

ADDENDUM No. 5

Date: November 26, 2019
To: All Bidders
From: **Jenkins•Peer Architects**
Charlotte, N.C.
Re: UNC Charlotte – Residence Hall Phase XVI
SCO ID: 18-18333-02A
JPA Project #: 18NCC016

NOTICE to BIDDERS:

Bidder is hereby notified that this Addendum shall hereby become a part of the Construction Documents and the official Contract Documents, and shall be attached to the Project Manual for the Project.

The following items are intended to revise and clarify the Drawings and the Project Manual.

The bidder shall see that their Sub-Bidders are in full receipt of the information contained herein.

General Note:

This Addendum includes the following groups and subsequent “items” referring to various parts of the Contract Documents. Note that some “items” may refer to Bulletin Drawings or new Specification Sections which are attached at the back of the Addendum.

GENERAL REQUIREMENTS

- 1) **Section 00 42 13 – Form of Proposal:** Add unit price line for moisture mitigation
- 2) **Section 01 21 00 – Allowances:** Add allowance for moisture mitigation
- 3) **Section 01 22 00 – Unit Prices:** Add unit price for moisture mitigation

PROJECT MANUAL & TECHINCAL SPECIFICATIONS DIVISIONS

- 1) **Section 27 15 13 – Communications Copper Horizontal Cabling:** Replace the entire section with the attached

DRAWING SHEETS:

C5.00: Grading and Drainage Plan
TC-100-S: Lower Level Telecommunications Plan - South
TC-101-N: Level 1 Telecommunications - North
TC-102-N: Level 2 Telecommunications Plan - North
TC-501: Enlarged Telecommunications Rooms – Level 1
TC-502: Enlarged Telecommunications Rooms – Level 2
TC-503: Enlarged Telecommunications Rooms – Level 3
TC-504: Enlarged Telecommunications Rooms – Level 4
TC-505: Enlarged Telecommunications Rooms – Level 5

TC-601: Telecommunications Details

TC-701: Telecommunications Distribution Diagram

RESPONSES TO EMAIL QUESTIONS (NOTE: QUESTIONS AND RESPONSES ARE INCLUDED HERE ONLY IF THEY ARE NOT RESPONDED TO ELSEWHERE IN THIS ADDENDUM):

QUESTION: Sheet C1.00 has the following notes: “Campus utility maps show telecom. line in this area (not designated)” and “UNCC maps show water line here (not marked)”. This is the area where the chiller is to have the piping relocated, the retaining wall constructed and multiple MEP items relocated. Can the Campus utility map and the UNCC maps be provided for coordination and scheduling purposes. Based on the amount of telecom and utilities in that area this could be a few days operation or a 1 month operation.

RESPONSE: See attached Campus Utility Maps, for reference only.

QUESTION: New Allowance requested: Sheet C5.00: note next to CB 13A indicates to “verify if storm line is active and connect to new structure as needed. If inactive, abandon with flowable fill”. Because the diameter of this pipe and the length of the pipe is not known could you establish an Allowance with a definite amount of flowable fill for this or any other pipe to be abandoned?

RESPONSE: Refer to Revised Sheet C5.00. Note now indicates to plug existing storm drain line at manhole if determined to be inactive. Otherwise pipe shall remain in service.

QUESTION: Sheet C3.02 indicates Truck-Rated Pavement Sections that extend far beyond the areas indicated in Sheet C3.00, please confirm that the pavement scope under this contract is defined by Sheet C3.00 and not by C3.02

RESPONSE: Pavement scope is indicated on C3.00. C3.02 is for truck turning movements only.

QUESTION: The legend (drawing TC-000) has two different types of WAP symbols. One type gets 2 CAT 6 cables. The second type with the subscript ITS gets 2 Cat 6A cables. The rack elevations only shows patch panels space for CAT6A WAP (yellow) cables. Do all WAPs get 2 CAT 6A cables or is there a mixture of CAT 6 and CAT 6A WAP outlets and the rack elevations need to have a CAT 6 panel for CAT 6 WAP cables?

RESPONSE: There are two different types of WAPs with different cabling requirements. ITS cabling shall be terminated on ITS patch panel and Resident Life shall be terminated on RL patch panels in associated racks. Rack elevations will be updated for clarity.

QUESTION: Drawing TC-100-S Class Room 055 has a drawing note 2 next to the floor boxes. There is no Indication on the legend of this drawing describing what drawing note 2 is referring to.

RESPONSE: Note 2 is no longer used and shall be deleted.

QUESTION: Drawing TC-601 figure 4 shows a single gang faceplate for typical telephone data device 2 port. The specs refer to double gang faceplates for all hardwall devices and the symbol legend says single gang mud ring. Which is correct?

RESPONSE: There are two different types of data drops with different cabling and junction box Requirements. Open triangle (ITS) has a larger double gang box with a double gang trim ring while the Filled triangle (RL) has a standard double gang box with single gang trim ring.

QUESTION: Drawing TC-501 (rack elevations) does not show which rack the backbone fiber or the 25 pair copper should terminate in. Also what size fiber enclosure is required?

RESPONSE: Terminate fiber optic cable in RL rack and 25 pair copper on patch panel in IDFs. Provide a 2RU enclosure for fiber connectivity. Rack elevations will be updated for clarity.

QUESTION: The telecom distribution diagram drawing TC-701 indicates that the 6 strand multi-mode fiber is OM1 (62.5/125). Should we be using 50/125 OM3 armored plenum fiber?

RESPONSE: Revise OM1 fiber on distribution diagram is correct per UNC Charlotte manual

QUESTION: The telecom distribution diagram drawing TC-701 indicates the RG-11 terminate on a wall mounted patch panel. Is this correct? Typically, the RG-11 is terminate and left coiled on the wall ready for the provider to connect it directly to a splitter. Do the RG-6 to the TV outlets terminate in the racks or should they be left coiled on the same wall as the RG-11?

RESPONSE: Correct. Drawing will be revised. Terminate RG-11 and leave coiled with service loop on the wall ready for the provider to connect it directly to a splitter. RG-6 to the TV outlets should they be left coiled with service loop on the same wall as the RG-11.

QUESTION: Drawing TC-000 Telecom General Notes – Note H – Grounding and Bonding shall be provided by the EC. Does the EC's responsibility stop at the ground bar in each IDF, meaning the EC will provide and install the ground bar and connect it back to the main grounding system? The telecom contractor will then ground the racks and ladder racking to the EC provided ground bar?

RESPONSE: Correct, the EC's responsibility will stop at the ground bar in each IDF, meaning the EC will provide and install the ground bar and connect it back to the main grounding system. The telecom contractor will then ground the racks and ladder racking to the EC provided ground bar.

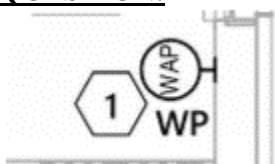
QUESTION: Are we to provide fiber optic jumpers? If so what type, how many and what length?

RESPONSE: Provide Fiber Optic Jumpers as follows: SM and MM LC to LC jumpers, (2) per IDF, 10 meter.

Material list for fiber termination equipment:

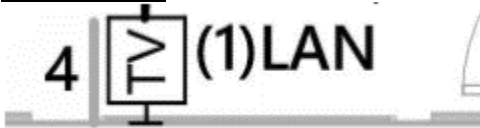
- OFS --- 3RU patch/splice fiber optic cabinet; 301039939
- OFS --- Single fusion splice tray for 3RU cabinet; 300386919
- AFL --- Wall mountable interconnect center (Fire Alarm panel termination); WME02E
- AFL --- Wall mount enclosure fusion splice tray (Fire Alarm termination closure); FM002827-1
- Uniprise --- LC 12 pack SM LC coupler panel (will install in the OFS and AFL fiber optic patch/splice enclosures); PNL-BK-012-SFA-LC12-BL
- Uniprise --- LC 12 pack MM LC coupler panel (will install in the OFS and AFL fiber optic patch/splice enclosures); PNL-BK-012-MFA-LC12-BG
- Uniprise --- 10 meter LC to LC SM fiber jumper (utilized to make the SM pigtails required for fusion splicing); FEWLCLC42-JXM010
- Uniprise --- 10 meter LC to LC MM fiber jumper (utilized to make the MM pigtails required for fusion splicing); FEMLCLC42-BXM010
- Uniprise --- Heat shrinks (for fusion splicing); SFS-SLEEVE

QUESTION: What does the WP abbreviation stand for as I cannot find this abbreviation on sheet TC-000?



RESPONSE: WP stands for Weather Proof.

QUESTION: What does the #4 indicate in this symbol as I do not see it mentioned on sheet TC-601?



RESPONSE: Refer to detail 9/E-008

QUESTION: What does the #5 indicate in this symbol as I do not see it mentioned on sheet TC-601?



RESPONSE: Refer to detail 10/E-008

QUESTION: What does this detail indicate as I cannot find the Exterior Network Device Detail in the Telecommunications section 11?



DRAWING NOTES: 

- 1. EXTERIOR WIRELESS ACCESS POINT LOCATION. REFER TO EXTERIOR NETWORK DEVICE DETAIL.

RESPONSE: Refer to detail 3/TC-601

QUESTION: What does this detail indicate as I cannot find the Exterior Network Device Detail in the Telecommunications section 11??



DRAWING NOTES: 

- 1. EXTERIOR WIRELESS ACCESS POINT LOCATION. REFER TO EXTERIOR NETWORK DEVICE DETAIL.

RESPONSE: Keynote has been removed. Refer to Addendum #5.

QUESTION: What type of category cable does this symbol receive as I do not see it indicated on sheet TC-000?

(1) LAN

RESPONSE: (1) LAN = (1) Local Area Network Cable which is one Category 6 cable routed to Resident Life Equipment Rack in local Telecom Room

QUESTION: Telecommunications sheet TC-000 states the following however, based on previous UNCC spec I wanted to be sure these locations did not need to be CAT6A like all other locations/symbols?



WIRELESS ACCESS POINT (RESIDENT LIFE/3RD PARTY). CEILING MOUNTED. PROVIDE (2) CATEGORY 6 CABLES. ELECTRICAL CONTRACTOR SHALL PROVIDE 4X4 DATA JUNCTION BOX WITH DOUBLE GANG PLASTER RING WITH 1" CONDUIT ROUTED TO ACCESSIBLE CEILING SPACE IN CORRIDOR.



WIRELESS ACCESS POINT (RESIDENT LIFE/3RD PARTY). WALL MOUNTED. CEILING MOUNTED. PROVIDE (2) CATEGORY 6 CABLES. ELECTRICAL CONTRACTOR SHALL PROVIDE 4X4 DATA JUNCTION BOX WITH DOUBLE GANG PLASTER RING WITH 1.25" CONDUIT ROUTED TO ACCESSIBLE CEILING SPACE IN CORRIDOR.

RESPONSE: Follow Symbol Legend.

QUESTION: As indicated on sheet TC-000 should the LV Vendor price out providing and installing the cable tray inside the telecom rooms?



CABLE TRAY. PROVIDE LAYOUT/TYPE AS INDICATED ON TELECOMMUNICATIONS DRAWINGS. MOUNT AT 7'-6" AFF UNLESS OTHERWISE NOTED. INSTALL PER DETAILS AND MANUFACTURING INSTRUCTIONS. CABLE TRAY SHALL BE BONDED TOGETHER TO TELECOMMUNICATIONS GROUNDING BAR UTILIZING #6 AWG. GREEN INSULATED STANDED COPPER.

RESPONSE: Ladder Racking in Telecom rooms is provided by TC Contractor

QUESTION: Should there be any campus backbone cabling associated with this pathway change as its not shown or listed?

RESPONSE: Campus Cabling will be provided by UNC Charlotte

QUESTION: Should the LV vendor include for the following addendum or should this be 1 addendum for the EC and pathway and 1 addendum for the data cable and connectivity?

RESPONSE: EC to provide unit pricing for conduit and J-Box, Structured Cabling Contractor to provide cabling price. Note that there are both electrical and telecommunication items for this request.

QUESTION: Is UNCC going to contract this out themselves? Is the base bid to be strictly installation labor?

RESPONSE: The base bid condition is that the Owner will furnish and install all flooring and associated base, except for sealed concrete and ceramic tile.

QUESTION: It states "owner furnishes all flooring." Does this mean any flooring including, carpet tile, sheet vinyl, LVP, treads and risers, etc.? Is the wall base excluded from this since it's not technically flooring?

RESPONSE: The base bid condition is that the Owner will furnish and install all flooring and associated base, except for sealed concrete and ceramic tile. This includes treads and risers.

QUESTION: Is the contractor to provide glues/adhesives or is that included in "flooring"?

RESPONSE: Only for the alternate, when the contractor is to provide and install all flooring.

QUESTION: In a previous round of open bidding there was an Alternate for moisture mitigation. I do not see that this time. Are there no concerns at this time about that?

RESPONSE: A unit price and allowance for moisture mitigation have been amended to the documents.

MISCELLANEOUS

NOT USED

End of ADDENDUM No. 5

Attachments:

- Revised Specification sections: 004213 Form of Proposal, 012100 Allowances, 012200 Unit Prices, 271513 Communications Copper Horizontal Cabling
- Revised drawing sheets: C5.00, TC-100-S, TC-101-N, TC-102-N, TC-501, TC-502, TC-503, TC-504, TC-505, TC-601, TC-701
- Reference only plans: Campus Electric, Campus Gas, Campus Mechanical, Campus Sewer, Campus Storm Water, Campus Telecom, Campus Water Irrigation, Campus Water

FORM OF PROPOSAL

Residence Hall Phase 16

University of North Carolina at Charlotte
18-18333-02A

Contract: General Construction
Bidder: _____
Date: _____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

The Bidder proposes and agrees if this proposal is accepted to contract with the

State of North Carolina through the University of North Carolina at Charlotte

in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the abatement and complete building demolition of Moore Hall on the UNC Charlotte campus to allow construction of the new Phase 16 Residence Hall.

in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the State of North Carolina, and the University of North Carolina at Charlotte and Jenkins Peer Architects with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT:

Base Bid: _____ Dollars(\$)

General Subcontractor:
_____ Lic _____

Plumbing Subcontractor:
_____ Lic _____

Mechanical Subcontractor:
_____ Lic _____

Electrical Subcontractor:
_____ Lic _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

GENERAL CONTRACT:

Unit Price No. 1A: Trench Rock Excavation and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd.

Unit Price (\$)_____

Unit Price No. 1B: Trench Rock Excavation and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.

Unit Price (\$)_____

Unit Price No. 2A: Mass Rock Removal and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd.

Unit Price (\$)_____

Unit Price No. 2B: Mass Rock Removal and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.

Unit Price (\$)_____

Unit Price No. 3A: Unsuitable Soil Removal and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd..

Unit Price (\$)_____

Unit Price No. 3B: Unsuitable Soil Removal and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.

Unit Price No. 4: Unsuitable Soil Removal and Haul –off (no replacement): Removal and disposal only per cu. Yd.

Unit Price (\$)_____

Unit Price No. 5: Exit signs. Provide unit price to include device, 100 ft. of conduit and conductors and all associated labor.

Unit Price (\$)_____

Unit Price No. 6: Electrical Outlets: Provide unit price to include 20 A circuit, device, breaker, 100 ft. of conduit and conductors and all associated labor..

Unit Price (\$)_____

Unit Price No. 7: Data Outlets: Provide unit price to include device, 100 ft. of conduit and cable and all associated labor.

Unit Price (\$)_____

Unit Price No. 8: Moisture Mitigation: Provide unit price to provide concrete slab moisture mitigation to 1 SF of surface in accordance with specification section 09 05 61

Unit Price (\$) _____

ALTERNATES:

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid. (Strike out "Add" or "Deduct" as appropriate.)

GENERAL CONTRACT:

Alternate No. 1 – Provide all landscape as indicated on sheets L1.00 and L1.01 and as specified in Division 32 specifications. Base bid is all landscape provided and installed by Owner.

(Add) *(Deduct)* _____ Dollars(\$)

Alternate No. 2 – Decorative Stone on Lobby Roof: Provide large size, natural, smooth, water-worn grey ballast at a rate of 1,000 lbs. per square at lobby roof. See A1 & A3/A-521 & C1/A-551

(Add) *(Deduct)* _____ Dollars(\$)

Alternate No. 3 – Cast Iron Plumbing Waste Pipe: Provide service weight cast iron no-hub pipe and fittings (CISPI 310) with neoprene gasket/stainless steel clamp joints (ASTM C1540-15) in lieu of base bid PVC pipe and fittings. See sheet P-001.

(Add) *(Deduct)* _____ Dollars(\$)

Alternate No. 4 – Provide type "L" hard drawn seamless copper tubing (ASTM B 88 and cast copper alloy fittings (ASME B16.18) Joints 1" and smaller shall be lead tin/silver solder joints (ASTM B 32). Joints 1-1/4" and larger shall be BCUP silver/phosphorous/copper brazed joints (AWS5.8) in lieu of base bid CPVC. See sheet P-001.

(Add) *(Deduct)* _____ Dollars (\$)

Alternate No. 5: Telecom path from Sanford Hall manhole to MDF. See sheets E-001 and E-010

(Add) *(Deduct)* _____ Dollars (\$)

Alternate No. 6: Provide solid surface countertops at all public restrooms in lieu of base bid plastic laminate tops.

(Add) *(Deduct)* _____ Dollars (\$)

Alternate No. 7: Lightning Protection per specification section 26 41 13 and sheets E-001 and E-206

(Add) *(Deduct)* _____ Dollars (\$)

Alternate No. 8: Generator Load Bank System – Mobile generator load bank system in lieu of base bid static load bank. See sheets E-001, E-100 and E-703.

(Add) *(Deduct)* _____ Dollars (\$)

Alternate No. 9: Provide cylindrical locks as specified. Base bid is Owner provides and installs cylindrical locks (and cylinders). All other finish hardware is base bid. (Cylinders are provided and installed by Owner in base bid and alternate).

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 9A (Owner Preferred): Provide the following door hardware in lieu of approved equals:

Sargent exit devices.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 10 (Owner Preferred): Provide fire alarm system by Simplex in lieu of other approved equals per specification section 28 31 11 and sheet E-001.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 11 (Owner Preferred): Provide telecommunications system using only those materials listed in Specifications division 27 in lieu of all other specified manufacturers. See also sheet E-001.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 12 (Owner Preferred): Provide English Edge Pavers by Pine Hall in lieu of all other paver manufacturers specified in Section 32 14 00.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 13: (Owner Preferred): Provide Open Options for access control per specification section 281300 and sheet E-001.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 14: Provide cultured marble window sills in lieu of base bid abuse-resistant gypsum board.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 15: Provide all window blinds and shades as indicated on the drawings and as specified in Sections 122113 and 122413. Base bid is all blinds and shades furnished and installed by Owner.

(Add) *(Deduct)* _____ Dollars (\$) _____

Alternate No. 16: Provide all flooring and associated base as shown on the drawings and specified in sections 093000, 096500, 096800, and 096813. Base bid is Owner furnishes and installs all flooring. (Wall tile and all areas of sealed concrete floor treatment are included in base bid)

(Add) *(Deduct)* _____ Dollars (\$) _____

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Supplementary General Conditions Article 23. Applicable liquidated damages amount is also stated in the Supplementary General Conditions Article 23.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B**) to that effect in lieu of Affidavit (**A**) required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

* **OR** *

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

(Name of firm or corporation making bid)

WITNESS:

By: _____
Signature

(Proprietorship or Partnership)

Name: _____
Print or type

Title _____
(Owner/Partner/Pres./V.Pres)

Address _____

ATTEST:

By: _____

License No. _____

Title: _____
(Corp. Sec. or Asst. Sec. only)

Federal I.D. No. _____

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5 _____ Addendum No. 6 _____

Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____ Addendum No. 7 _____

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.

1.2 RELATED REQUIREMENTS

- A. Section 01 26 00 - Contract Modification Procedures: Additional payment and modification procedures.

1.3 LUMP SUM AND QUANTITY OF WORK (UNIT-COST) ALLOWANCES

- A. Where applicable, allowance shall include cost to the Contractor of specific products and materials ordered by the Owner or selected by the Design Professional under allowance and shall include taxes, freight, and delivery to the Project site.
- B. The Contractor's costs for receiving and handling at the Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by the Owner or selected by the Design Professional under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. Quantity of Work Unit Cost Allowances: The total value of the allowance shall be determined by the quantity indicated in the allowance description multiplied by the unit price provided on the contractor's bid form.
- E. Differences in costs will be adjusted by Change Order.

1.2 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts and scope of Work, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 4. The Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
 5. No change to the Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.4 SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 ALLOWANCES SCHEDULE

- A. Allowance No. 1A: Trench Rock Excavation and Replacement with Fill: Provide allowance for removal and disposal of 50 cubic yards including replacement with stockpiled suitable material as specified in Section 312000
- B. Allowance No. 1B: Trench Rock Excavation and Replacement with Fill: Provide allowance for removal and disposal of 50 cubic yards including replacement with borrowed suitable material as specified in Section 312000. (This allowance will only be used if stockpiled material from site cut operations is exhausted)
- C. Allowance No.2A: Mass Rock Removal and Replacement with Fill: Provide allowance for removal and disposal of 1000 cubic yards including replacement with stockpiled suitable material as specified in Section 312000.
- D. Allowance No.2B: Mass Rock Removal and Replacement with Fill: Provide allowance for removal and disposal of 1000 cubic yards including replacement with suitable material as specified in Section 312000. (This allowance will only be used if stockpiled material from site cut operations is exhausted)
- E. Allowance No. 3A: Unsuitable Soil Removal and Replacement with Fill: Provide allowance for removal and disposal of 500 cubic yards including replacement with stockpiled suitable material as specified in Section 312000.
- F. Allowance No. 3B: Unsuitable Soil Removal and Replacement with Fill: Provide allowance for removal and disposal of 500 cubic yards including replacement with borrowed suitable material as specified in Section 312000. (This allowance will only be used if stockpiled material from site cut operations is exhausted)
- G. Allowance No. 4: Unsuitable Soil Removal and Haul –off (no replacement): Provide allowance of 500 cu. yds for removal and disposal only.
- H. Allowance No. 5: Exit signs. Provide allowance for 5 additional than what are shown on the documents. Allowance includes device, 100 ft. of conduit and conductors and all associated labor.
- I. Allowance No. 6: Electrical Outlets: Provide allowance for 5 additional duplex on 20 A circuit than what are shown on the documents. Allowance includes device, breaker, 100 ft. of conduit and conductors and all associated labor.

- J. Allowance No. 7: Data Outlets: Provide allowance for 5 additional than what are shown on the documents. Allowance includes device, 100 ft. of conduit and cable and all associated labor.
- K. Allowance No. 8: Moisture Mitigation: Provide allowance for 10,000 square feet of moisture mitigation in accordance with specification section 09 05 61.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01 21 00

ROCK EXCAVATION APPROVAL FORM

Project: _____ Number: _____
 _____ Date: _____

The following quantities of rock, as defined in the Specifications and by the Geotechnical Engineer, have been calculated as needing to be excavated and removed.

Location: _____

Type: (Circle one) Trench Open

Equipment Used: _____

Location of Excavation: _____

Bid Price: \$ _____/CY

Total Price: \$ _____

Total Quantities: _____CY

The above quantities and prices of rock excavation have been verified as being true and accurate for the area described.

Note further information on the back of this sheet.

Geotechnical Engineer (define)

BY: _____

Date: _____

Civil Engineer (define)

BY: _____

Date: _____

Prime Contractor (define)

BY: _____

Date: _____

Subcontractor (define)

BY: _____

UNCC Representative

BY: _____

Date: _____ Date: _____

UNSUITABLE SOIL EXCAVATION APPROVAL FORM

Project: _____ Number: _____
 _____ Date: _____

The following quantities of unsuitable soil, as defined in the Specifications and by the Geotechnical Engineer, have been calculated as needing to be excavated and removed.

Location: _____

Type: (Circle one) Trench Open

Equipment Used: _____

Location of Excavation: _____

Bid Price: \$ _____/CY

Total Price: \$ _____

Total Quantities: _____CY

The above quantities and prices of unsuitable soil excavation have been verified as being true and accurate for the area described.

Note further information on the back of this sheet.

Geotechnical Engineer (define)

BY: _____

Date: _____

Civil Engineer (define)

BY: _____

Date: _____

Prime Contractor (define)

BY: _____

Date: _____

Subcontractor (define)

BY: _____

Date: _____

UNCC Representative

BY: _____

Date: _____

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. List of unit prices, for use in preparing Bids.
- B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.2 COSTS INCLUDED

- A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.3 MEASUREMENT OF QUANTITIES

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Take all measurements and compute quantities. Measurements and quantities will be verified by Architect and/or Owner's testing agency.
- C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.4 PAYMENT

- A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.
 - 1. Value of allowances in section 012100 shall be determined by the allowance quantity indicated multiplied by the associated unit price value provided by the contractor on the bid form.
- B. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products remaining on hand after completion of the Work.
 - 4. Loading, hauling, and disposing of rejected Products.

1.5 UNIT PRICES SCHEDULE

- A. Unit Price No. 1A: Trench Rock Excavation and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd.
- B. Unit Price No. 1B: Trench Rock Excavation and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.
- C. Unit Price No.2A: Mass Rock Removal and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd.
- D. Unit Price No.2B: Mass Rock Removal and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.
- E. Unit Price No. 3A: Unsuitable Soil Removal and Replacement with Fill: Removal and disposal including replacement with stockpiled suitable material as specified in Section 312000 per cu. yd.
- F. Unit Price No. 3B: Unsuitable Soil Removal and Replacement with Fill: Removal and disposal including replacement with borrowed suitable material as specified in Section 312000 per cu. yd.
- G. Unit Price No. 4: Unsuitable Soil Removal and Haul –off (no replacement): Removal and disposal only per cu. Yd.
- H. Unit Price No. 5: Exit signs. Provide unit price to include device, 100 ft. of conduit and conductors and all associated labor..
- I. Unit Price No. 6: Electrical Outlets: Provide unit price to include 20 A circuit, device, breaker, 100 ft. of conduit and conductors and all associated labor.
- J. Unit Price No. 7: Data Outlets: Provide unit price to include device, 100 ft. of conduit and cable and all associated labor.
- K. Unit Price No. 8: Moisture Mitigation: Provide unit price to provide concrete slab moisture mitigation to 1 square foot of surface in accordance with specification section 09 05 61.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

UNIT PRICES

01 22 00-2

END OF SECTION 01 22 00

SECTION 271513 - COMMUNICATIONS COPPER HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Category 6 twisted pair cable. (Resident Life/3rd Party)
2. Category 6A twisted pair cable. (ITS)
3. Twisted pair cable hardware, including plugs and jacks.
4. Cable management system.
5. Grounding provisions for twisted pair cable.

B. Related Requirements:

1. Section 270526 "Grounding and Bonding for Communications Systems"
2. Section 270553 "Identification for Communication Systems"

1.2 COPPER HORIZONTAL CABLING DESCRIPTION

A. Horizontal cabling system shall provide interconnections between Distributor A, Distributor B, or Distributor C, and the equipment outlet, otherwise known as "Cabling Subsystem 1," in the telecommunications cabling system structure. Cabling system consists of horizontal cables, intermediate and main cross-connects, mechanical terminations, and patch cords or jumpers used for horizontal-to-horizontal cross-connection.

1. TIA-568-C.1 requires that a minimum of two equipment outlets be installed for each work area.
2. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications equipment outlet.
3. Bridged taps and splices shall not be installed in the horizontal cabling.

B. A work area is approximately 100 sq. ft and includes the components that extend from the equipment outlets to the station equipment.

C. The maximum allowable horizontal cable length is 295 feet. This maximum allowable length does not include an allowance for the length of 16 feet to the workstation equipment or in the horizontal cross-connect.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Reviewed and stamped by RCDD.

1. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.
2. System Labeling Schedules: Electronic copy of labeling schedules that are part of the cabling and asset identification system of the software.
3. Cabling administration Drawings and printouts.
4. Wiring diagrams and installation details of telecommunications equipment, to show location and layout of telecommunications equipment.

C. Twisted pair cable testing plan.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For RCDD, Installer, installation supervisor, and field inspector.
- B. Product Certificates: For each type of product.
- C. Source quality-control reports.
- D. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 1. Layout Responsibility: Preparation of shop drawings, cabling administration drawings, and field-testing program development by an RCDD.
 2. Installation: Installer shall be manufacturer certified to install cabling system submitted.
 3. Installation Supervision: Installation shall be under the direct supervision of Technician, who shall be present at all times when work of this section is performed at project site.
 4. Testing Supervisor: Currently certified by BICSI as a RCDD to supervise on-site testing.
- B. Testing Agency Qualifications: Testing agency must have personnel certified by BICSI on staff.
 1. Testing Agency's Field Supervisor: Currently certified by BICSI as a RCDD.

1.7 COORDINATION

- A. Coordinate layout and installation of telecommunications pathways and cabling with Owner's telecommunications and LAN equipment and service suppliers.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA-568-C.1, when tested according to test procedures of this standard.
- B. Telecommunications Pathways and Spaces: Comply with TIA-569-D.
- C. Grounding: Comply with latest TIA-607 standard.

2.2 GENERAL CABLE CHARACTERISTICS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with the applicable standard and NFPA 70 for the following types:
 - 1. Communications Plenum Rated
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
- C. RoHS compliant.

2.3 CATEGORY 6 TWISTED PAIR CABLE

- A. Description: Four-pair, balanced-twisted pair cable, with internal spline, certified to meet transmission characteristics of Category 6 cable at frequencies up to 250MHz.
- B. Manufacturers:
 - 1. Siemon: 9C6P4-E3-07-RXA - Category 6 UTP Plenum Cable, Green
 - 2. Commscope: 6NF4 - Category 6 UTP Flooded Cable
- C. Standard: Comply with TIA-568-C.2 for Category 6A cables.
- D. Conductors: 100-ohm, 23 AWG solid copper.
- E. Shielding/Screening: Unshielded twisted pairs (UTP)
- F. Cable Rating: Plenum.
- G. Jacket: Refer to drawings for system specific color coding.
- H. Utilize flat patch panels for terminations.

2.4 CATEGORY 6A TWISTED PAIR CABLE

- A. Description: Four-pair, balanced-twisted pair cable, with internal spline, certified to meet transmission characteristics of Category 6A cable at frequencies up to 500MHz.
- B. Manufacturers:
 - 1. Siemon: 9C6P4-A5-07-AR1A - Category 6A UTP Plenum Cable, Green
 - 2. Siemon: 9C604-A5-01-R1A - Category 6A UTP Flooded Cable
- C. Standard: Comply with TIA-568-C.2 for Category 6A cables.
- D. Conductors: 100-ohm, 23 AWG solid copper.
- E. Shielding/Screening: Unshielded twisted pairs (UTP)
- F. Cable Rating: Plenum.
- G. Jacket: Refer to drawings for system specific color coding.
- H. Utilize angled patch panels for terminations.

2.5 TWISTED PAIR CABLE HARDWARE

- A. Description: Hardware designed to connect, splice, and terminate twisted pair copper communications cable.
- B. Manufacturers:
 - 1. Siemon: 10GMX-FPD06-02, White - 6 Port Faceplate (ITS, Cat 6A)
Siemon: Z6A-07, Green; Z6A-02, White; Z6A-05, Yellow; Z6A-03, (ITS, Cat 6A)
 - 2. Siemon: TM-PNLZA-24-01 - Unpopulated, Angled Patch Panels (ITS, Cat 6A)
 - 3. Siemon: Max DG, White - 6 Port Faceplate (RL, Cat 6)
Siemon: MX6-F02-d With CT-ICON-07, Green; CT-ICON-05, Yellow (RL, Cat 6)
 - 4. Siemon: MX-PNL-24 - Unpopulated, Flat Patch Panels (RL, Cat 6)
- C. General Requirements for Twisted Pair Cable Hardware:
 - 1. Comply with the performance requirements of Category 6A.
 - 2. Comply with TIA-568-C.2, IDC type, with modules designed for punch-down caps or tools.
 - 3. Cables shall be terminated with connecting hardware of same category or higher.
- D. Source Limitations: Obtain twisted pair cable hardware from single source from single manufacturer.
- E. Connecting Blocks:
 - 1. 110-style IDC for Category 6A.

2. Provide blocks for the number of cables terminated on the block, plus 25% spare, integral with connector bodies, including plugs and jacks where indicated.
- F. Cross-Connect: Modular array of connecting blocks arranged to terminate building cables and permit interconnection between cables.
1. Number of Terminals per Field: One for each conductor in assigned cables.
- G. Patch Panel: Modular panels housing numbered jack units with IDC-type connectors at each jack location for permanent termination of pair groups of installed cables.
1. Features:
 - a. Universal T568A and T568B wiring labels.
 - b. Labeling areas adjacent to conductors.
 - c. Replaceable connectors.
 - d. 24 ports
 2. Construction: 16-gauge steel and mountable on 19-inch equipment racks.
 3. Number of Jacks per Field: One for each four-pair cable indicated.
- H. Patch Cords: Factory-made, four-pair cables in 48-inch lengths; terminated with an eight-position modular plug at each end.
1. Patch cords shall have bend-relief-compliant boots and color-coded icons to ensure performance. Patch cords shall have latch guards to protect against snagging.
 2. Patch cords shall have color-coded boots for circuit identification.
- I. Plugs and Plug Assemblies:
1. Male; eight position; color-coded modular telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
 2. Standard: Comply with TIA-568-C.2.
 3. Marked to indicate transmission performance.
- J. Jacks and Jack Assemblies:
1. Female; eight position; modular; fixed telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
 2. Designed to snap-in to a patch panel or faceplate.
 3. Standard: Comply with TIA-568-C.2.
 4. Marked to indicate transmission performance.
- K. Faceplate:
1. Category 6: White, double gang 6 port faceplates for the category cable installed. Populate with white RJ-45 type jacks with matching flip up door cover that will accept a slide in designation icon. Unused white faceplate ports are to be provided with white blanks. Other termination housings such as surface mount boxes are to be white with white RJ-45 jacks as required.

2. Category 6A: White, double gang 6 port faceplates for the category cable installed. Category 6A outlet jacks have a color cover with a location in which to place a colored icon.

L. Legend:

1. Machine printed, in the field, using adhesive-tape label.
2. Snap-in, clear-label covers and machine-printed paper inserts.

2.6 GROUNDING

- A. Comply with requirements in Section 270526 "Grounding and Bonding for Communications Systems" for grounding conductors and connectors.
- B. Comply with latest TIA-607 standard.

PART 3 - EXECUTION

3.1 INSTALLATION OF TWISTED-PAIR HORIZONTAL CABLES

- A. Comply with NECA 1 and NECA/BICSI 568.
- B. Wiring Method: Install cables in raceways and cable trays, except within consoles, cabinets, desks, and counters. Conceal all raceway, except where not possible in unfinished mechanical/electrical spaces.
- C. Wiring within Enclosures: Bundle, lace, and train cables within enclosures. Connect to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools. Install conductors parallel with or at right angles to sides and back of enclosure.
- D. General Requirements for Cabling:
 1. Comply with TIA-568-C.1.
 2. Comply with BICSI's Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section.
 3. Install 110-style IDC termination hardware unless otherwise indicated.
 4. Do not untwist twisted pair cables more than 1/2 inch from the point of termination to maintain cable geometry.
 5. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
 6. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 7. Install lacing bars to restrain cables, prevent straining connections, and prevent bending cables to smaller radii than minimums recommended by manufacturer.
 8. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI information

- Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section. Use lacing bars and distribution spools.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 10. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 11. In the communications equipment room, install a minimum 10-foot long service loop unless otherwise noted.
 12. Pulling Cable: Comply with BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Pulling and Installing Cable" Section. Monitor cable pull tensions.
 13. All Category 6 UTP cables be terminated on individual RJ-45 jacks at the outlet and at the patch panel utilizing the 568-A termination schematic. All Category 6A UTP cables are required to be terminated on the proper RJ-45 Z-Max jack at the outlet and patch panel utilizing the 568-A termination schematic.
 14. Category 6 cables terminated in the telecommunications rooms are to receive black jacks installed in unpopulated black patch panels rated to accept the cable installed. Z-Max patch panel jacks will be the standard gray color only that come in the patch panel/jack termination kit for telecom room terminations.
 15. Color coded icon systems are required on the horizontal cable installs at the outlet and the patch panel. The color coded icons provide the designation of use for the cable installed in the faceplate and patch panel.
 - a. Green icon on each end: General Use horizontal cables.
 - b. Yellow icon on each end: PoE-IP Camera horizontal cables.
 - c. White icon on each end: Wireless Access Point horizontal cables.
 - d. Red icon on each end: Point of Sale, Credit Card, or Monetary type horizontal cables.
 - e. Blue icon: Analog Dial Tone Patch Panel
 - f. Violet icon each end: Audio/Video and specialized devices.
- E. Group connecting hardware for cables into separate logical fields.
- F. Separation from EMI Sources:
1. Comply with recommendations from BICSI's "Telecommunications Distribution Methods Manual" and TIA-569-D for separating unshielded copper communication cable from potential EMI sources, including electrical power lines and equipment.

3.2 FIRESTOPPING

- A. Comply with requirements in Section 078413 "Penetration Firestopping."
- B. Comply with TIA-569-D, Annex A, "Firestopping."
- C. Comply with "Firestopping Systems" Article in BICSI's "Telecommunications Distribution Methods Manual."

3.3 GROUNDING

- A. Install grounding according to the "Grounding, Bonding, and Electrical Protection" chapter in BICSI's "Telecommunications Distribution Methods Manual."
- B. Comply with latest TIA-607 standard and NECA/BICSI-607.
- C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall, allowing at least a 2-inch clearance behind the grounding bus bar. Connect grounding bus bar to suitable electrical building ground, using a minimum No. 4 AWG grounding electrode conductor.
- D. Bond metallic equipment to the grounding bus bar, using not smaller than a No. 6 AWG equipment grounding conductor.

3.4 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA-606-B. Comply with requirements for identification specified in Section 270553 "Identification for Communications Systems."
- B. Paint and label colors for equipment identification shall comply with TIA-606-B.
- C. Equipment grounding conductors.
- D. Cable and Wire Identification:
 - 1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
 - 2. Each wire connected to building-mounted devices is not required to be numbered at the device if wire color is consistent with associated wire connected and numbered within panel or cabinet.
 - 3. Label each terminal strip, and screw terminal in each cabinet, rack, or panel.
 - a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group, extended from a panel or cabinet to a building-mounted device, with the name and number of a particular device.
 - b. Label each unit and field within distribution racks and frames.
 - 4. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and -connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.
- E. Labels shall be preprinted or computer-printed type, with a printing area and font color that contrast with cable jacket color but still comply with TIA-606-B requirements for the following:
 - 1. Cables use flexible vinyl or polyester that flexes as cables are bent.

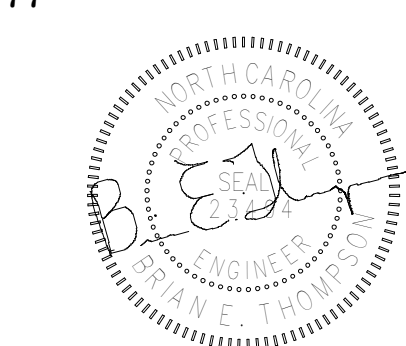
3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Visually inspect jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments and inspect cabling connections for compliance with TIA-568-C.1.
 - 2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 - 3. Test twisted pair cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.
- C. Data for each measurement shall be documented. Data for submittals shall be printed in a summary report that is formatted similarly to Table 10.1 in BICSI's "Telecommunications Distribution Methods Manual," or shall be transferred from the instrument to the computer, saved as text files, printed, and submitted.
- D. Remove and replace cabling where test results indicate that they do not comply with specified requirements.
- E. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.

3.6 WARRANTY

- A. Cabling warranty shall be for a minimum of 20 years and warranted by The Siemon Company. The Siemon Company requires a Certified Installer perform all cabling installations.

END OF SECTION 271513



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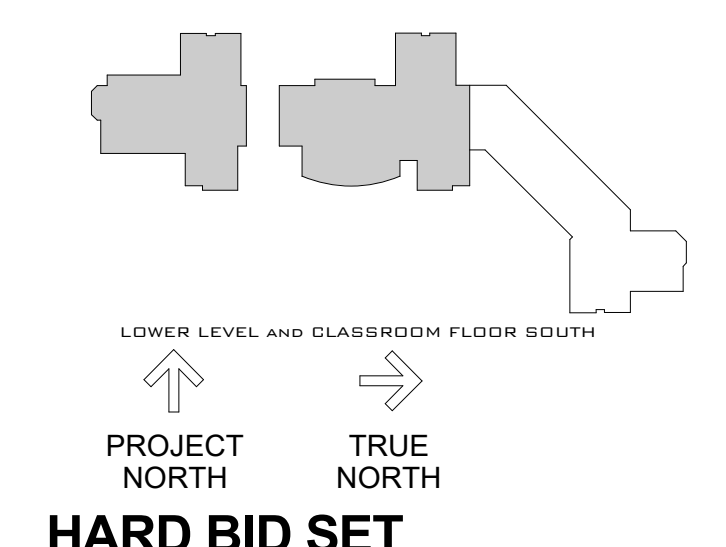
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5	Addendum 5	11/26/2019

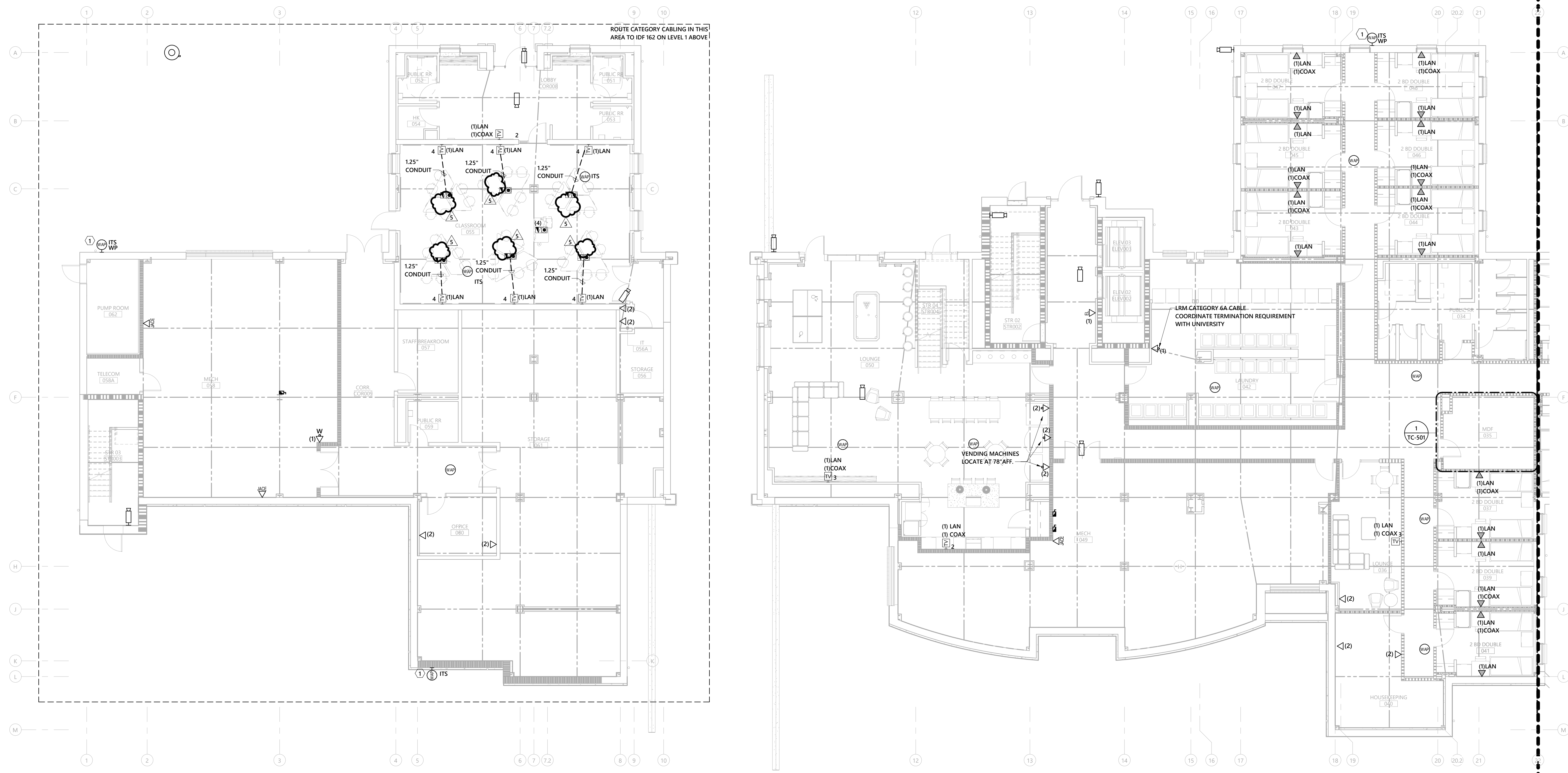
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LOWER LEVEL TELECOMMUNICATIONS PLAN - SOUTH

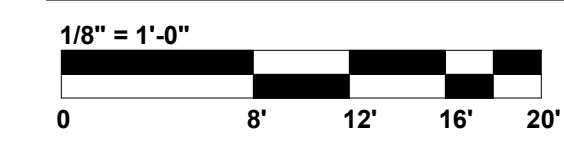
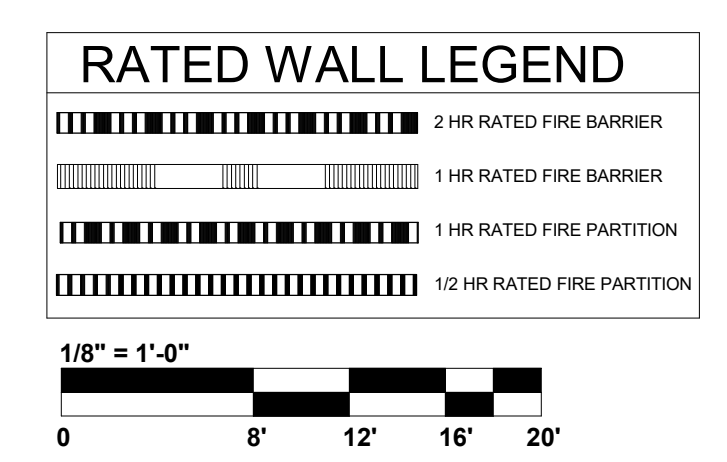


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Optima # 18-0001 Sheet 3 of 26

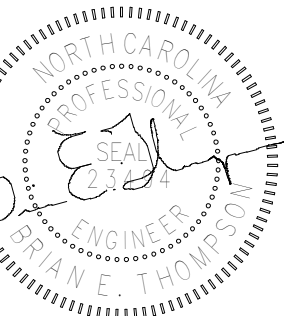
DRAWING NOTES (X)
1. EXTERIOR WIRELESS ACCESS POINT LOCATION. REFER TO EXTERIOR NETWORK DEVICE DETAIL.



1 LOWER LEVEL TELECOMMUNICATIONS PLAN - SOUTH
1/8" = 1'-0"



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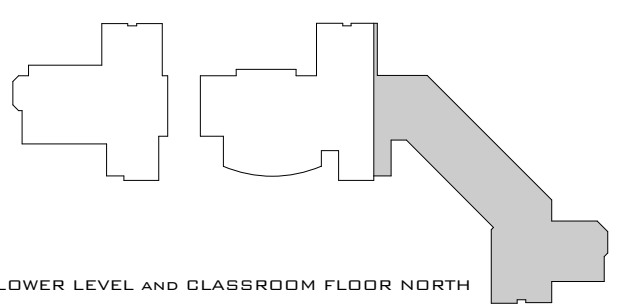
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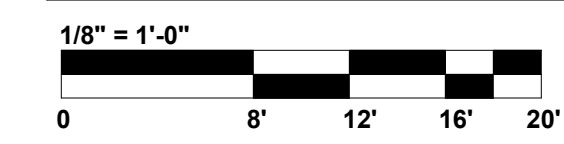
**LEVEL 1
TELECOMMUNICATIONS
- NORTH**



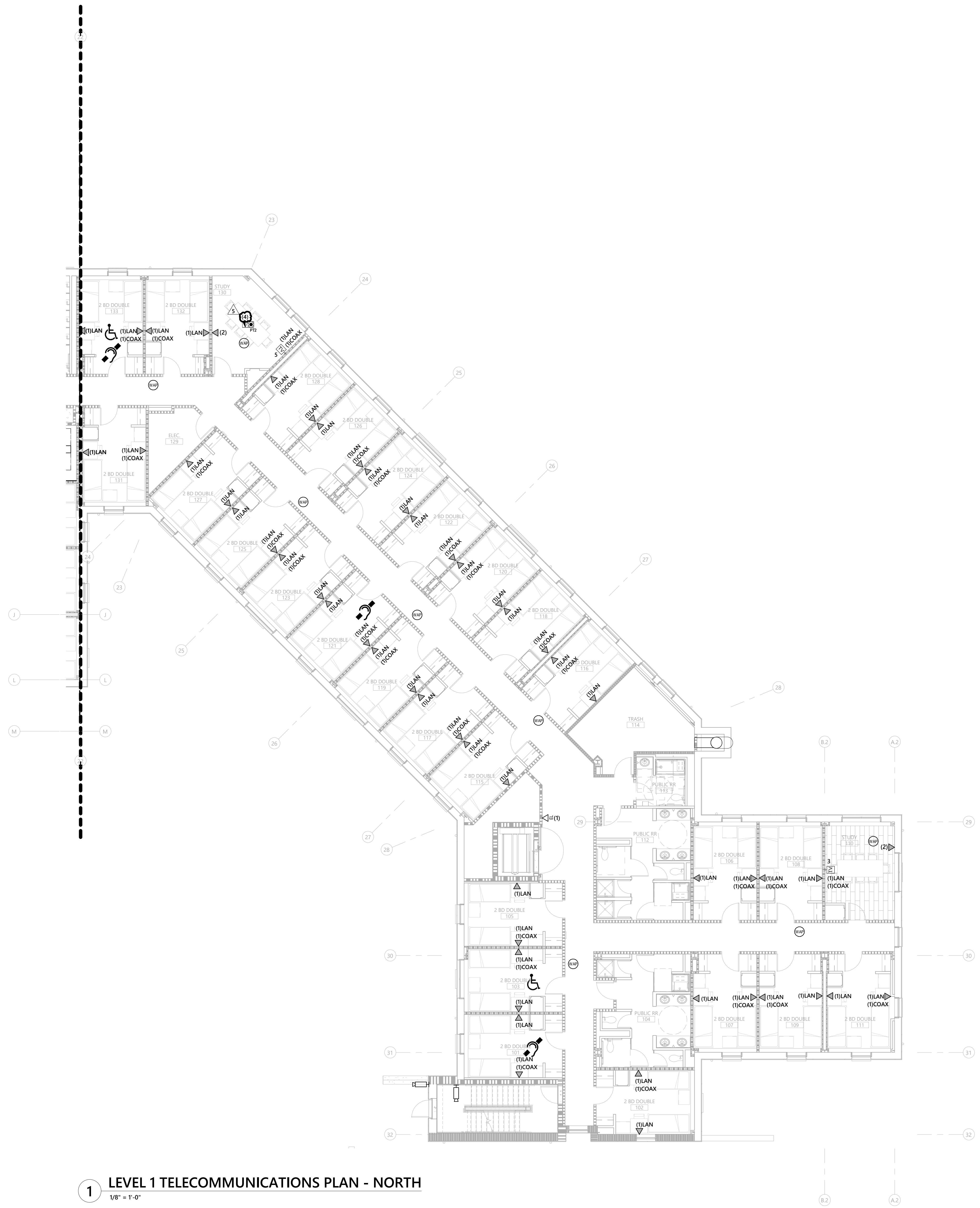
LOWER LEVEL AND CLASSROOM FLOOR NORTH

PROJECT NORTH TRUE NORTH
HARD BID SET

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	2 HR RATED FIRE BARRIER
	1 HR RATED FIRE BARRIER
	1 HR RATED FIRE PARTITION
	1/2 HR RATED FIRE PARTITION

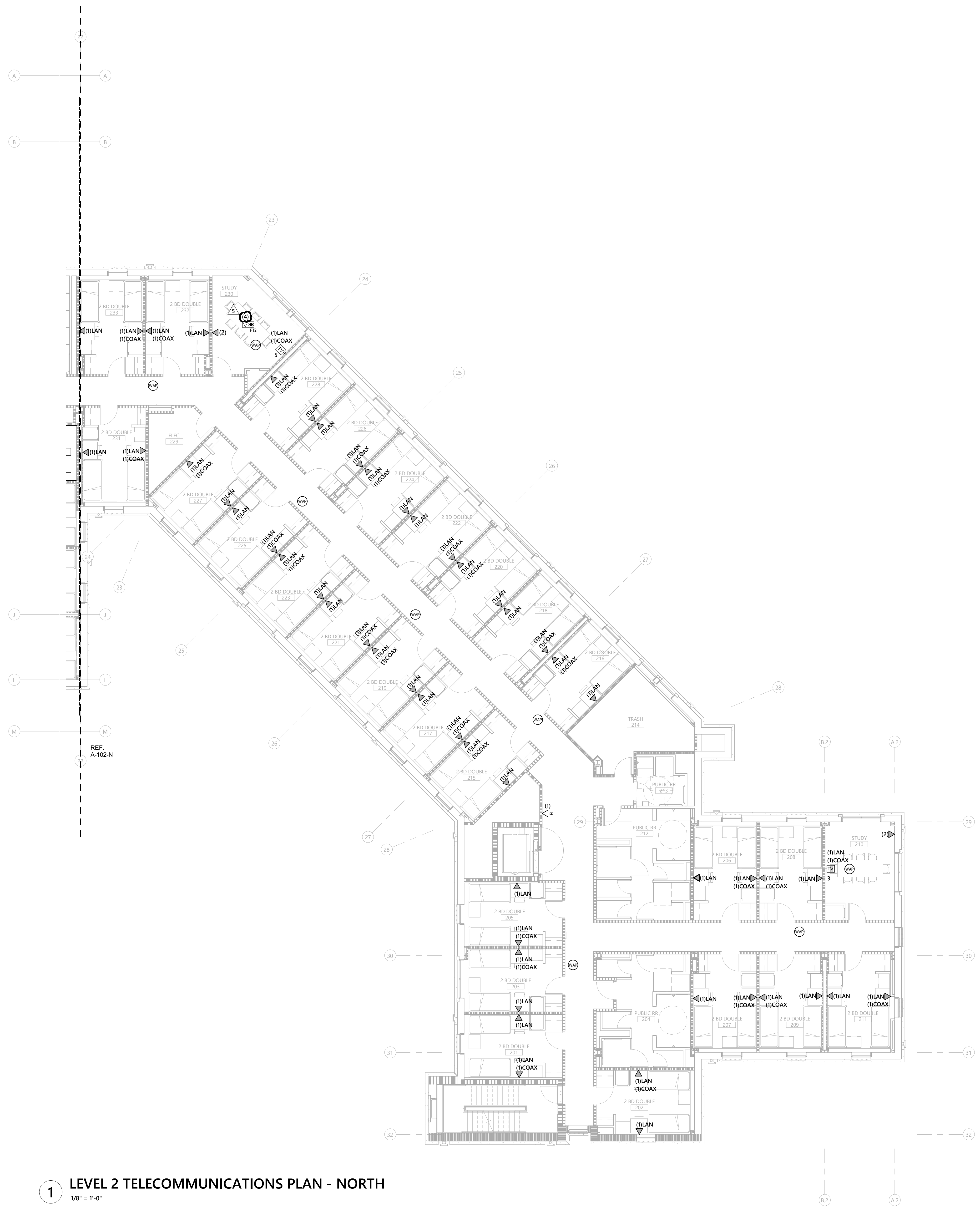


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1 LEVEL 1 TELECOMMUNICATIONS PLAN - NORTH
1/8" = 1'-0"

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1 LEVEL 2 TELECOMMUNICATIONS PLAN - NORTH
1/8" = 1'-0"

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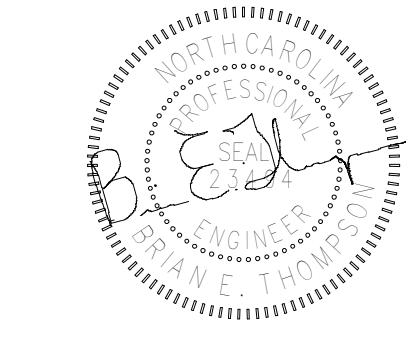
KWK ARCHITECTS
103 West Lockwood, Suite 218
St. Louis, Missouri 63119
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OPTIMA ENGINEERING, PA
Mechanical, Electrical, Plumbing + Fire Protection Engineering
NC License # C-0914
1927 South Tryon Street, Suite 300
Charlotte, North Carolina 28203
(t) 704/338-1292

LANDDESIGN, INC.
Landscape Design
NC License # C-0658
223 North Graham Street
Charlotte, NC 28202
(t) 704/376.7777



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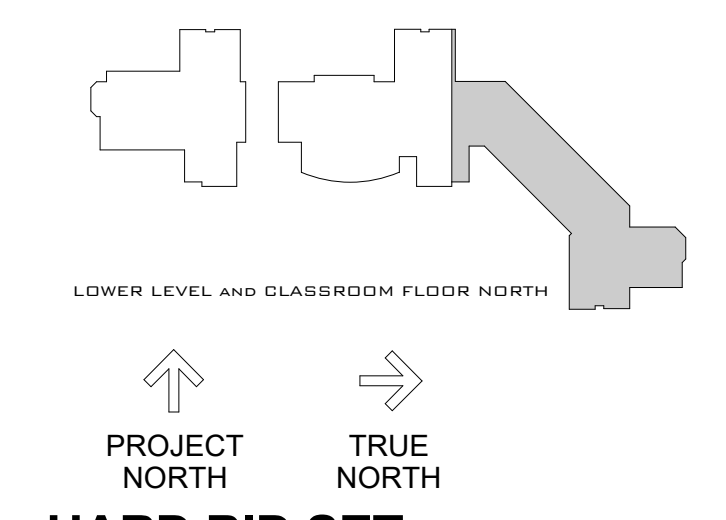
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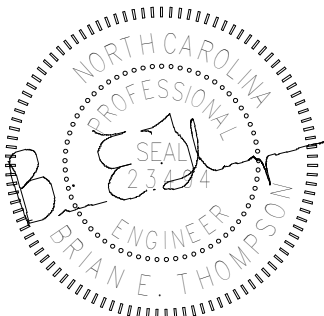
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**LEVEL 2
TELECOMMUNICATIONS
PLAN - NORTH**



TC-102-N
Optima # 18-0001 Sheet 6 of 26

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**ENLARGED
TELECOMMUNICATIONS
ROOMS-LEVEL 1**

GENERAL NOTES:

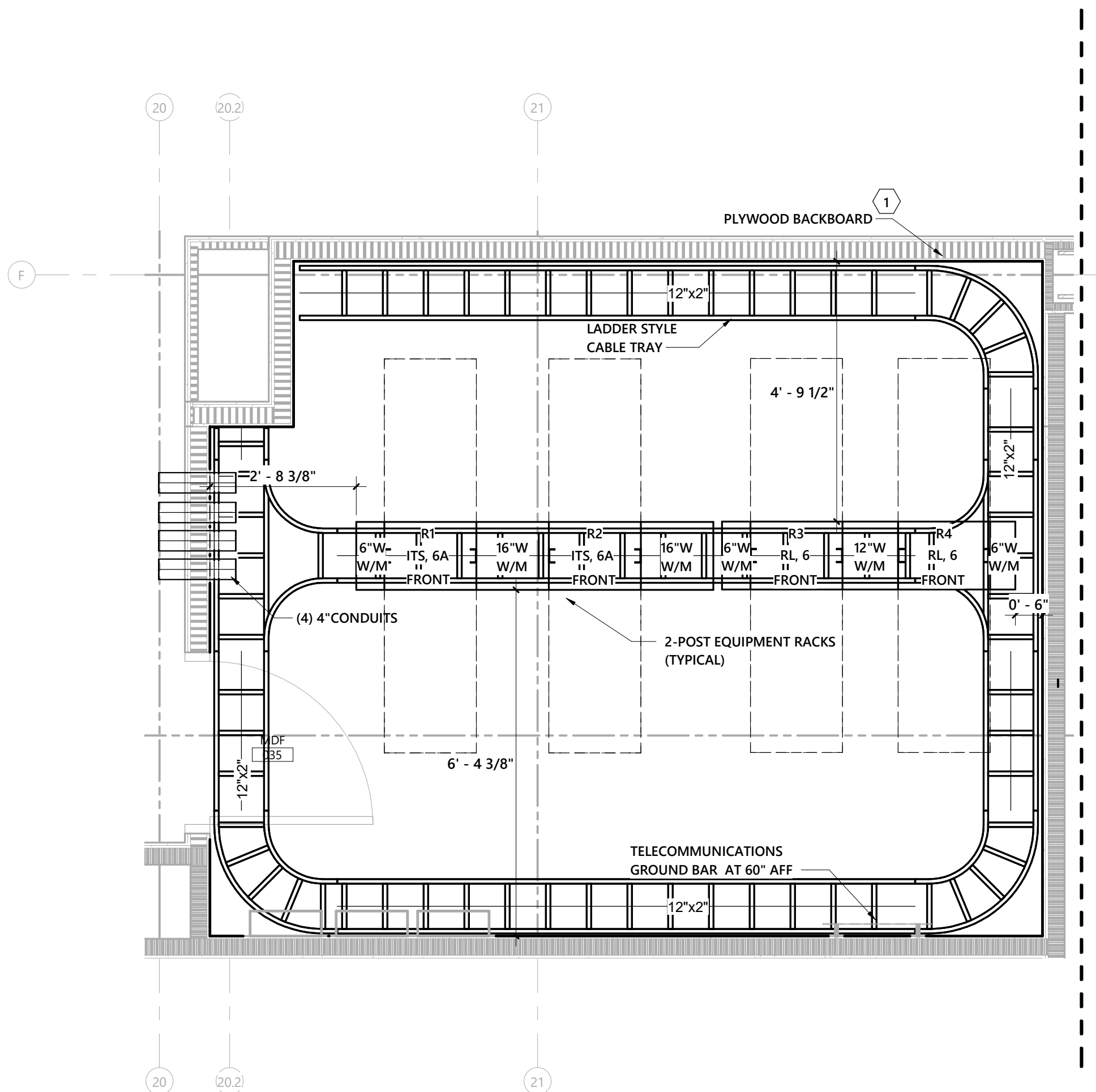
- A) PROVIDE 8" HIGH PLYWOOD BACKBOARD ON AT LEAST TWO WALLS. MANUFACTURER'S STAMP MUST BE VISIBLE FOR BUILDING INSPECTOR.

DRAWING NOTES: (X)

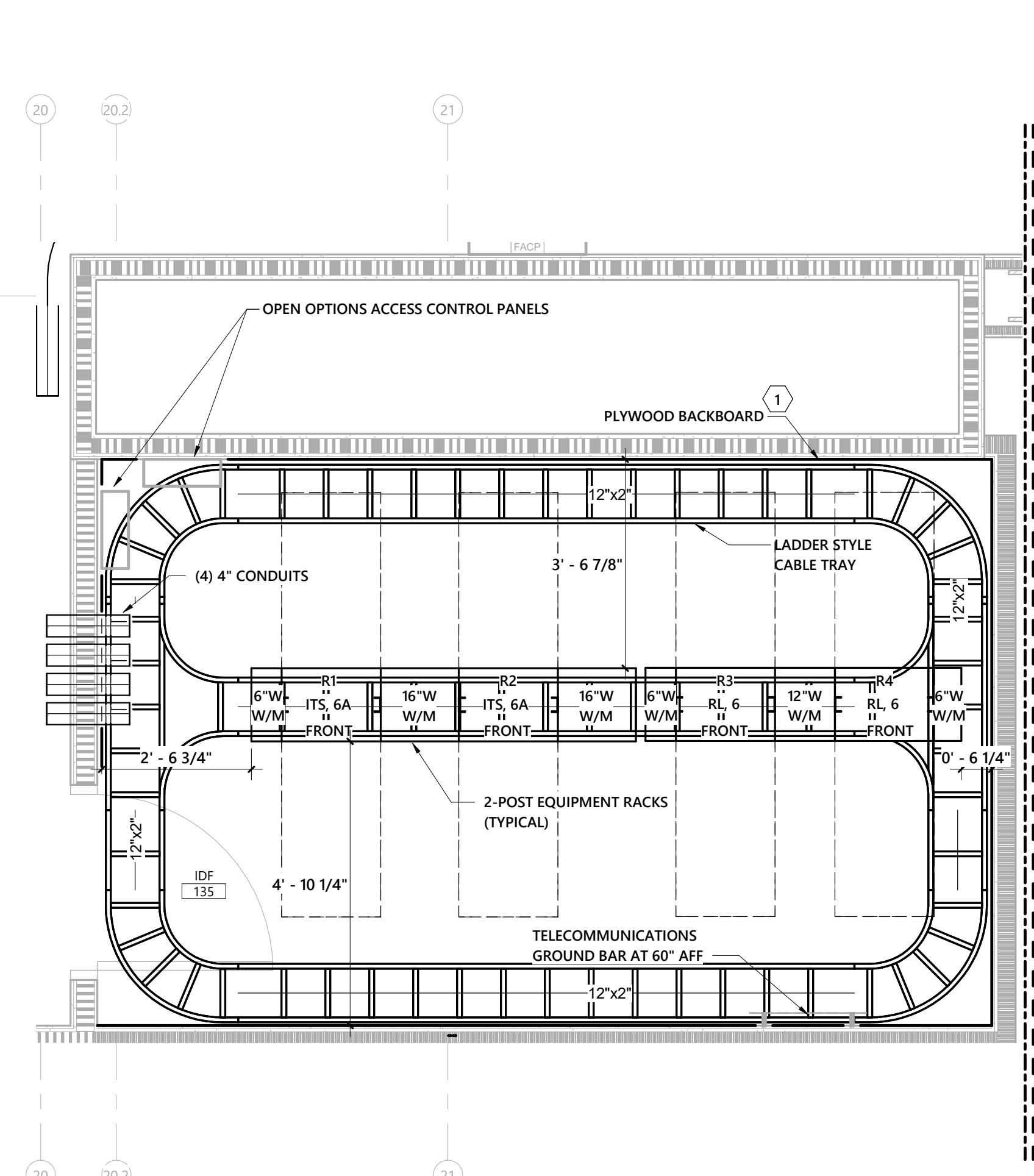
1. PROVIDE - TYPE A/C, 3/4" THICK PLYWOOD BACKBOARD. PLYWOOD SHALL BE FIRE RETARDANT OR PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT. MOUNT PLYWOOD BACKBOARD AT 8" AFF.

D

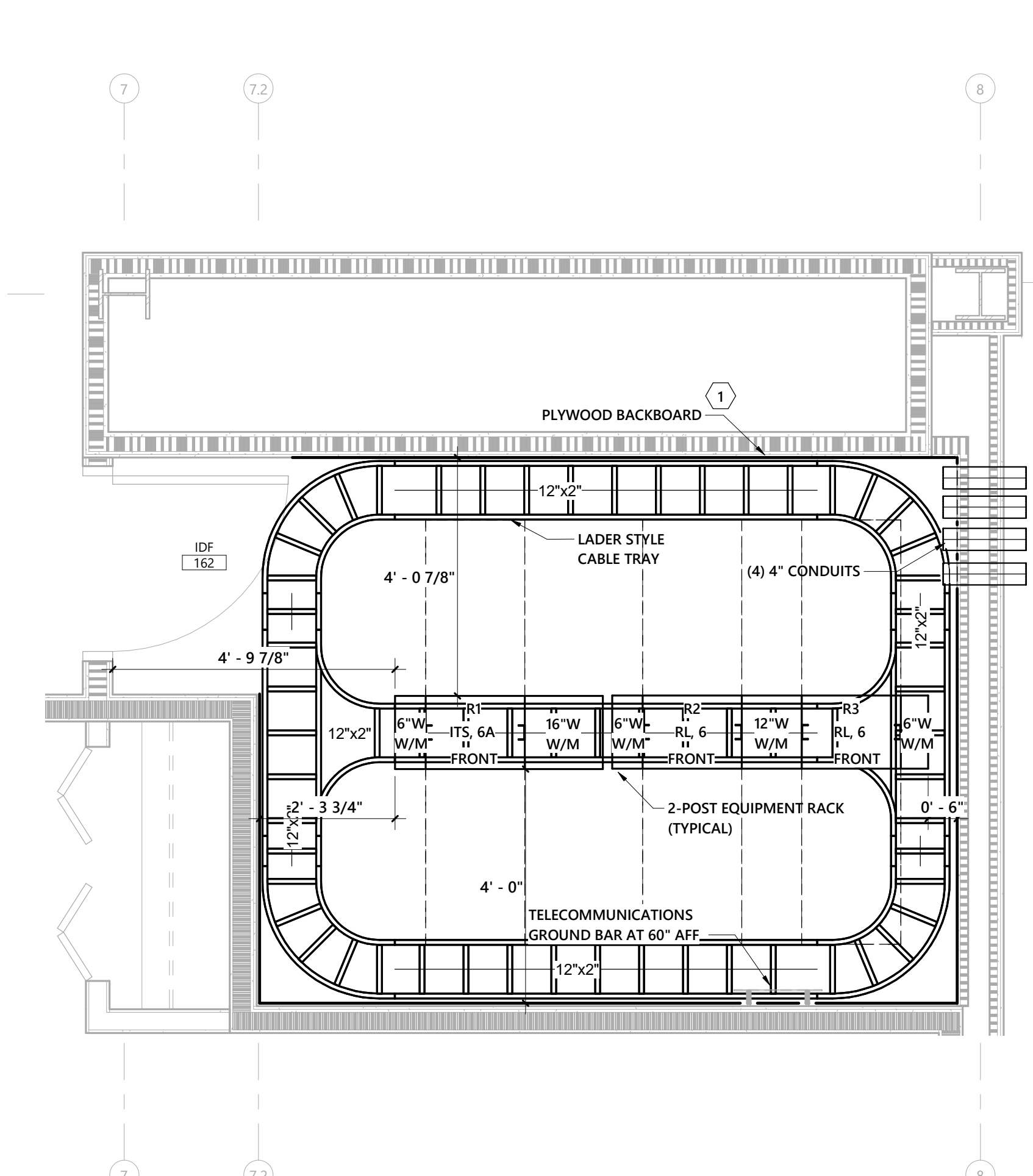
C



1 PARTIAL LOWER LEVEL TELECOMMUNICATIONS PLAN - MDF 035
1/2" = 1'-0"



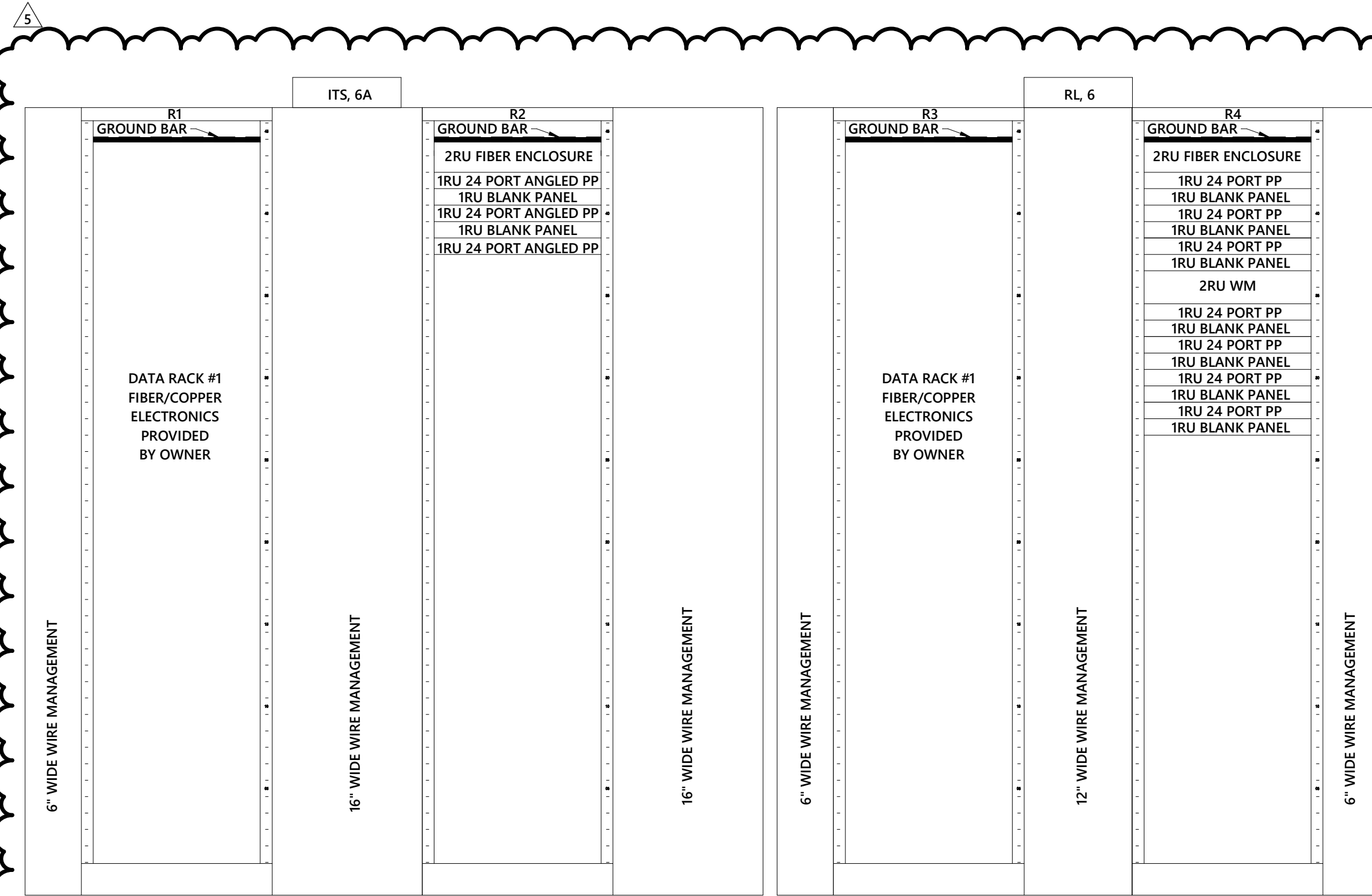
2 PARTIAL LEVEL 1 TELECOMMUNICATIONS PLAN - IDF 135
1/2" = 1'-0"



3 PARTIAL LEVEL 1 TELECOMMUNICATIONS PLAN - IDF 162
1/2" = 1'-0"

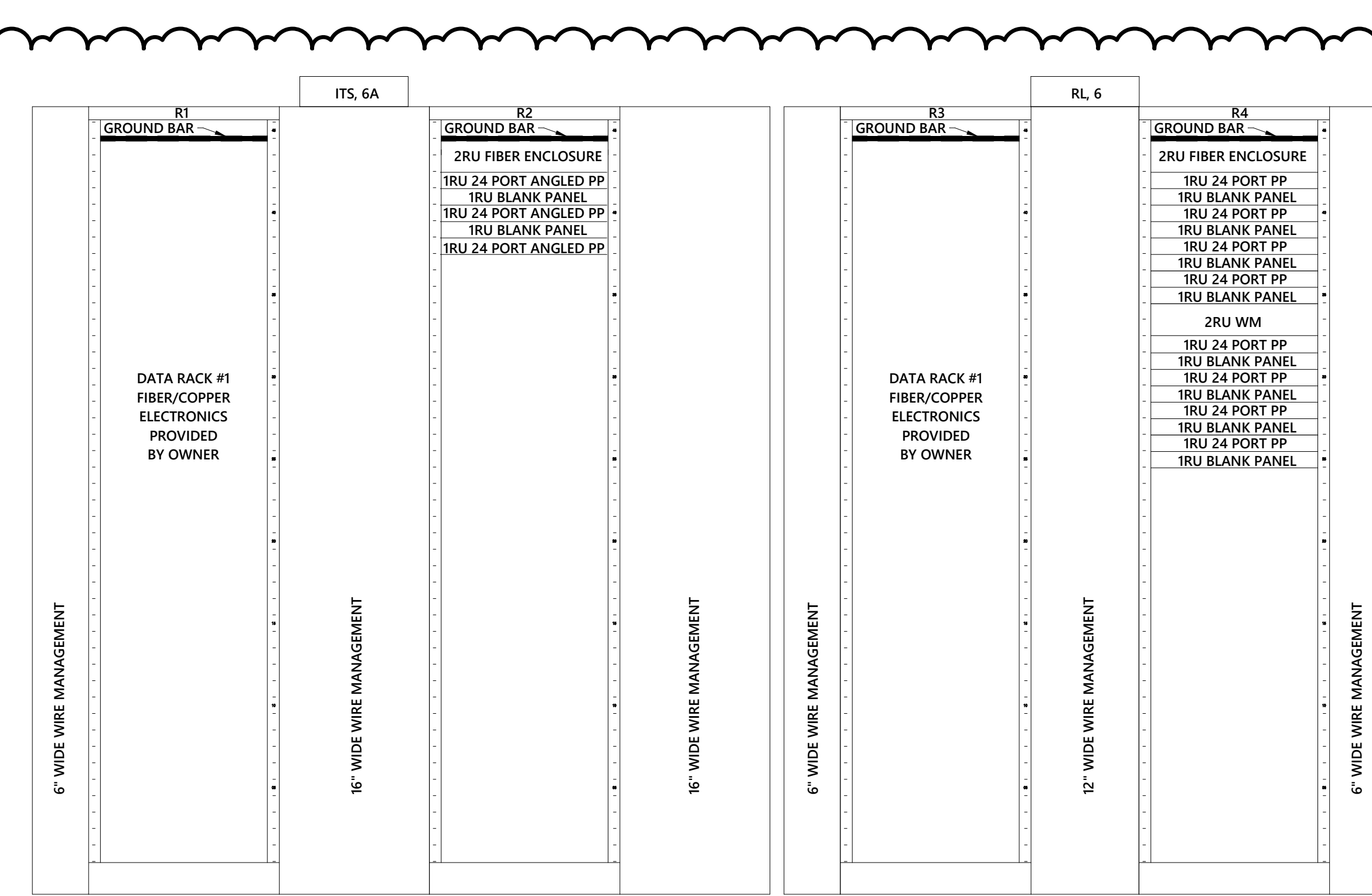
B

A



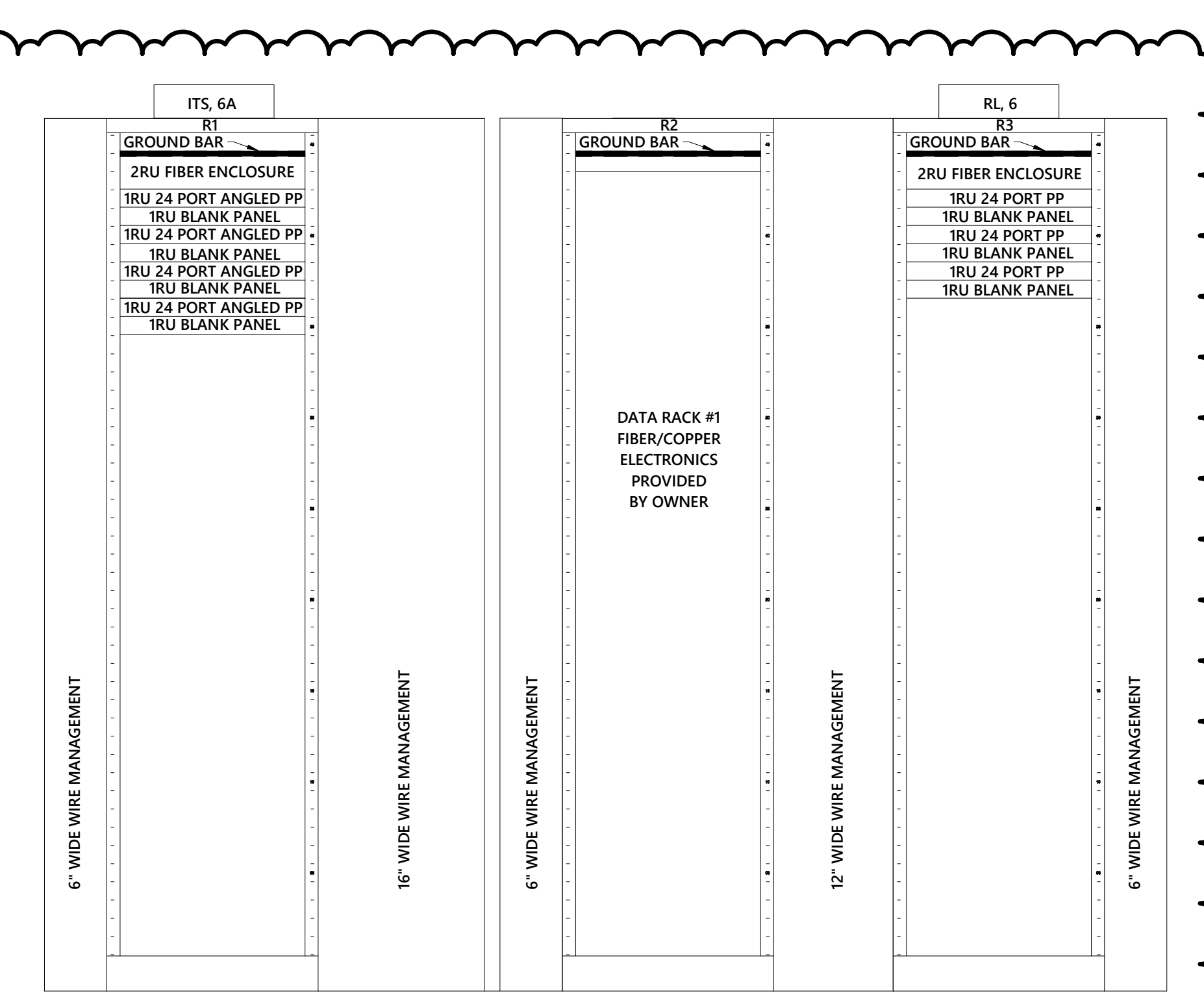
EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

4 RACK ELEVATION - MDF 035
NO SCALE



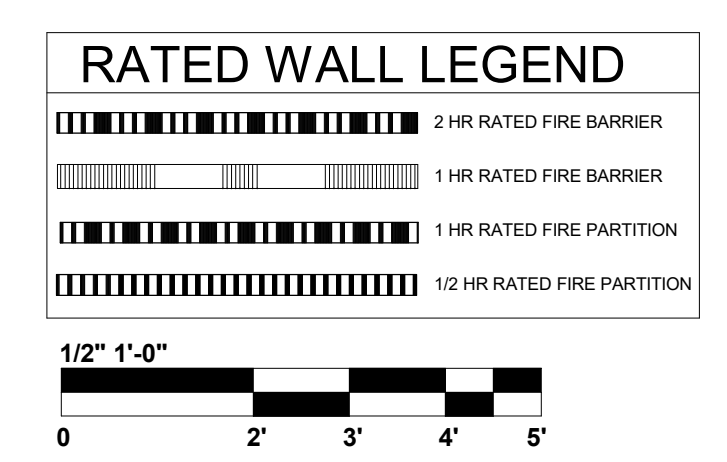
EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

5 RACK ELEVATION - IDF 135
NO SCALE



EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

6 RACK ELEVATION - IDF 162
NO SCALE



TC-501



11/26/2019

SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

Project: 18NCC016

Drawn By: TMC

Designed By: TMC

Checked By: RVA

Date: 10/23/19

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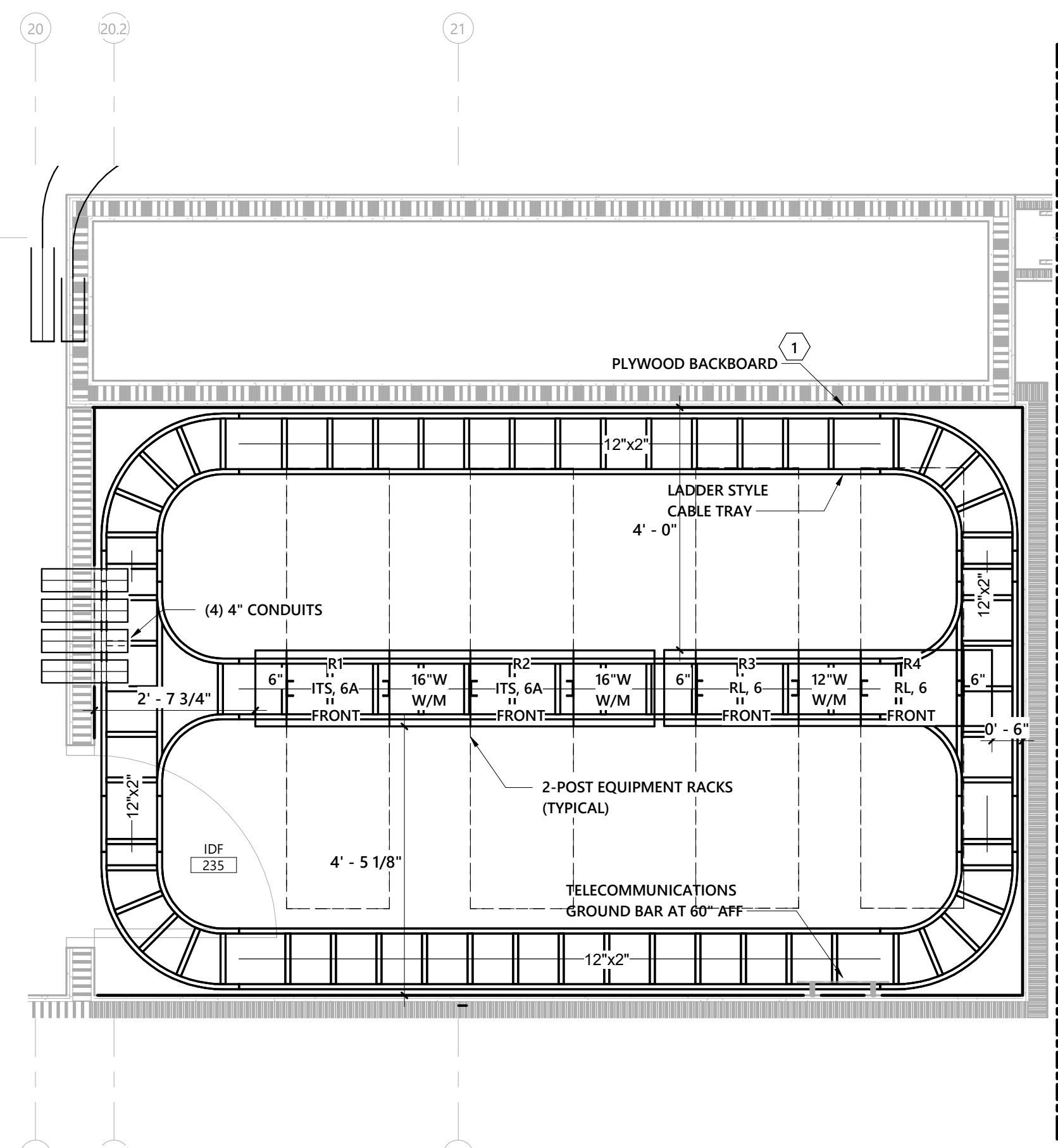
**ENLARGED
TELECOMMUNICATIONS
ROOMS-LEVEL 2**

GENERAL NOTES:

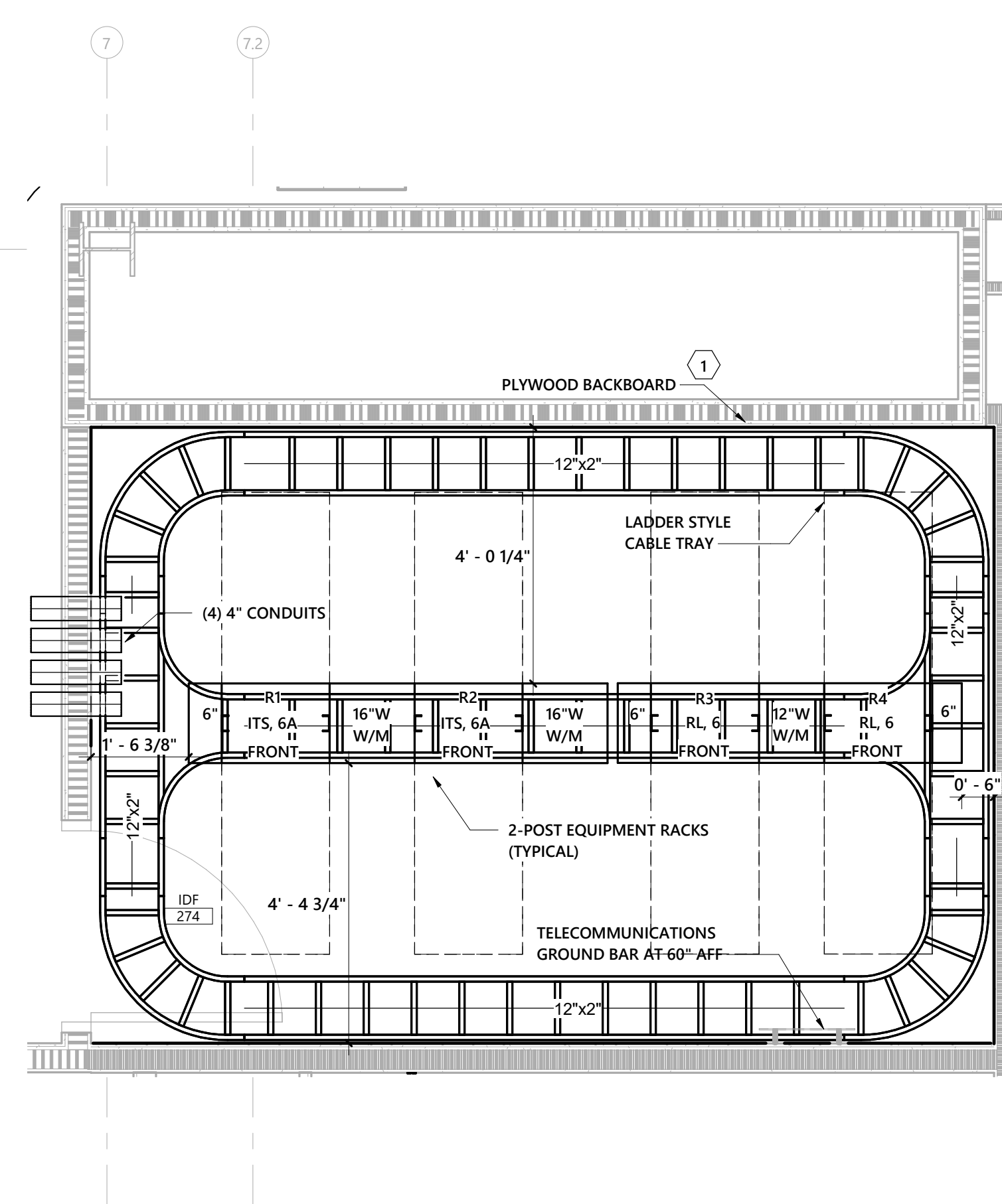
- A) PROVIDE 8' HIGH PLYWOOD BACKBOARD ON AT LEAST TWO WALLS. MANUFACTURER'S STAMP MUST BE VISIBLE FOR BUILDING INSPECTOR.

DRAWING NOTES: (X)

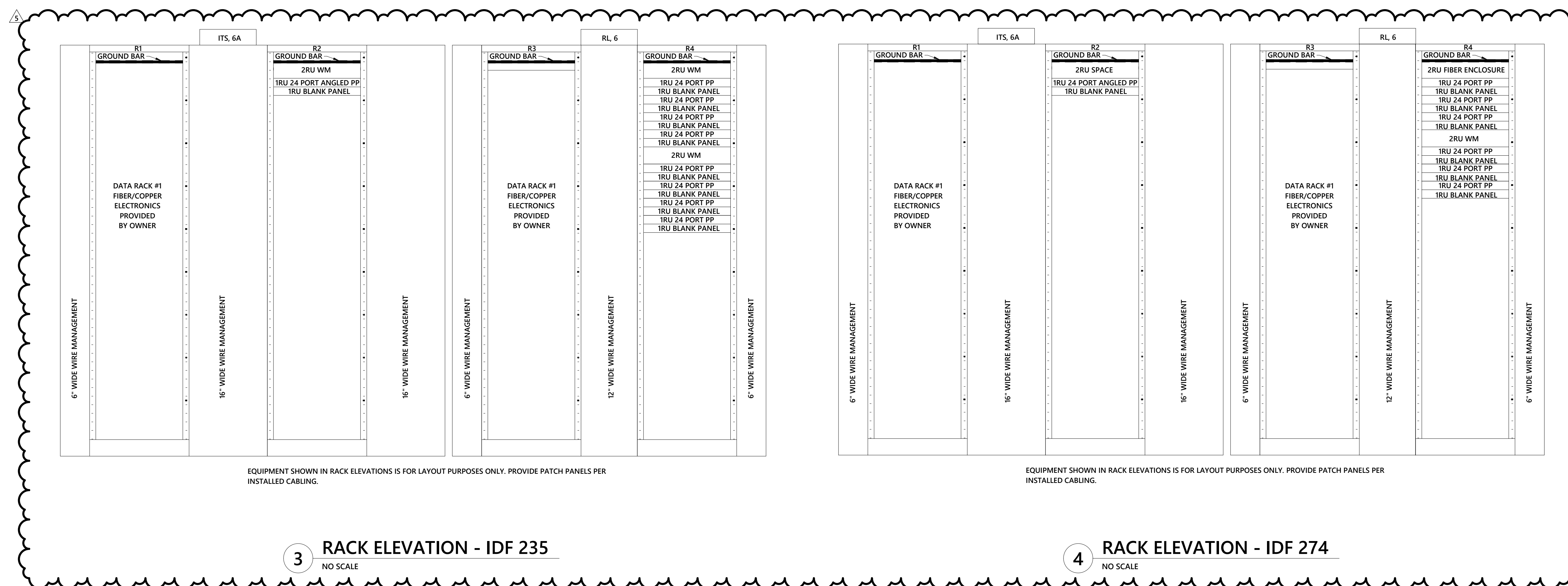
1. PROVIDE - TYPE A/C, 3/4" THICK PLYWOOD BACKBOARD. PLYWOOD SHALL BE FIRE RETARDANT OR PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT. MOUNT PLYWOOD BACKBOARD AT 8" AFF.



1 PARTIAL LEVEL 2 TELECOMMUNICATIONS PLAN - IDF 235
1/2" = 1'-0"



2 PARTIAL LEVEL 2 TELECOMMUNICATIONS PLAN - IDF 274
1/2" = 1'-0"



3 RACK ELEVATION - IDF 235
NO SCALE

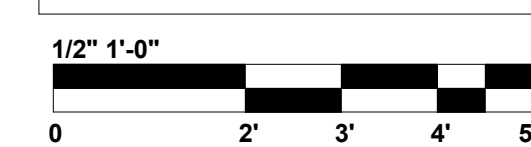
4 RACK ELEVATION - IDF 274
NO SCALE

EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

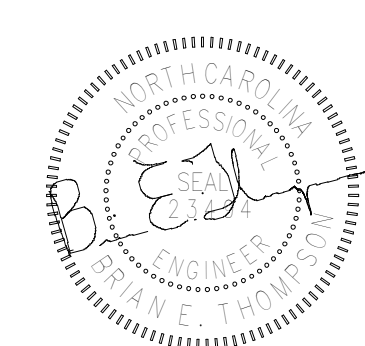
RATED WALL LEGEND

[Symbol]	2 HR RATED FIRE BARRIER
[Symbol]	1 HR RATED FIRE BARRIER
[Symbol]	1 HR RATED FIRE PARTITION
[Symbol]	1/2 HR RATED FIRE PARTITION



PROJECT NORTH
TRUE NORTH
HARD BID SET

TC-502



11/26/2019

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PHASE XVI

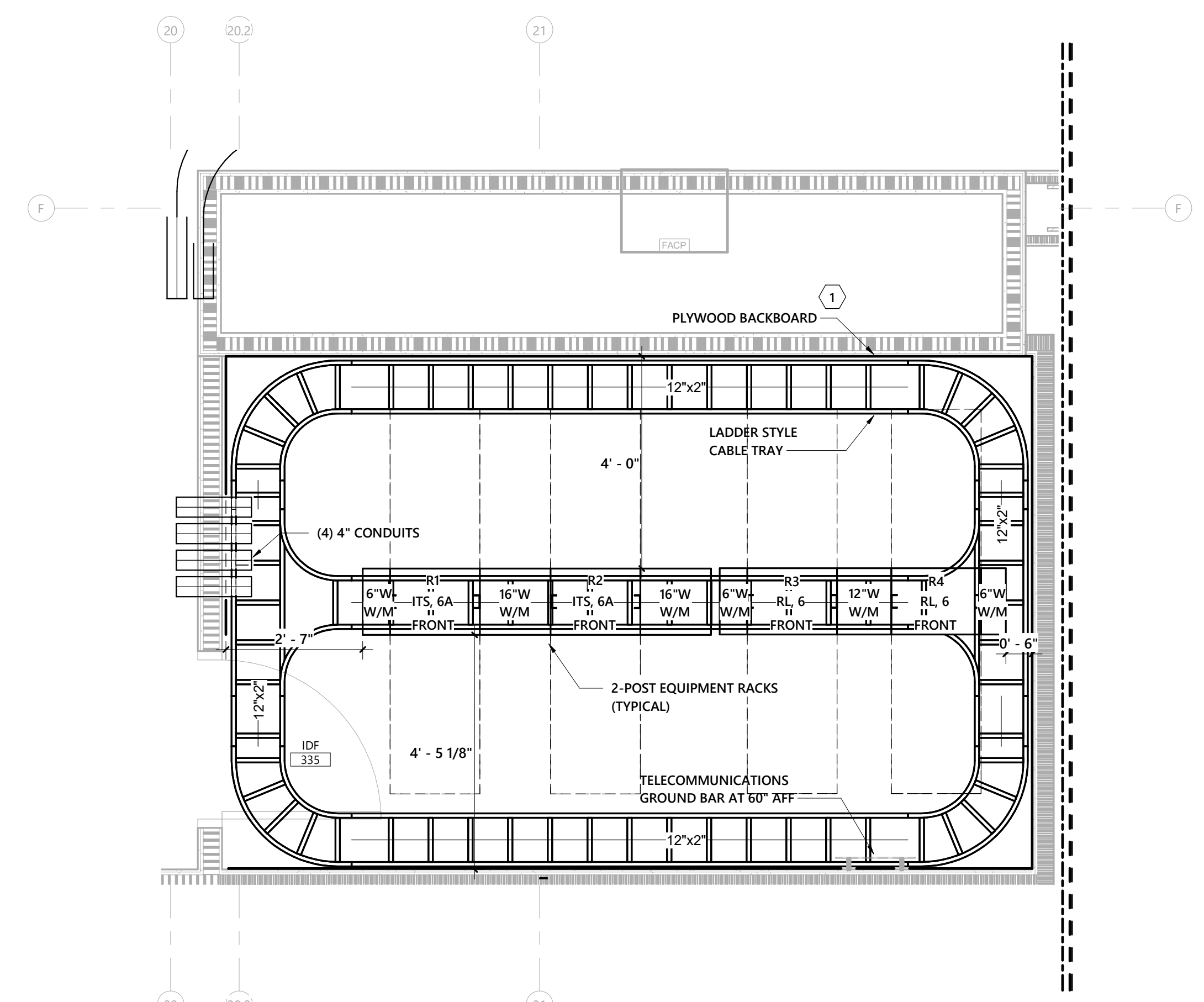
SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

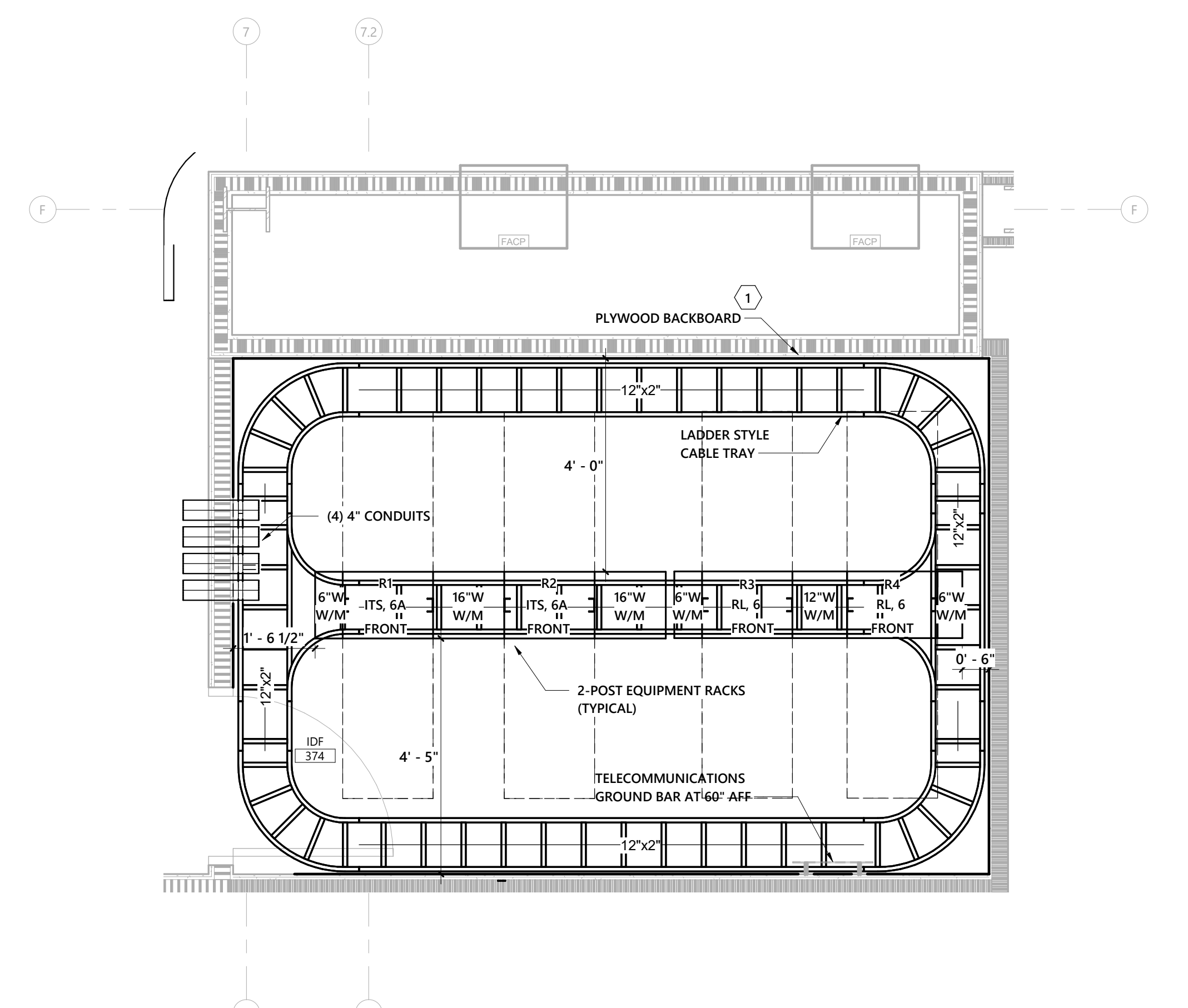
Project: 18NCC016
Drawn By: TMC
Designed By: TMC
Checked By: RVA
Date: 10/23/19
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**ENLARGED
TELECOMMUNICATIONS
ROOMS-LEVEL 3**

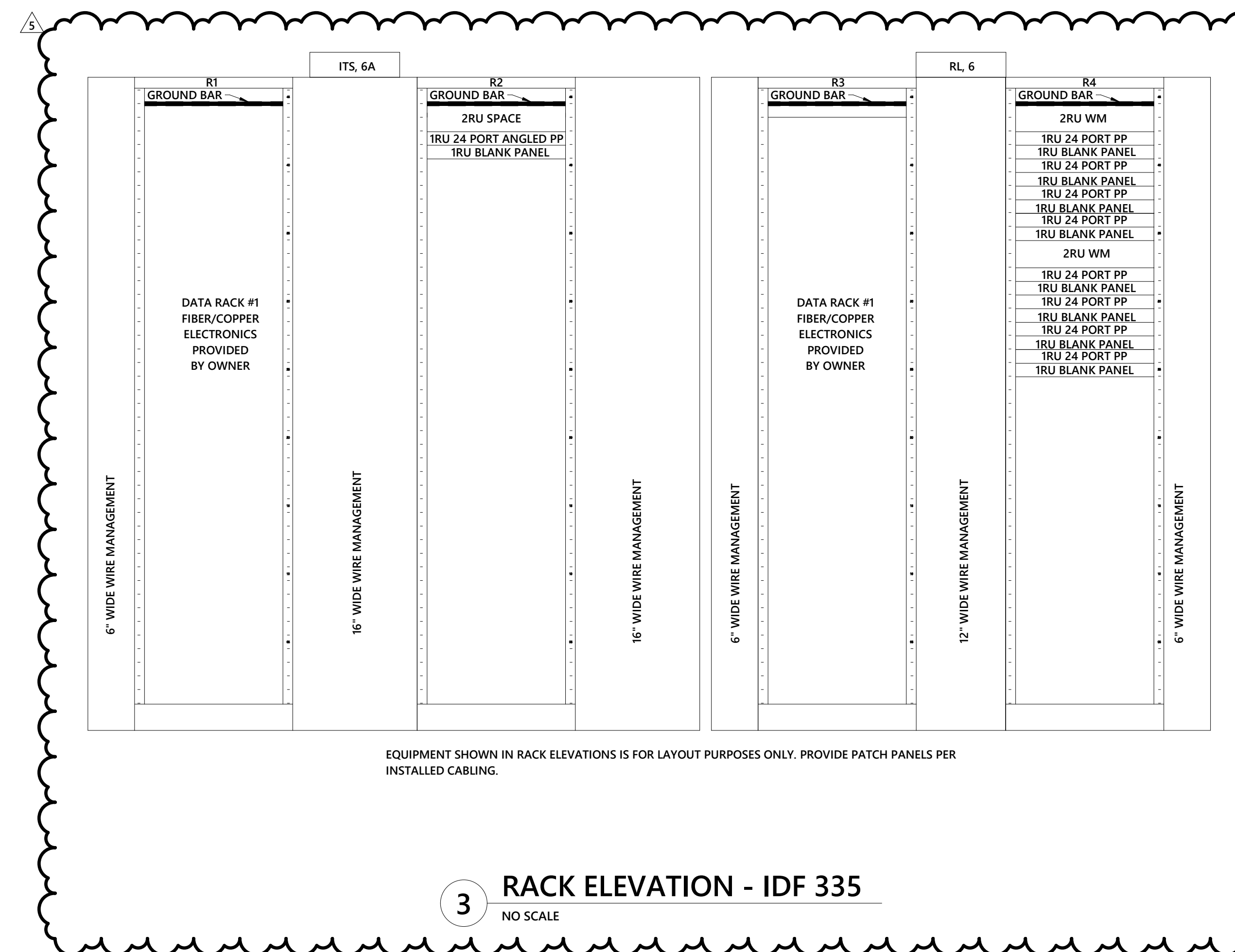
- GENERAL NOTES:
- A) PROVIDE 8' HIGH PLYWOOD BACKBOARD ON AT LEAST TWO WALLS. MANUFACTURER'S STAMP MUST BE VISIBLE FOR BUILDING INSPECTOR.
- DRAWING NOTES: (X)
- 1. PROVIDE - TYPE A/C, 3/4" THICK PLYWOOD BACKBOARD. PLYWOOD SHALL BE FIRE RETARDANT OR PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT. MOUNT PLYWOOD BACKBOARD AT 8" AFF.



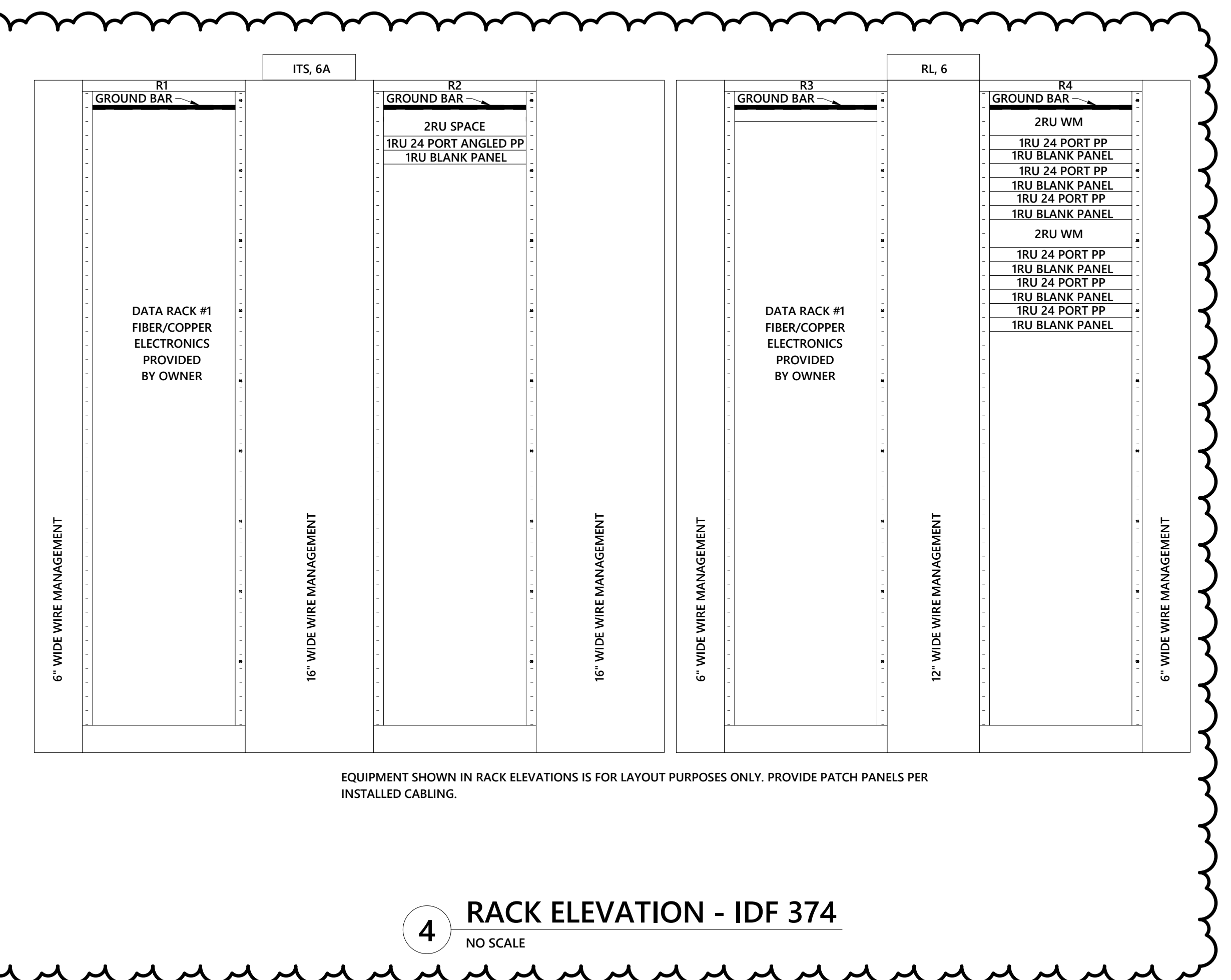
1 PARTIAL LEVEL 3 TELECOMMUNICATIONS PLAN - IDF 335
1/2" = 1'-0"



2 PARTIAL LEVEL 3 TELECOMMUNICATIONS PLAN - IDF 374
1/2" = 1'-0"



3 RACK ELEVATION - IDF 335
NO SCALE



4 RACK ELEVATION - IDF 374
NO SCALE

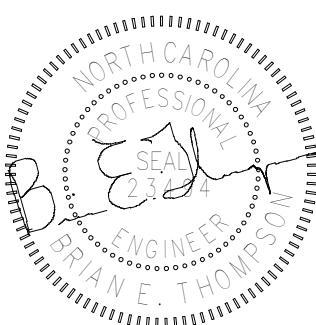
RATED WALL LEGEND

- 2 HR RATED FIRE BARRIER
- 1 HR RATED FIRE BARRIER
- 1 HR RATED FIRE PARTITION
- 1/2 HR RATED FIRE PARTITION

PROJECT NORTH TRUE NORTH

HARD BID SET

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11/26/2019

SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

Project: 18NCC016

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Designed By: TMC

Checked By: RVA

Date: 10/23/19

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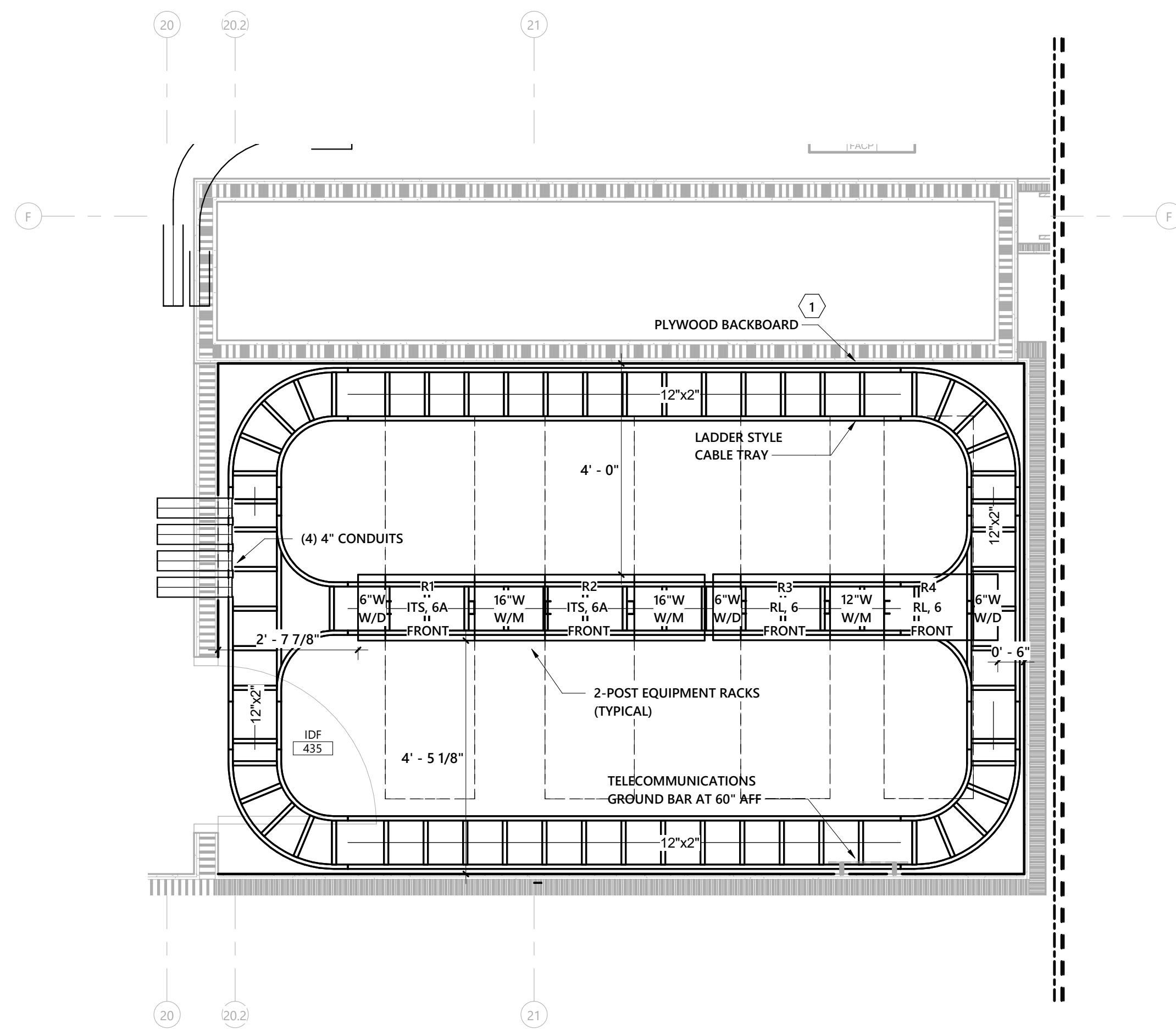
**ENLARGED
TELECOMMUNICATIONS
ROOMS-LEVEL 4**

GENERAL NOTES:

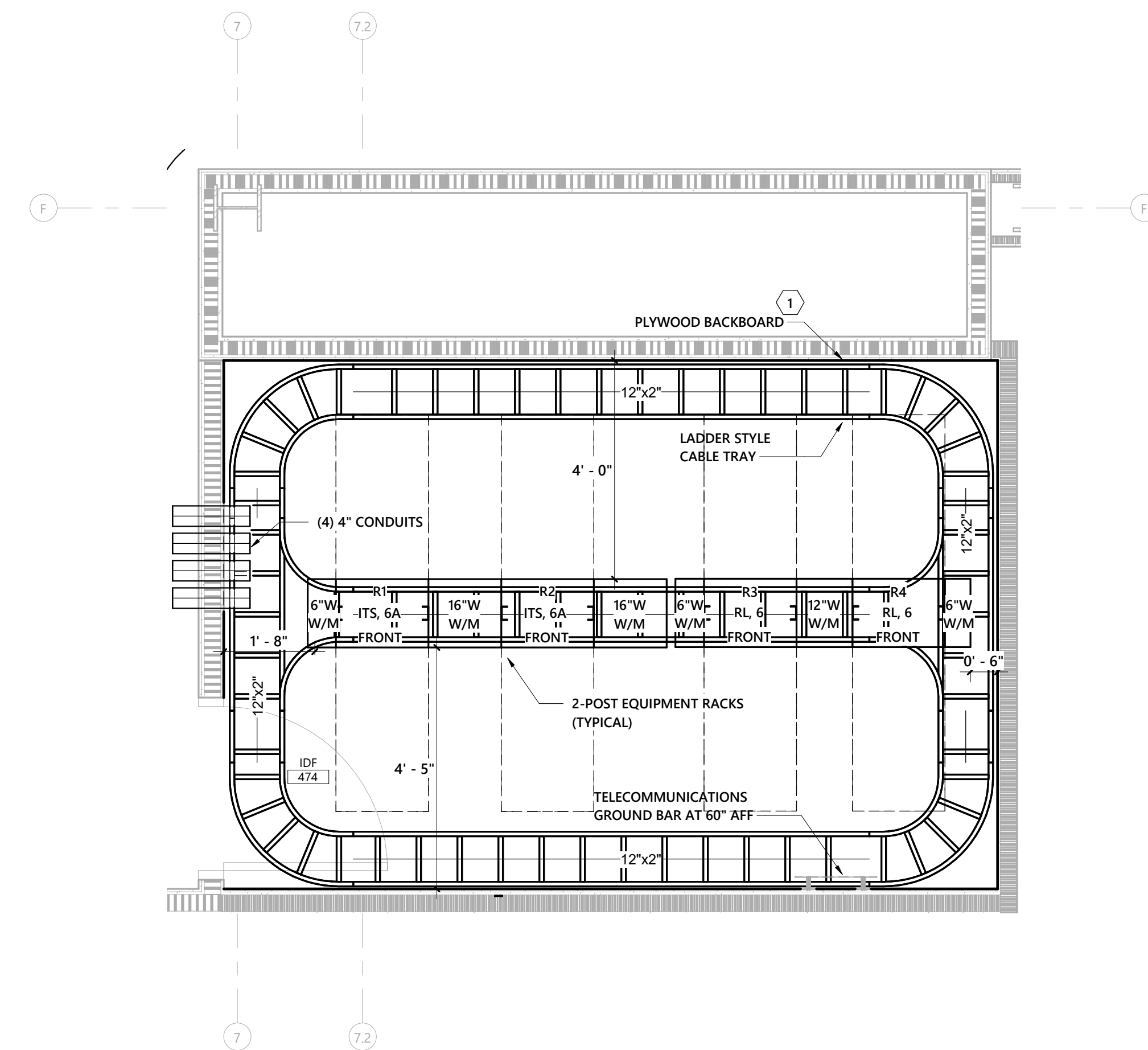
A) PROVIDE 8' HIGH PLYWOOD BACKBOARD ON AT LEAST TWO WALLS. MANUFACTURER'S STAMP MUST BE VISIBLE FOR BUILDING INSPECTOR.

DRAWING NOTES: (X)

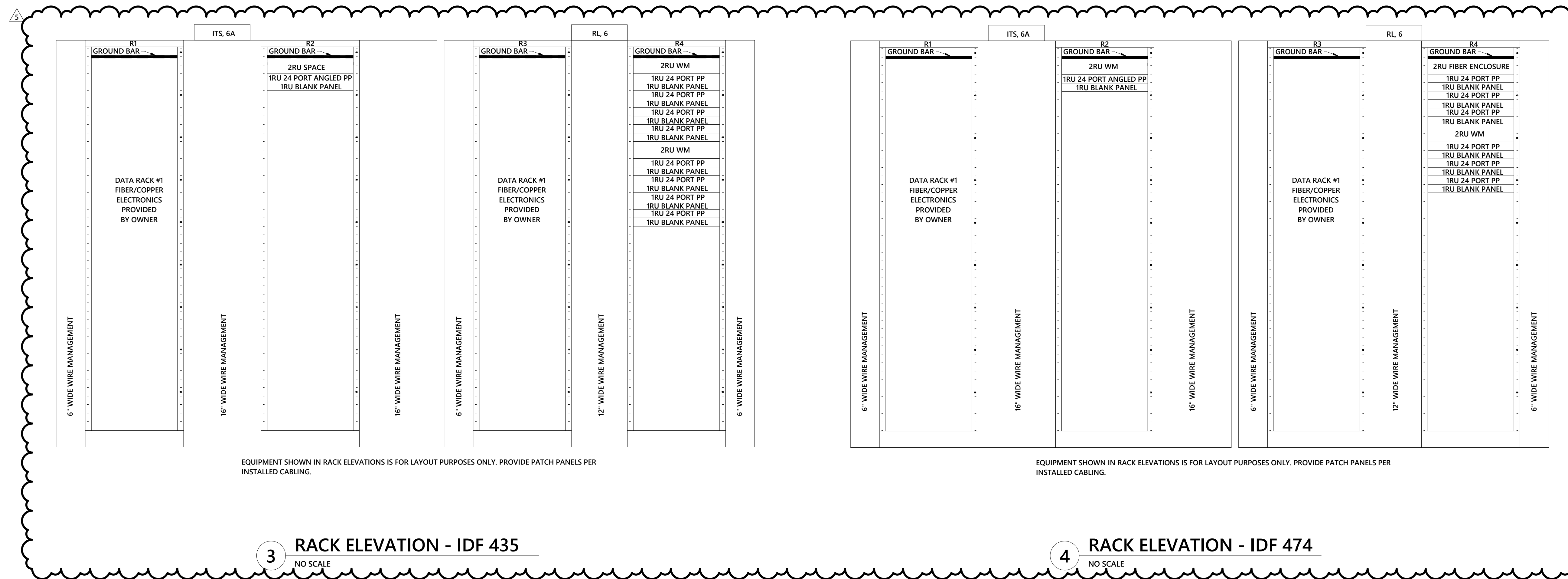
1. PROVIDE - TYPE A/C, 3/4" THICK PLYWOOD BACKBOARD. PLYWOOD SHALL BE FIRE RETARDANT OR PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT. MOUNT PLYWOOD BACKBOARD AT 8" AFF.



1 PARTIAL LEVEL 4 TELECOMMUNICATIONS PLAN - IDF 435
1/2" = 1'-0"



2 PARTIAL LEVEL 4 TELECOMMUNICATIONS PLAN - IDF 474
1/2" = 1'-0"



3 RACK ELEVATION - IDF 435
NO SCALE

4 RACK ELEVATION - IDF 474
NO SCALE

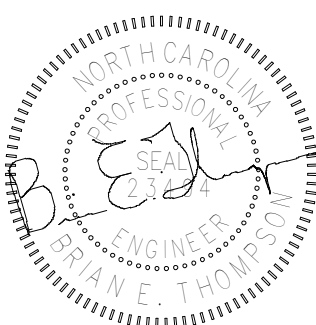
RATED WALL LEGEND

[Symbol]	2 HR RATED FIRE BARRIER
[Symbol]	1 HR RATED FIRE BARRIER
[Symbol]	1 HR RATED FIRE PARTITION
[Symbol]	1/2 HR RATED FIRE PARTITION



HARD BID SET

TC-504



11/26/2019

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SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

Project: 18NCC016

Drawn By: TMC

Designed By: TMC

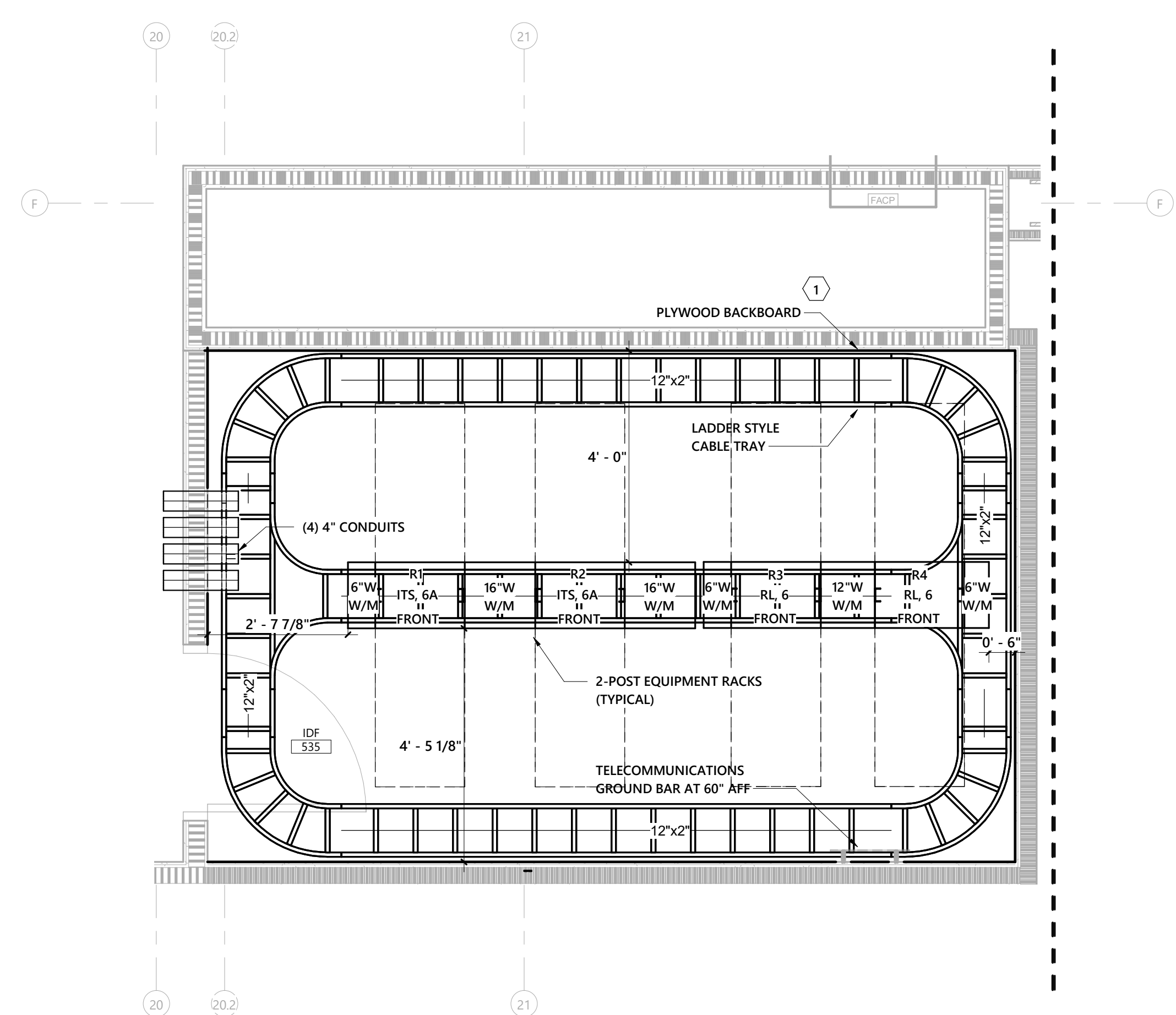
Checked By: RVA

Date: 10/23/19

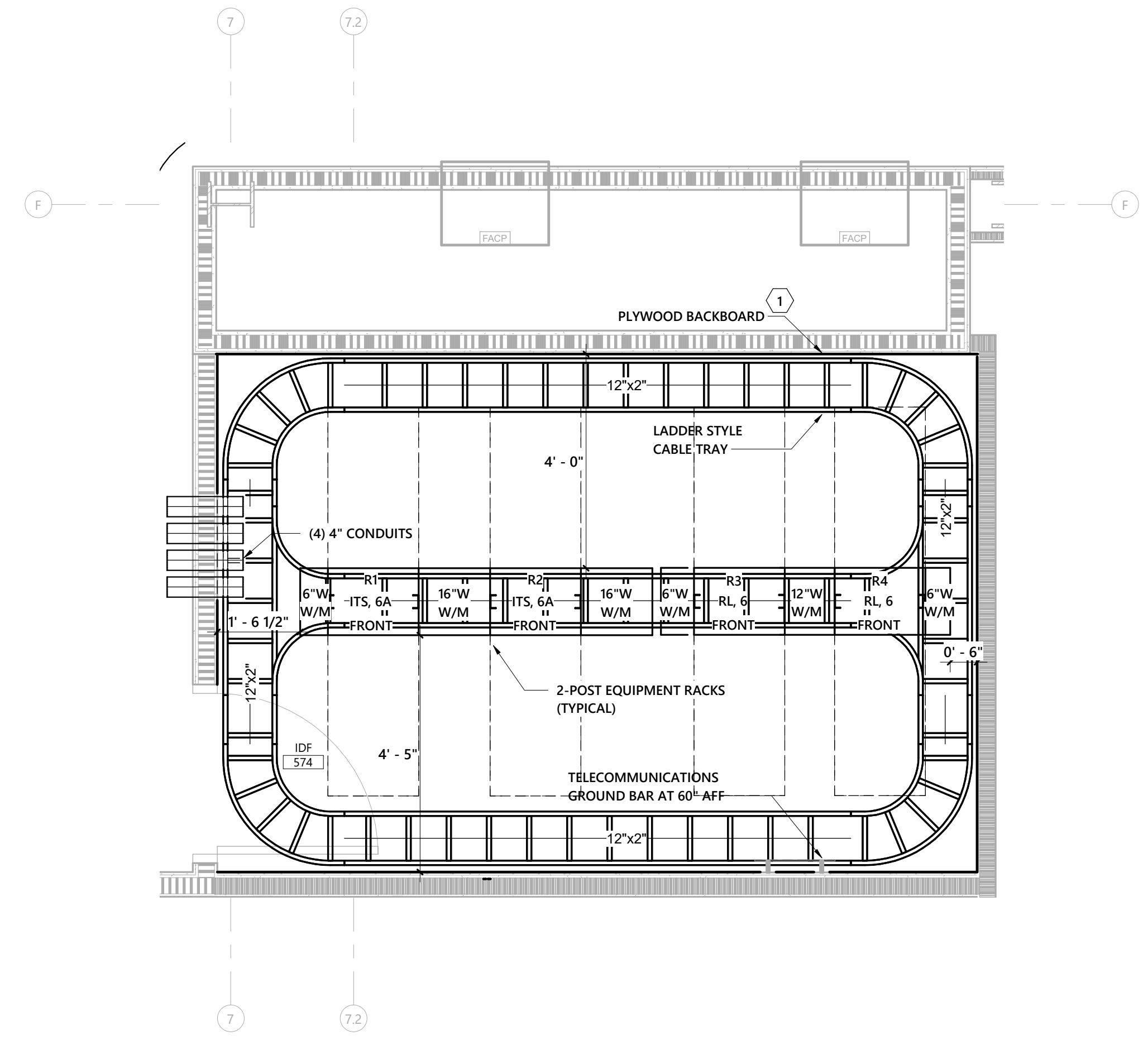
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**ENLARGED
TELECOMMUNICATIONS
ROOMS-LEVEL 5**

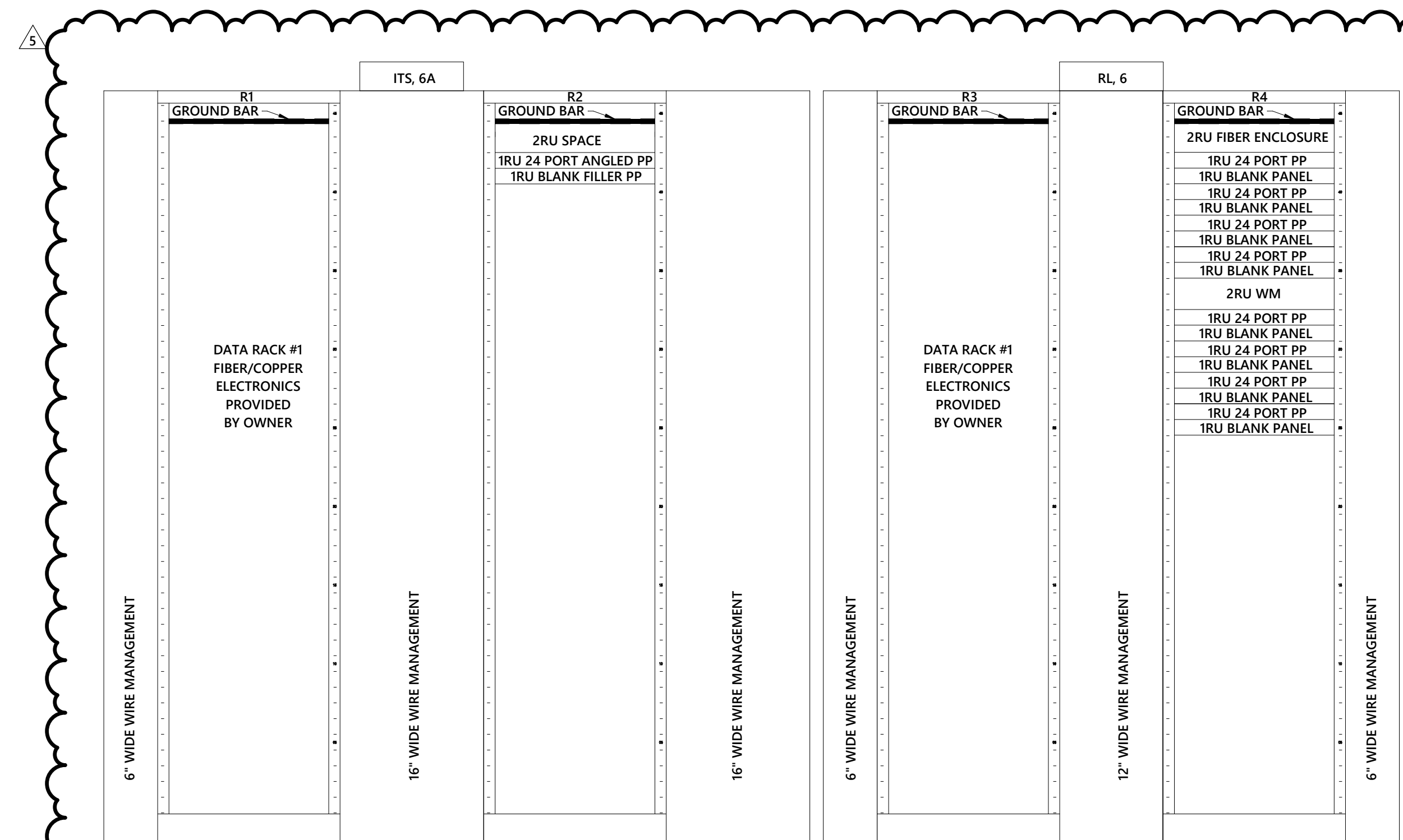
- GENERAL NOTES:
- A) PROVIDE 8' HIGH PLYWOOD BACKBOARD ON AT LEAST TWO WALLS. MANUFACTURER'S STAMP MUST BE VISIBLE FOR BUILDING INSPECTOR.
- DRAWING NOTES: (X)
- 1. PROVIDE - TYPE A/C, 3/4" THICK PLYWOOD BACKBOARD. PLYWOOD SHALL BE FIRE RETARDANT OR PAINTED WITH TWO COATS OF FIRE RETARDANT PAINT. MOUNT PLYWOOD BACKBOARD AT 8" AFF.



1 PARTIAL LEVEL 5 TELECOMMUNICATIONS PLAN - IDF 535
1/2" = 1'-0"

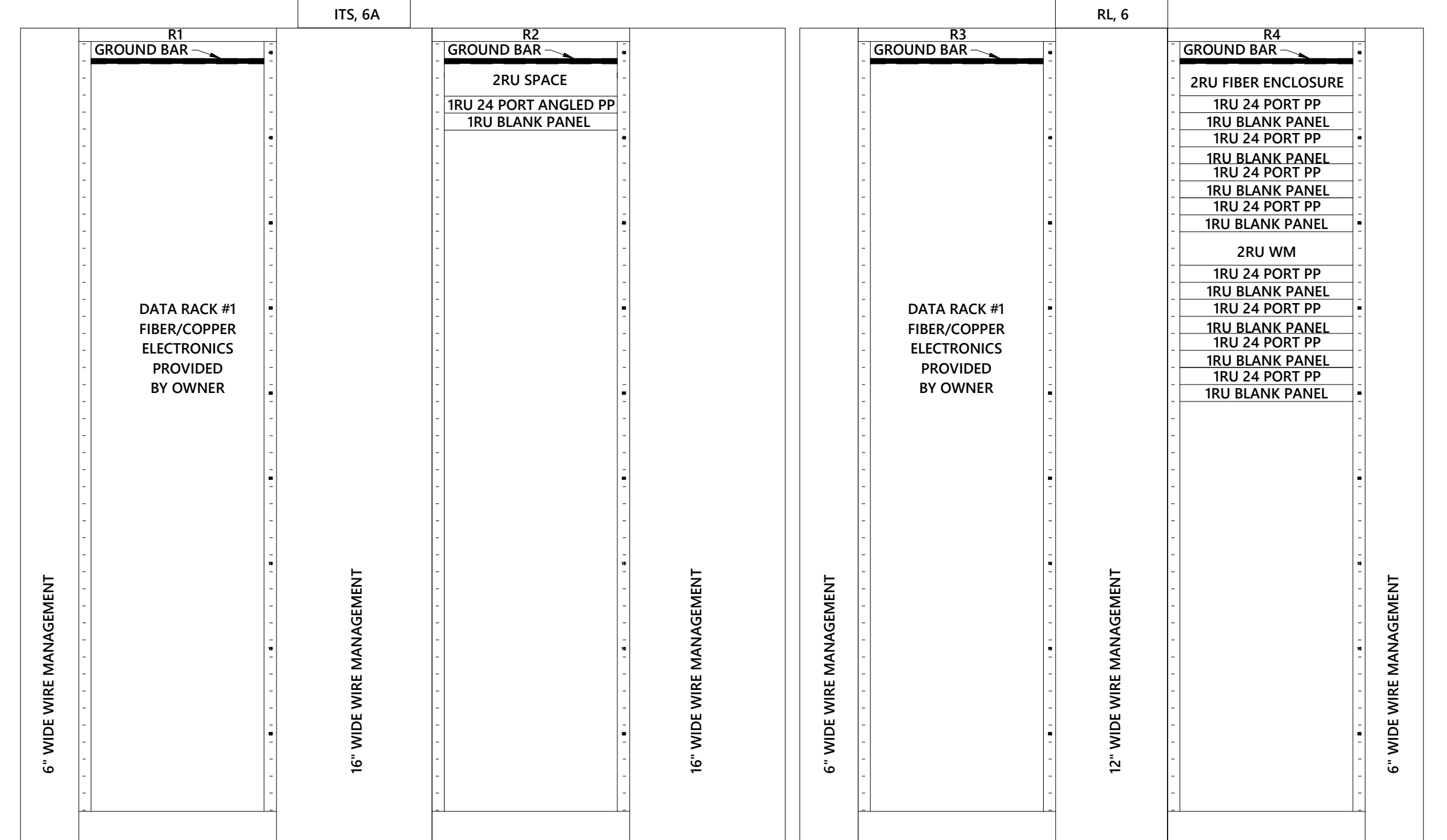


2 PARTIAL LEVEL 5 TELECOMMUNICATIONS PLAN - IDF 574
1/2" = 1'-0"



EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

3 RACK ELEVATION - IDF 535
NO SCALE



EQUIPMENT SHOWN IN RACK ELEVATIONS IS FOR LAYOUT PURPOSES ONLY. PROVIDE PATCH PANELS PER INSTALLED CABLING.

4 RACK ELEVATION - IDF 574
NO SCALE

RATED WALL LEGEND

- 2 HR RATED FIRE BARRIER
- 1 HR RATED FIRE BARRIER
- 1 HR RATED FIRE PARTITION
- 1/2 HR RATED FIRE PARTITION

PROJECT NORTH TRUE NORTH

HARD BID SET

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18-0001 UNCC - Phase XVI - R-0001 UNCC PH-VI-MEP_V17 General.rvt
 11/26/2019 10:58:11 AM



11/26/2019

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 PHASE XVI

SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

Project: 18NCC016

Drawn By: TMC

Designed By: TMC

Checked By: RVA

Date: 10/23/19

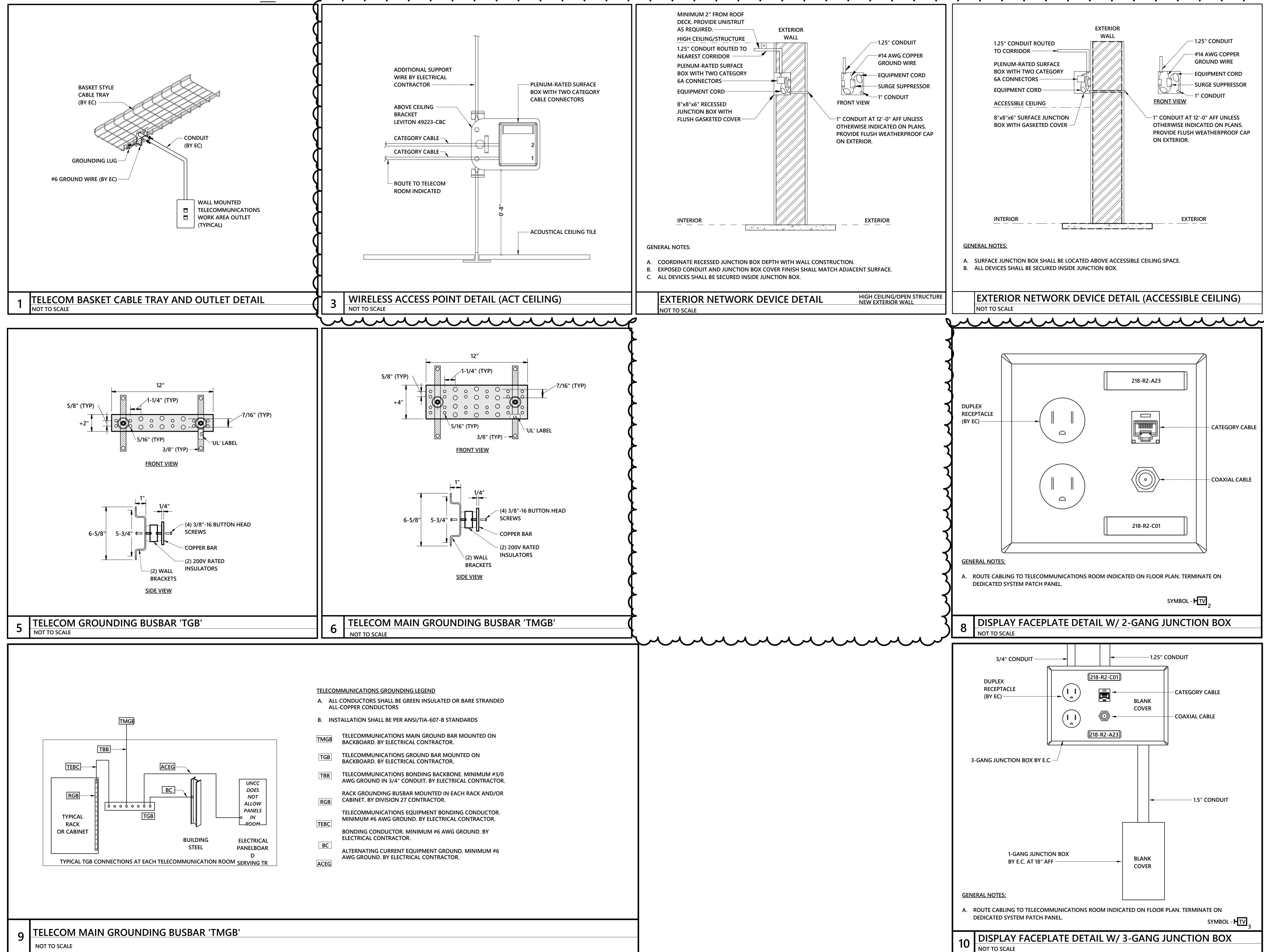
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TELECOMMUNICATIONS
 DETAILS

HARD BID SET

TC-601

Optima # 18-0001 Sheet 25 of 26

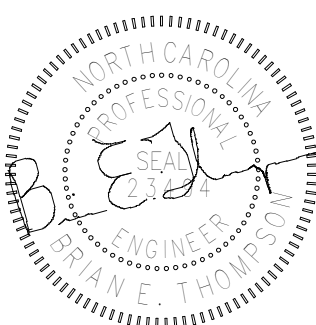


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11/26/2019

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SCO ID: 18-18333-02A

TAG	DESCRIPTION	DATE
5	Addendum 5	11/26/2019

Project: 18NCC016

Drawn By: TMC

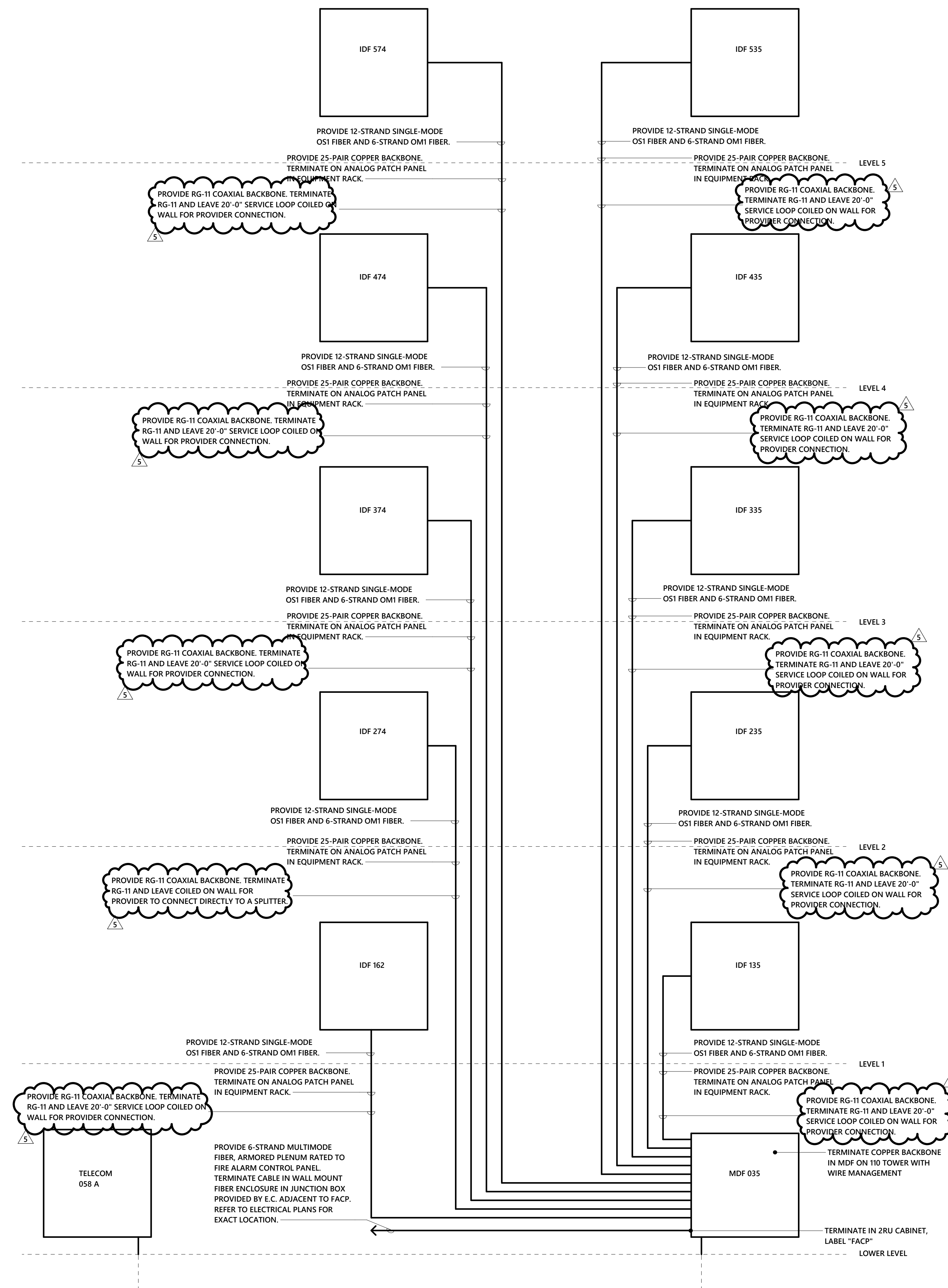
Designed By: TMC

Checked By: RVA

Date: 10/23/19

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TELECOMMUNICATION
 DISTRIBUTION
 DIAGRAM



1 TELECOMMUNICATIONS DISTRIBUTION DIAGRAM
 NO SCALE

PROJECT NORTH
 TRUE NORTH
 HARD BID SET

TC-701

BM 3661/UNCC - Phase XVI/18-0001 UNCC PH-XVI_MEP_V17 General.rvt

D
 C
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