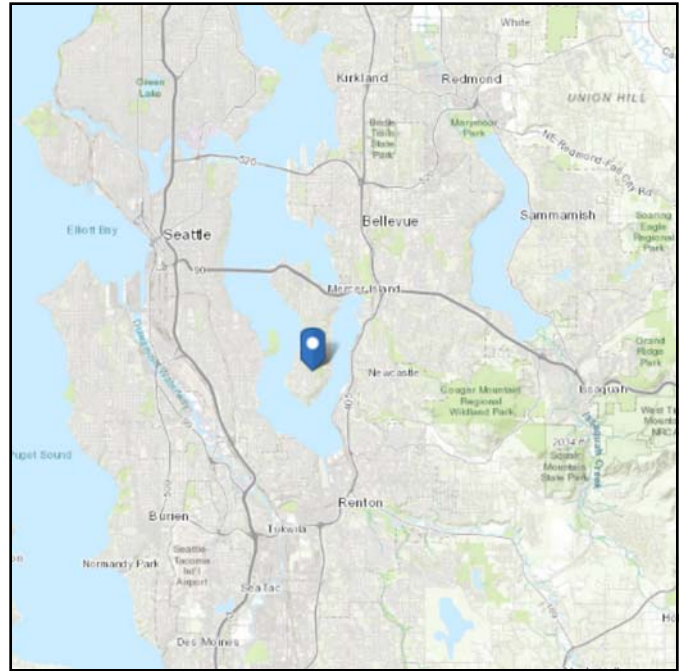
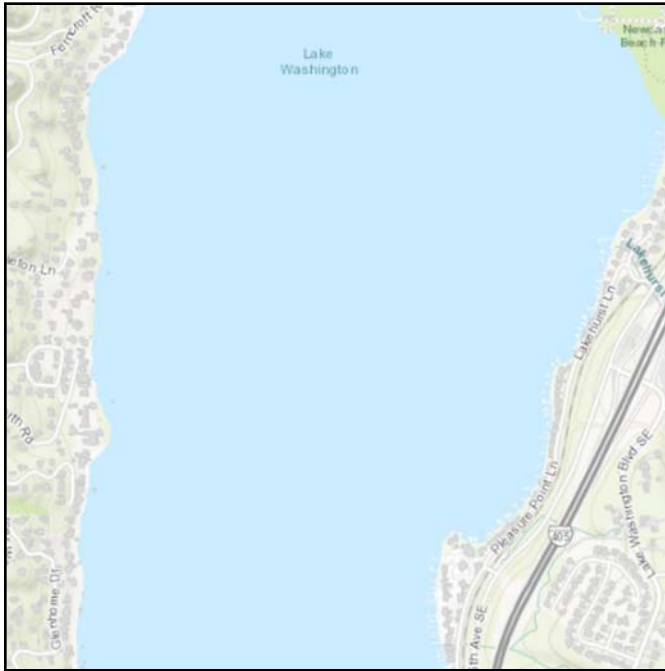
(Additional Calculations)

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 47.541389
Longitude: -122.223889
Elevation: 347.76288241778195 ft (NAVD 88)



Wind

Results:

| | |
|--------------|---------|
| Wind Speed | 98 Vmph |
| 10-year MRI | 67 Vmph |
| 25-year MRI | 74 Vmph |
| 50-year MRI | 78 Vmph |
| 100-year MRI | 83 Vmph |

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Fri Jan 10 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Seismic

Site Soil Class: D - Default (see Section 11.4.3)

Results:

| | | | |
|------------|-------|--------------------|-------|
| S_s : | 1.461 | S_{D1} : | N/A |
| S_1 : | 0.505 | T_L : | 6 |
| F_a : | 1.2 | PGA : | 0.625 |
| F_v : | N/A | PGA _M : | 0.75 |
| S_{MS} : | 1.753 | F_{PGA} : | 1.2 |
| S_{M1} : | N/A | I_e : | 1 |
| S_{DS} : | 1.169 | C_v : | 1.392 |

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Fri Jan 10 2025

Date Source: [USGS Seismic Design Maps](#)

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 25 F
Gust Speed 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Fri Jan 10 2025

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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| | | |
|---------|---|--|
| PROJECT | 174306.001.01.0002 - SD41 South Mϵ KSC | |
| SUBJECT | Pipe Mount Analysis | |
| DATE | 01-13-25 | |



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

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| | | | |
|-----------------------|------------|-----------|---------------------|
| Tower Type | : | Monopole | |
| Ground Elevation | z_s : | 348 ft | [ASCE7 Hazard Tool] |
| Tower Height | : | 60.00 ft | |
| Mount Elevation | : | 54.00 ft | |
| Antenna Elevation | : | 57.50 ft | |
| Crest Height | : | 0 ft | |
| Risk Category | : | II | [Table 2-1] |
| Exposure Category | : | B | [Sec. 2.6.5.1.2] |
| Topography Category | : | 1.00 | [Sec. 2.6.6.2] |
| Wind Velocity | V : | 98 mph | [ASCE7 Hazard Tool] |
| Ice wind Velocity | V_i : | 30 mph | [ASCE7 Hazard Tool] |
| Service Velocity | V_s : | 30 mph | [ASCE7 Hazard Tool] |
| Base Ice thickness | t_i : | 1.00 in | [ASCE7 Hazard Tool] |
| Seismic Design Cat. | : | D | [ASCE7 Hazard Tool] |
| | S_s : | 1.46 | |
| | S_1 : | 0.51 | |
| | S_{DS} : | 1.17 | |
| | S_{D1} : | 0.00 | |
| Gust Factor | G_h : | 1.00 | [Sec. 16.6] |
| Pressure Coefficient | K_z : | 0.84 | [Sec. 2.6.5.2] |
| Topography Facto | K_{zt} : | 1.00 | [Sec. 2.6.6] |
| Elevation Factor | K_e : | 0.99 | [Sec. 2.6.8] |
| Directionality Factor | K_d : | 0.95 | [Sec. 16.6] |
| Shielding Factor | K_a : | 0.90 | [Sec. 16.6] |
| Design Ice Thickness | t_{iz} : | 1.06 in | [Sec. 2.6.10] |
| Importance Factor | I_e : | 1 | [Table 2-3] |
| Response Coefficient | C_s : | 0.585 | [Sec. 2.7.7.1] |
| Amplification | A_s : | 1 | [Sec. 16.7] |
| | q_z : | 19.11 psf | |

| | | |
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| | | | |
|-----------------------|------------|----------|-------------------------|
| Tower Type | : | Monopole | |
| Ground Elevation | z_s : | 348 | ft [ASCE7 Hazard Tool] |
| Tower Height | : | 60.00 | ft |
| Mount Elevation | : | 42.00 | ft |
| Antenna Elevation | : | 44.25 | ft |
| Crest Height | : | 0 | ft |
| Risk Category | : | II | [Table 2-1] |
| Exposure Category | : | B | [Sec. 2.6.5.1.2] |
| Topography Category | : | 1.00 | [Sec. 2.6.6.2] |
| Wind Velocity | V : | 98 | mph [ASCE7 Hazard Tool] |
| Ice wind Velocity | V_i : | 30 | mph [ASCE7 Hazard Tool] |
| Service Velocity | V_s : | 30 | mph [ASCE7 Hazard Tool] |
| Base Ice thickness | t_i : | 1.00 | in [ASCE7 Hazard Tool] |
| Seismic Design Cat. | : | D | [ASCE7 Hazard Tool] |
| | S_s : | 1.46 | |
| | S_1 : | 0.51 | |
| | S_{DS} : | 1.17 | |
| | S_{D1} : | 0.00 | |
| Gust Factor | G_h : | 1.00 | [Sec. 16.6] |
| Pressure Coefficient | K_z : | 0.78 | [Sec. 2.6.5.2] |
| Topography Facto | K_{zt} : | 1.00 | [Sec. 2.6.6] |
| Elevation Factor | K_e : | 0.99 | [Sec. 2.6.8] |
| Directionality Factor | K_d : | 0.95 | [Sec. 16.6] |
| Shielding Factor | K_a : | 0.90 | [Sec. 16.6] |
| Design Ice Thickness | t_{iz} : | 1.03 | in [Sec. 2.6.10] |
| Importance Factor | I_e : | 1 | [Table 2-3] |
| Response Coefficient | C_s : | 0.585 | [Sec. 2.7.7.1] |
| Amplification | A_s : | 1 | [Sec. 16.7] |
| | q_z : | 17.79 | psf |

| | | |
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| | | | |
|-----------------------|------------|----------|-------------------------|
| Tower Type | : | Monopole | |
| Ground Elevation | z_s : | 348 | ft [ASCE7 Hazard Tool] |
| Tower Height | : | 60.00 | ft |
| Mount Elevation | : | 32.00 | ft |
| Antenna Elevation | : | 33.00 | ft |
| Crest Height | : | 0 | ft |
| Risk Category | : | II | [Table 2-1] |
| Exposure Category | : | B | [Sec. 2.6.5.1.2] |
| Topography Category | : | 1.00 | [Sec. 2.6.6.2] |
| Wind Velocity | V : | 98 | mph [ASCE7 Hazard Tool] |
| Ice wind Velocity | V_i : | 30 | mph [ASCE7 Hazard Tool] |
| Service Velocity | V_s : | 30 | mph [ASCE7 Hazard Tool] |
| Base Ice thickness | t_i : | 1.00 | in [ASCE7 Hazard Tool] |
| Seismic Design Cat. | : | D | [ASCE7 Hazard Tool] |
| | S_s : | 1.46 | |
| | S_1 : | 0.51 | |
| | S_{DS} : | 1.17 | |
| | S_{D1} : | 0.00 | |
| Gust Factor | G_h : | 1.00 | [Sec. 16.6] |
| Pressure Coefficient | K_z : | 0.72 | [Sec. 2.6.5.2] |
| Topography Facto | K_{zt} : | 1.00 | [Sec. 2.6.6] |
| Elevation Factor | K_e : | 0.99 | [Sec. 2.6.8] |
| Directionality Factor | K_d : | 0.95 | [Sec. 16.6] |
| Shielding Factor | K_a : | 0.90 | [Sec. 16.6] |
| Design Ice Thickness | t_{iz} : | 1.00 | in [Sec. 2.6.10] |
| Importance Factor | I_e : | 1 | [Table 2-3] |
| Response Coefficient | C_s : | 0.585 | [Sec. 2.7.7.1] |
| Amplification | A_s : | 1 | [Sec. 16.7] |
| | q_z : | 16.46 | psf |

| | | | | |
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[REF: AISC 360-05]

Reactions at Bolted Connection

| | | | |
|-------------------------------|---|-------|------|
| Tension | : | 0.33 | k |
| Vertical Shear | : | 0.527 | k |
| Horizontal Shear | : | 0.205 | k |
| Torsion | : | 0.362 | k.ft |
| Moment from Horizontal Forces | : | 0.115 | k.ft |
| Moment from Vertical Forces | : | 0.524 | k.ft |

Bolt Parameters

| | | | |
|----------------------------------|---|-------|-----------------|
| Bolt Grade | : | A307 | |
| Bolt Diameter | : | 0.625 | in |
| Nominal Bolt Area | : | 0.307 | in ² |
| Bolt spacing, Horizontal | : | 6 | in |
| Bolt spacing, Vertical | : | 6 | in |
| Bolt edge distance, plate height | : | 1.5 | in |
| Bolt edge distance, plate width | : | 1.5 | in |
| Total Number of Bolts | : | 4 | bolts |

Summary of Forces

| | | | |
|-------------------------------|---|------|---|
| Shear Resultant Force | : | 0.57 | k |
| Force from Horz. Moment | : | 0.21 | k |
| Force from Vert. Moment | : | 0.95 | k |
| Shear Load / Bolt | : | 0.14 | k |
| Tension Load / Bolt | : | 0.08 | k |
| Resultant from Moments / Bolt | : | 0.49 | k |

Bolt Checks

| | | | | |
|---|---|--------------|--------|-------------------|
| Nominal Tensile Stress, F_{nt} | : | 45.00 | ksi | [AISC Table J3.2] |
| Available Tensile Stress, ΦR_{nt} | : | 10.36 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Tension | : | 5.49% | | OKAY |
| Nominal Shear Stress, F_{nv} | : | 27.00 | ksi | [AISC Table J3.2] |
| Available Shear Stress, ΦR_{nv} | : | 6.22 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Shear | : | 3.60% | | OKAY |
| Unity Check, Combined | : | 9.09% | | OKAY |
| Available Bearing Strength, ΦR_n | : | 34.66 | k/bolt | |
| Unity Check, Bolt Bearing | : | 0.41% | | OKAY |