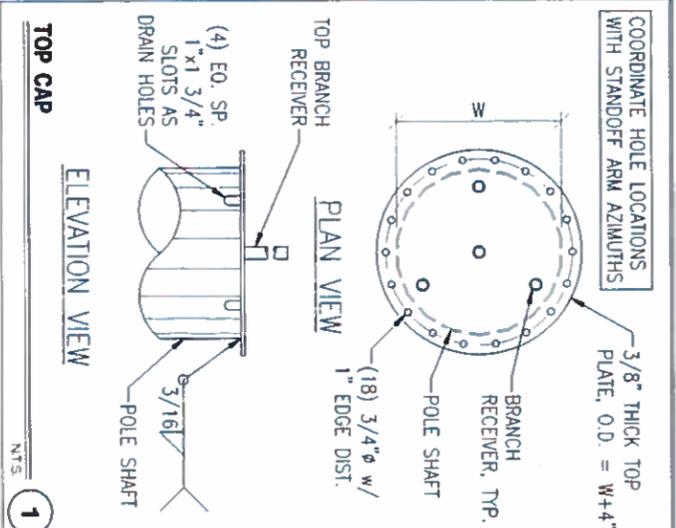




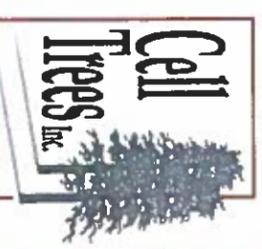
8136 E. Stone St., Suite 101
 Aurora, UT 84003
 (801) 982-1775
 (801) 982-1776 FAX
 www.vectorinc.com

| DATE | REVISIONS | DESIGNER | MEG | DRAWN | MEG |
|------|-----------|----------|-----|-------|-----|
| | | | | | |
| | | | | | |
| | | | | | |

PINNACLE



1



5401 S. CANADA PLACE
 TUCSON AZ 85706
 PH: 520-663-1330

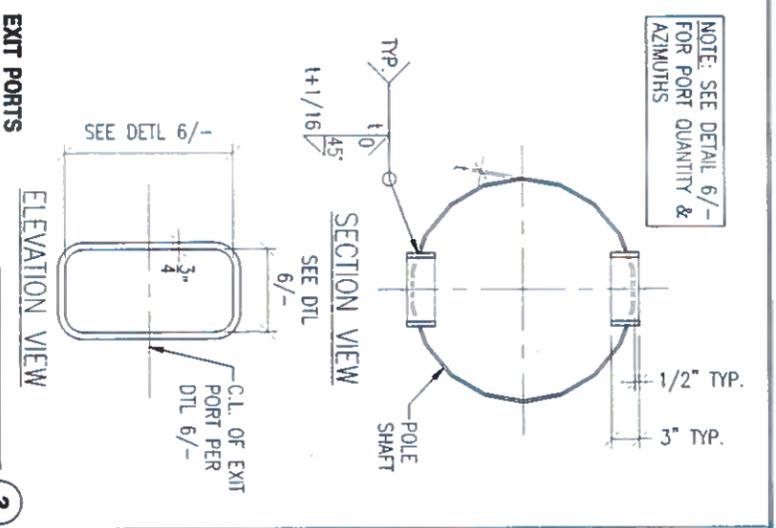
JOB # 17-022

DETAILS
DEN ALTURA
 35'-0" MONOPINE
 14195 E. MONTVIEW BLVD.
 AURORA, CO 80011
 SITE: 306814

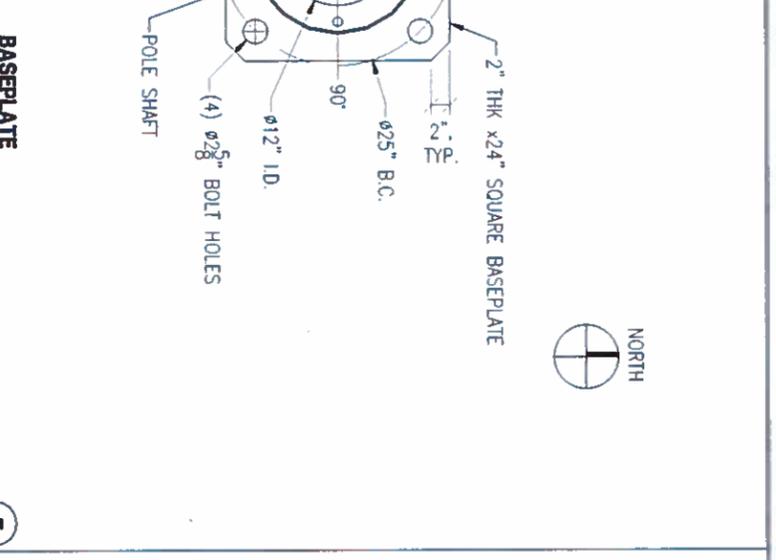
A1212-0033-171

MP-3

REV 0



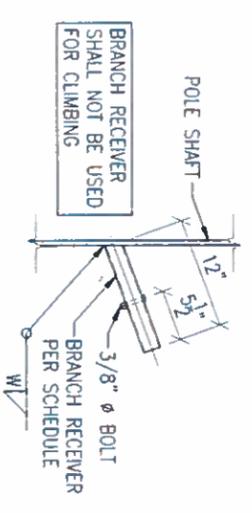
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5

COAX PORT HOLE SCHEDULE

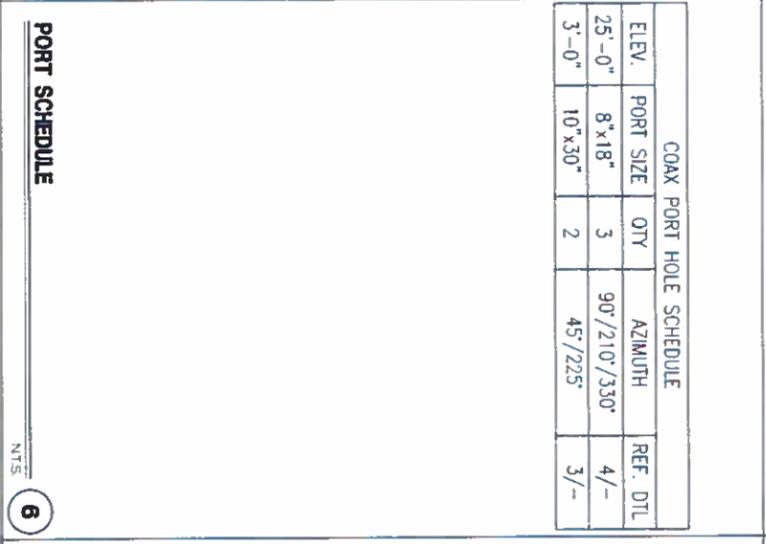
| ELEV. | PORT SIZE | QTY | AZIMUTH | REF. DTL |
|--------|-----------|-----|---------------|----------|
| 25'-0" | 8"x18" | 3 | 90°/210°/330° | 4/- |
| 3'-0" | 10"x30" | 2 | 45°/225° | 3/- |



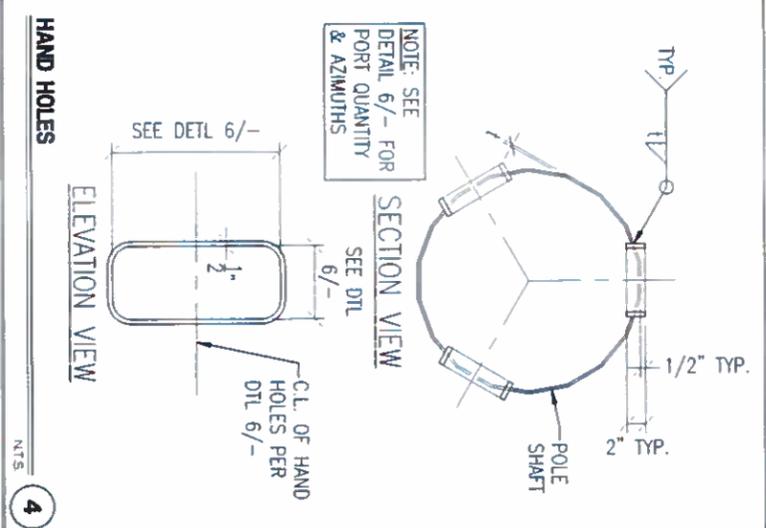
BRANCH RECEIVER SCHEDULE

| MAX BRANCH LENGTH | PIPE | W |
|-------------------|----------------|------|
| 4'-0" | 1" SCH. 40 | 3/16 |
| 6'-0" | 1" SCH. 80 | 1/4 |
| 8'-0" | 1 1/2" SCH. 40 | 1/4 |
| 10'-0" | 2" SCH. 40 | 1/4 |

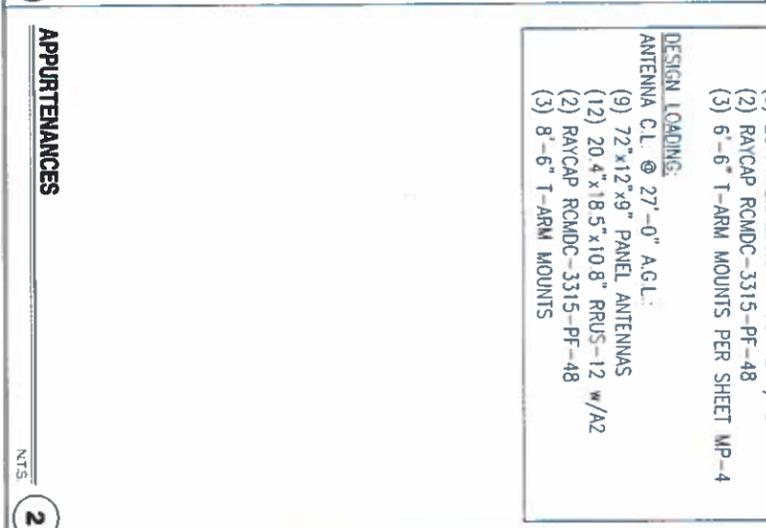
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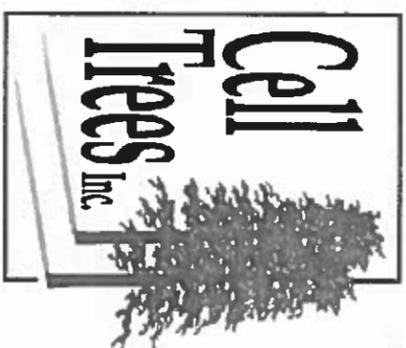
6



4



2



5401 S. CANADA PLACE
 TUCSON, AZ 85706
 PH: (520) 663-1330



1138 S. Green St., Suite 101 (801) 880-1775
 Sandy, UT 84070 (801) 968-1778 FAX
 www.vectoreng.com

| DATE | DESIGNED: NEG | DRAWN: NEG |
|-----------|---------------|------------|
| | | |
| REVISIONS | DESCRIPTION | |
| | | |
| | | |

PINNACLE

DEN ALTURA

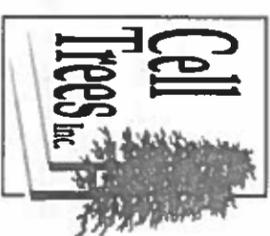
35'-0" MONOPINE

CELL TREES, INC. JOB #:
 17-022

LOCATION:

14195 E. MONTVIEW BLVD.
 AURORA, CO 80011
 ARAPAHOE COUNTY
 SITE: 306814

- DRAWING INDEX**
- MP-1 TITLE SHEET
 - MP-2 ELEVATION VIEW & NOTES
 - MP-3 DETAILS
 - MP-4 ANTENNA MOUNT DETAILS
 - MP-5 FOUNDATION
 - MP-6 SPECIAL INSPECTION & BRANCH TABLES



5401 S. CANADA PLACE
 TUCSON AZ 85706
 PH: 520-663-1330
 JOB #: 17-022

TITLE SHEET

DEN ALTURA
 35'-0" MONOPINE
 14195 E. MONTVIEW BLVD.
 AURORA, CO 80011
 SITE: 306814

DISCLAIMERS

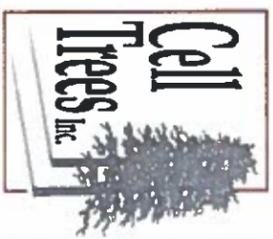
¹⁾ ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER INITIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.

A1212-0033-171

MP-1 REV 0

| DATE | DESCRIPTION |
|------|-------------|
| | |
| | |
| | |

PINNACLE



5401 S. CANADA PLACE
TUCSON AZ 85706
PH: 520-663-8330
JOB #: 17-022

ELEVATION VIEW & NOTES

DEN ALTURA
35'-0" MONOPINE
14195 E. MONTVIEW BLVD.
AURORA, CO 80011
SITE: 306814

A1212-0033-171

MP-2

REV 0

GENERAL DESIGN NOTES:

STRUCTURAL DESIGN IS BASED ON THE INTERNATIONAL BUILDING CODE, 2015 EDITION AND THE TIA-222-G STANDARD

DESIGN LOADS:

WIND:
BASIC WIND SPEED: 115 MPH (3-SEC GUST) PER ASCE 7-10
RISK CATEGORY / STRUCTURE CLASS: II
EXPOSURE: C
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT

ICE: 0.25" RADIAL ICE THICKNESS @50 MPH (3-SEC GUST)

SEISMIC:

IMPORTANCE FACTOR: 1.00
MAPPED SPECTRAL RESPONSE ACCELERATIONS:
S_s = 0.171g, S₁ = 0.056g
SITE CLASS: D
SPECTRAL RESPONSE COEFFICIENTS:
S_{ps} = 0.182g, S_{ps1} = 0.090g
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC-FORCE-RESISTING-SYSTEM:
TELECOMMUNICATION TOWER: STEEL POLE
SEISMIC BASE SHEAR, V: 0.8 K
SEISMIC RESPONSE COEFFICIENT, Cs: 0.122
RESPONSE MODIFICATION FACTOR, R: 1.5
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

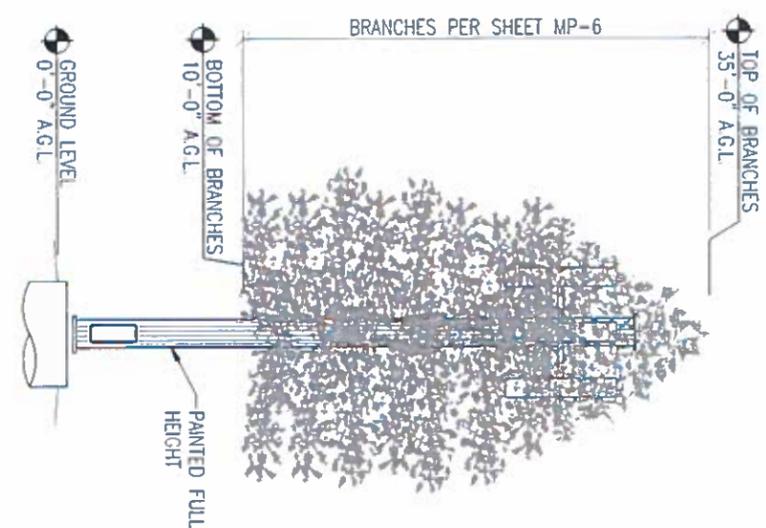
MATERIAL NOTES:

- 18-SIDED MONOPOLE SHAFT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
- BASE PLATE STEEL TO BE PER ASTM A572, GR. 50, U.N.O.
- PORT STEEL SHALL CONFORM w/ ASTM A572 GR. 65, U.N.O.
- ALL STEEL PIPE TO BE PER ASTM A53 GR. B (35 KSI), U.N.O.
- ALL OTHER STEEL SHAPES & PLATES SHALL CONFORM w/ ASTM A36, U.N.O.
- ALL BOLTS FOR STEEL-TO-STEEL CONNECTIONS SHALL CONFORM w/ ASTM F3125 GR. A325, U.N.O.
- ALL ANCHOR BOLTS SHALL CONFORM w/ A615 GR. 75, U.N.O.
- ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE w/ THE LATEST VERSION OF THE AMERICAN WELDING SOCIETY AWS D1.1.
- ALL STEEL SURFACES SHALL BE GALVANIZED IN ACCORDANCE w/ ASTM A123 AND ASTM F2329 STANDARDS.
- ALL BOLTED CONNECTIONS SHALL BE TIGHTENED PER THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC.
- SUBMIT FABRICATION DRAWINGS FOR ALL STEEL PARTS TO ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

BASE DESIGN REACTIONS:

MOMENT, M = 231 K-FT (1.0 WIND)
SHEAR, V = 10.6 K (1.0 WIND)
AXIAL, P = 9.6 K (1.2 DEAD + 1.0 ICE)

THE MONOPOLE, BASE PLATE, AND FOUNDATION ARE DESIGNED FOR THE DESIGN LOADING. THE ANTENNA MOUNTS ARE ONLY DESIGNED FOR THE INITIAL OCCUPANCY. SEE DTL 2/MP-3.

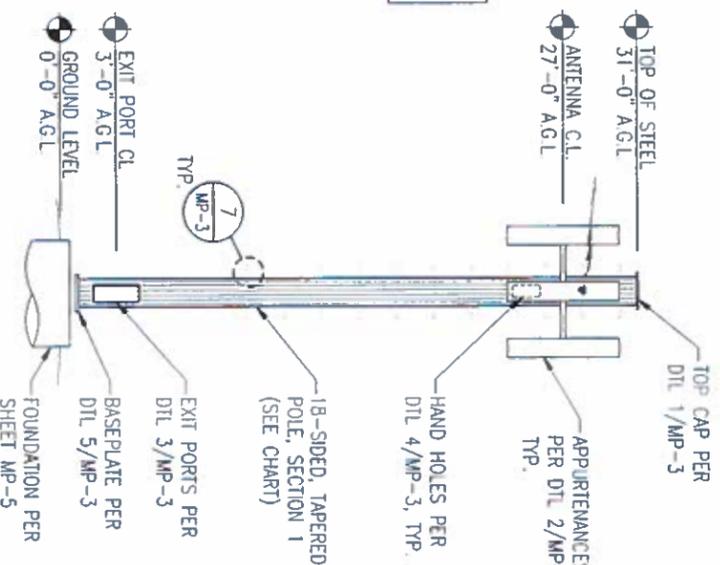


NOTE: BRANCHES ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY AND ARE NOT SHOWN TO SCALE.

MONOPOLE SECTION CHART

| SECTION | LENGTH | TOP Ø | BOTTOM Ø | THICKNESS | WEIGHT* |
|---------|--------|--------|----------|-----------|---------|
| 1 | 30'-0" | 18.00" | 18.00" | 3/16" | 1.7 K |

*WEIGHT LISTED INCLUDES TOP CAP, PORT, AND BASE PLATE WEIGHT
POLE TAPER = 0 IN/FT



ELEVATIONS

N.T.S.

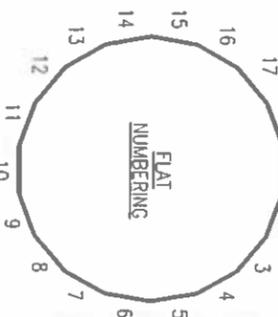
1

SUMMARY OF SPECIAL INSPECTION

| NO. | DESCRIPTION OF TYPE OF INSPECTION REQ'D, LOCATION, REMARKS, ETC. | INSPECTION TYPE |
|-----|---|--|
| 1. | REQUIRED INSPECTIONS FOR SOIL/FOUNDATION: A. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND THAT THE MATERIALS BELOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY | PERIODIC |
| B. | PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS | PERIODIC |
| C. | VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL | CONTINUOUS |
| D. | PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT IT HAS BEEN PREPARED PROPERLY | PERIODIC |
| 2. | REQUIRED INSPECTIONS FOR CAST-IN-PLACE DEEP FOUNDATION ELEMENTS RECORDS FOR EACH ELEMENT | CONTINUOUS |
| A. | INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT | CONTINUOUS |
| B. | VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY, RECORD CONCRETE OR GROUT VOLUMES. | CONTINUOUS |
| 3. | REQUIRED INSPECTIONS FOR CONCRETE CONSTRUCTION | PERIODIC |
| A. | INSPECT REINFORCEMENT AND VERIFY PLACEMENT | PERIODIC |
| B. | INSPECT ANCHORS CAST IN CONCRETE - PLUMBNESS, ORIENTATION, TOP AND BOTTOM TEMPLATES ARE INSTALLED, AND THAT THE MINIMUM EMBEDMENT SPECIFIED BY THE FOUNDATION DESIGNER IS MET. | PERIODIC |
| C. | VERIFY USE OF REQUIRED DESIGN MIX AND COMPLIANCE WITH ACI 318-14 | PERIODIC |
| D. | PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. | CONTINUOUS |
| E. | INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES | CONTINUOUS |
| F. | VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES | PERIODIC |
| G. | INSPECT FORMWORK FOR PROPER SHAPE, LOCATION AND DIMENSIONS | PERIODIC |
| 4. | BOLTING: A. ANCHOR BOLTS SHALL BE INSTALLED WITH A LOCKING MECHANISM AND BE TIGHTENED TO A "SNUG TIGHT" CONDITION PER AISC B. ALL HIGH STRENGTH BOLTS, A325, SHALL BE TIGHTENED TO THE TURN OF NUT METHOD AS DEFINED BY AISC | PERIODIC |
| 5. | FIELD WELDING: A. NO FIELD WELDING SHALL BE PERMITTED EXCEPT WHERE SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS B. SHOP WELDING: A. ALL SHOP WELDING OF STRUCTURAL STEEL SHALL BE PERFORMED BY AN APPROVED FABRICATOR'S SHOP PER 2015 IBC SECTION 1704.2.5 B. ALL WELDED CONNECTIONS SHALL CONFORM WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1 C. WELD ELECTRODES SHALL BE LOW HYDROGEN E70XX U.N.O. D. VISUAL INSPECTION OF ALL WELDS SHALL BE PERFORMED BEFORE GALVANIZING. E. IF A WELD IS IN QUESTION PER THE VISUAL INSPECTION THEN IT SHALL BE TESTED USING AN APPROPRIATE TEST, I.E. DIE PENETRATION, MAGNETIC PARTICLE, UT, ETC. | </= 5/16, PERIODIC > 5/16, CONTINUOUS |

SPECIAL INSPECTION:

- SPECIAL INSPECTION SHALL BE PERFORMED ACCORDING TO 2015 IBC.
- THE SPECIAL INSPECTOR SHALL BE APPROVED BY THE LOCAL JURISDICTION TO PERFORM THE TYPES OF INSPECTION REQUIRED.
- ANY SUPPORT SERVICE PERFORMED BY THE ENGINEER OF RECORD DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER OF RECORD ARE ONLY FOR THE PURPOSE OF ASSISTING IN THE QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH THE CONTRACT DOCUMENTS. THIS SUPPORT DOES NOT GUARANTEE THE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.



- T = BRANCH TIPS
 - BB = BOOM BRANCH
 - X = VACANT RECEIVER
 - 2 = 2'-0" BRANCH
 - 3 = 3'-0" BRANCH
 - 4 = 4'-0" BRANCH
 - 5 = 5'-0" BRANCH
 - 6 = 6'-0" BRANCH
 - 7 = 7'-0" BRANCH
 - 8 = 8'-0" BRANCH
 - 9 = 9'-0" BRANCH
 - 10 = 10'-0" BRANCH
- TOTAL BRANCH COUNT = 76
AVERAGE = 3.62 BRANCHES PER FOOT

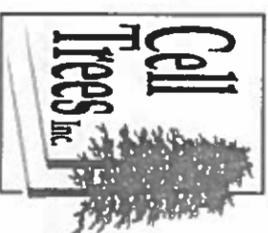
| Elev | Deg | BRANCH LAYOUT | | | | | | | | | | | | | | | | | |
|-------|-----|---------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 91.00 | 90 | | | | | | | | | | | | | | | | | | |
| 31.00 | 30 | | | | | | | | | | | | | | | | | | |
| 30.50 | 30 | | | | | | | | | | | | | | | | | | |
| 30.00 | 15 | T | | | | | | | | | | | | | | | | | |
| 29.60 | 15 | X | | | | | | | | | | | | | | | | | |
| 29.00 | 15 | X | | | | | | | | | | | | | | | | | |
| 27.50 | 15 | B | | | | | | | | | | | | | | | | | |
| 27.00 | 15 | B | | | | | | | | | | | | | | | | | |
| 26.00 | 0 | | | | | | | | | | | | | | | | | | |
| 25.00 | 0 | X | | | | | | | | | | | | | | | | | |
| 24.00 | 0 | T | | | | | | | | | | | | | | | | | |
| 23.00 | 15 | | | | | | | | | | | | | | | | | | |
| 22.00 | 15 | | | | | | | | | | | | | | | | | | |
| 21.00 | 15 | B | | | | | | | | | | | | | | | | | |
| 20.00 | 15 | | | | | | | | | | | | | | | | | | |
| 19.00 | 15 | | | | | | | | | | | | | | | | | | |
| 18.00 | 15 | | | | | | | | | | | | | | | | | | |
| 17.00 | 15 | | | | | | | | | | | | | | | | | | |
| 16.00 | 15 | | | | | | | | | | | | | | | | | | |
| 15.00 | 15 | B | | | | | | | | | | | | | | | | | |
| 14.00 | 15 | | | | | | | | | | | | | | | | | | |
| 13.00 | 15 | | | | | | | | | | | | | | | | | | |
| 12.00 | 15 | | | | | | | | | | | | | | | | | | |
| 11.00 | 15 | | | | | | | | | | | | | | | | | | |
| 10.00 | 15 | | | | | | | | | | | | | | | | | | |



5118 S. Shaw St. Suite 101 (901) 990-1775
Sandy, UT 84070 (901) 990-1776 FAX
www.vector.com

DATE: 12/21/17 DESIGNED: MEG [QUARTER: MEG]
REVISIONS
DATE: DESCRIPTION

PINNACLE



5401 S. CANADA PLACE
TUCSON AZ 85706
PH: 520-663-1330

JOB #: 17-022

SPECIAL INSPECTION & BRANCH TABLES

DEN ALTURA
35'-0" MONOPINE
14195 E. MONTVIEW BLVD.
AURORA, CO 80011
SITE: 306814

A1212-0033-171

MP-6 0 REV

