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CYBERINFRASTRUCTURE DRAWINGS

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GENERAL NOTES

1. PROVIDE ALL WORK DESCRIBED IN THE TELECOMMUNICATIONS DRAWINGS UNLESS OTHERWISE NOTED.
2. THE TELECOMMUNICATIONS DRAWINGS ARE DIAGRAMMATIC IN NATURE. VERIFY FIELD CONDITIONS BEFORE STARTING THE INSTALLATION. ANY DISCREPANCIES BETWEEN THE TELECOMMUNICATIONS DRAWINGS AND ACTUAL FIELD CONDITIONS OR OTHER PROJECT DRAWINGS SHALL BE REPORTED TO THE OWNER IN A TIMELY MANNER.
3. THE TELECOMMUNICATIONS DRAWINGS ARE TO BE USED IN CONJUNCTION WITH THE ELECTRICAL (Div 26) AND TELECOMMUNICATIONS SPECIFICATIONS (Div 27). WHERE DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS EXIST, THESE DRAWINGS SHALL TAKE PRECEDENCE.
4. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE NATIONAL ELECTRICAL CODE, ALL APPLICABLE LOCAL CODES AND REGULATIONS, TIA/EIA TELECOMMUNICATIONS STANDARDS, BICSI STANDARDS, CONSTRUCTION STANDARDS AND INDUSTRY BEST PRACTICES AND MSHA (MINING, SAFETY AND HEALTH ADMINISTRATION).
5. PROVIDE APPROPRIATE CABLE SUPPORT (CABLE TRAYS AND CONDUITS) FOR ALL HORIZONTAL CABLING FROM CDR/CR/ER TO EACH TELECOM OUTLET FOR ENTIRE ROUTE.
6. WHEN CABLE TRAYS AND CONDUITS ARE IN CONFLICT WITH OTHER SERVICES, CONTRACTOR SHALL SUBMIT A COORDINATED SOLUTION FOR THOSE LOCATIONS AS SHOP DRAWINGS FOR EOR REVIEW BEFORE INSTALLATION.
7. ALL CABLE PATHWAYS SHALL BE CONCEALED IN WALL AND CEILING SPACES WHERE POSSIBLE UNLESS OTHERWISE NOTED.
8. ALL CABLE PATHWAYS SHALL RUN PARALLEL OR ORTHOGONAL TO WALLS, FLOORS, AND CEILINGS.
9. SURVEY/COORDINATE THE LOCATION OF MECHANICAL, PLUMBING AND OTHER EQUIPMENT AS REQUIRED, PRIOR TO WORK EXECUTION IN ORDER TO PROPERLY COORDINATE CABLE PATHWAYS.
10. ALL CONDUITS SHALL BE DEBURRED, CLEANED, CAPPED, TAGGED, AND FURNISHED WITH MEASURED PULL TAPE. THE CONTRACTOR SHALL ALSO PROVIDE PLASTIC BUSHINGS AT ALL SLEEVE AND OPEN CONDUIT ENDS.
11. THE MINIMUM BEND RADIUS FOR CONDUITS SHALL BE AS FOLLOWS:
    - 2" OR LESS IN DIAMETER SHALL BE 6 TIMES THE INTERNAL CONDUIT DIAMETER.
    - LARGER THAN 2" IN DIAMETER SHALL BE 10 TIMES THE INTERNAL CONDUIT DIAMETER PATHWAYS SHOWN ON THE FLOOR PLANS ARE DIAGRAMMATIC AND NOT INTENDED TO SHOW EXACT BEND RADIUS.
12. WHEN PENETRATING THE SLAB SLEEVES SHALL BE CUT A MINIMUM OF 3" ABOVE THE FINISHED SLAB.
13. PROVIDE A PULL BOX IN CONDUIT RUNS SUCH THAT:
    - MAXIMUM CONTINUOUS CONDUIT RUN SHALL NOT EXCEED 100FT
    - NO MORE THAN TWO 90 DEGREE BENDS AND NO MORE THAN 180 DEGREE OF TOTAL OFFSET ALLOWED IN A CONTINUOUS CONDUIT RUN
    - THERE IS AT LEAST ONE PULL BOX PER REVERSE (U-SHAPED) BEND) IN CONDUIT RUN
    - IT IS LOCATED IN THE STRAIGHT SECTION OF A CONDUIT AND NOT IN LIEU OF A BEND
    - ALL PULL BOXES ARE ACCESSIBLE AND HAVE REMOVABLE COVERS. A SELECT NUMBER OF PULL BOXES ARE SHOWN ON THE FLOOR PLAN FOR COORDINATION PURPOSES. CONTRACTOR TO FIELD COORDINATE BEFORE INSTALLATION.
14. THE CONTRACTOR SHALL USE THE FOLLOWING CRITERIA WHEN INSTALLING CABLE TRAY AND LADDER RACK:
    - PROVIDE 3" MINIMUM CLEARANCE BELOW THE TRAY/RACK
    - PROVIDE 1'-0" MINIMUM CLEARANCE ABOVE THE TRAY/RACK MEASURED FROM THE TOP MOST SURFACE OF THE TRAY/RACK
    - PROVIDE 1'-0" MINIMUM CLEAR ACCESS ON ONE SIDE OF THE TRAY/RACK SUCH THAT THE TRAY CAN BE ACCESSED AT LEAST ONCE EVERY 10'-0"
    - PROVIDE VERTICAL LADDER RACK WHEN SLEEVES/CONDUITS ENTERING THE TELECOM SPACES ARE INSTALLED MORE THAN 10'-0" ABOVE FINISHED FLOOR. INSTALL THE LADDER RACK FROM THE BOTTOM OF THE SLEEVE TO THE TOP OF THE HORIZONTAL LADDER RACK FOR LASHING OF CABLES IN THE VERTICAL RUN.
    - THERE SHALL BE NO OTHER EQUIPMENT, LIGHTS, CONDUITS, FIXTURES, ETC. ATTACHED TO, MOUNTED ON, RUNNING THROUGH OR ON THE TRAY/RACK EXCEPT THOSE NEEDED TO SUPPORT THE TRAY/RACK SYSTEMS.
15. WHENEVER CABLE TRAY OR CONDUIT PULL BOXES ARE INSTALLED ABOVE INACCESSIBLE CEILINGS, ACCESS PANELS SHALL BE PROVIDED. SIZE OF ACCESS PANELS SHALL BE MINIMUM 24" x 24". FOR CABLE TRAY ACCESS, SPACING BETWEEN ACCESS PANELS SHALL BE NO MORE THAN 10' APART. LOCATIONS SHALL BE COORDINATED WITH ARCHITECT AND OTHER TRADES TO CONSOLIDATE AND MINIMIZE THE QUANTITY. CONDUIT FROM OUTLETS SHALL BE TERMINATED WITHIN 2' OF AN ACCESS PANEL FOR ACCESS.
16. RE-ESTABLISH THE FIRE RATING OF ALL PENETRATIONS MADE THROUGH FIRE RATED FLOORS OR WALLS.
17. ALL HORIZONTAL PATHWAYS SHALL BE ROUTED SUCH THAT THE TOTAL HORIZONTAL END TO END CABLE LENGTHS FOR STATION CABLING SHALL NOT EXCEED 295FT. IF THIS REQUIREMENT CAN NOT BE MET, NOTIFY THE OWNER PRIOR TO PATHWAY INSTALLATION.
18. CONDUIT ROUTES AND PULL BOX SIZING, QUANTITY AND PLACEMENT ARE TO BE COORDINATED IN THE FIELD. THE CONTRACTOR SHALL PROVIDE ALL LENGTHS OF CONDUITS, PULL BOXES AND REQUIRED COMPONENTS NECESSARY TO ACHIEVE A COMPLETE INSTALLATION. IT IS NOT THE INTENT OF THESE DOCUMENTS TO SHOW EVERY CONDUIT ROUTE, NOR ARE THE ROUTES SHOWN TO BE ASSUMED AS THE INSTALLED CONDITION. RATHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CONDUIT ROUTES WITH THE STRUCTURE AND ALL OTHER BUILDING SYSTEMS AND SHALL THEREFORE ASSUME FOR PRICING THAT MATERIAL QUANTITIES ARE NOT DEPENDENT UPON THOSE ROUTES SHOWN.
19. ALL CONDUIT FITTINGS SHALL BE APPROVED FOR USE AS PART OF TELECOMMUNICATIONS SYSTEM PATHWAYS PER BICSI GUIDELINES.
20. THE CONTRACTOR MAY CONSOLIDATE INDIVIDUAL CONDUIT PATHWAYS DIRECTLY SERVING TELECOMMUNICATIONS OUTLETS INTO FEWER AND LARGER CONDUIT. ALL CONDUIT FILL CALCULATIONS SHALL INCLUDE AN ALLOWANCE FOR 25% GROWTH. ALL CONDUIT CONSOLIDATIONS SHALL COMPLY WITH TIA STANDARDS AND BICSI GUIDELINES IN GENERAL AND SPECIFICALLY FOR CAPACITY AND DERATING FOR CONDUIT BENDS.
21. LABEL ALL TELECOMMUNICATIONS COMPONENTS ACCORDING TO THE TIA/EIA STANDARDS AND THE PRESCRIBED OWNER LABELING SCHEME.
22. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING OF OUTLETS.
23. BOTH HORIZONTAL AND BACKBONE CABLES SHALL BE CONCEALED IN CABLE TRAYS AND CONDUITS ONCE THEY EXIT THE CDR/CE/CR AND ARE TERMINATED AT THE FACEPLATES.
24. FOR THE CABLE TRAYS SHOWN ON THE PLANS, PROVIDE ALL THE REQUIRED FITTINGS WHEN TURNING, BRANCHING OUT OR TRANSITIONING TO CONDUITS
25. PROVIDE (1) 1 1/2" FOR BACKBONE FROM CABLE TRAY TO EVERY COMMUNICATIONS ENCLOSURE LOCATION

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
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LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
SHEET LIST AND GENERAL NOTES

DRAWING NO. **15-1-6K U1-FD-T-001** REV. **6**

10/01/20

NOT FOR CONSTRUCTION

OUTLET: TYPES & CABLING

SYMBOL	DESCRIPTION
X # ▽	DATA OUTLET PROVIDE 4-PAIR UTP CATEGORY 6A CABLES, UON. # DENOTES THE NUMBER OF CABLES. WHERE USED, 'X' DENOTES SYSTEM ID FOR WHICH OUTLET IS PROVIDED. REFER TO OUTLET SYSTEM LEGEND AND MOUNTING LEGEND BELOW FOR ADDITIONAL REQUIREMENTS.
X # ▼	TWO WAY PAGING CALL STATION PROVIDE 2-PAIR UTP AWG 16, UON. REFER TO OUTLET SYSTEM LEGEND AND MOUNTING LEGEND BELOW FOR ADDITIONAL REQUIREMENTS.

OUTLET: MOUNTING LEGEND

SYMBOL	DESCRIPTION
▽	WALL MOUNTED OUTLET PROVIDE A 4-11/16"W x 4-11/16"H x 2½"DEEP DOUBLE GANG BACK BOX, DOUBLE GANG PLASTER RING AND 1" CONDUIT OR J-HOOKS FROM EACH OUTLET TO NEAREST ZONED CABLE TRAY OR DAQ/CE/CDR UON. OUTLETS TO BE MOUNTED AT 18" AFF, UON.
▽	FLOOR MOUNTED OUTLET REFER TO ELECTRICAL DWGS FOR FLOOR BOX DETAILS. PROVIDE 1" CONDUIT OR J-HOOKS FROM EACH OUTLET TO NEAREST ZONED CABLE TRAY OR DAQ/CE/CDR UON. COORDINATE MOUNTING WITH ARCHITECTURAL DRAWINGS.
PT ▽	POKE THRU DEVICE REFER TO ELECTRICAL DWGS FOR DETAILS. PROVIDE 1" CONDUIT OR J-HOOK FROM EACH OUTLET TO NEAREST ZONED CABLE TRAY OR DAQ/CE/CDR UON. COORDINATE MOUNTING WITH ARCHITECTURAL DRAWINGS.
◁	CEILING MOUNTED OUTLET PROVIDE A 4-11/16"W x 4-11/16"H x 2½"DEEP DOUBLE GANG BACK BOX AND 1" CONDUIT OR J-HOOKS FROM EACH OUTLET TO NEAREST ZONED CABLE TRAY OR DAQ/CE/CDR UON. OUTLETS SHALL BE MOUNTED ON UNDERSIDE OF STRUCTURE UON. COORDINATE MOUNTING WITH ARCHITECTURAL DRAWINGS.
▽	WALL SURFACE MOUNTED OUTLET PROVIDE A 4-11/16"W x 4-11/16"H x 2½"DEEP DOUBLE GANG BACK BOX, DOUBLE GANG PLASTER RING AND 1" CONDUIT OR J-HOOKS FROM EACH OUTLET TO NEAREST ZONED CABLE TRAY OR DAQ/CE/CDR UON. COORDINATE MOUNTING WITH ARCHITECTURAL RAWINGS.

OUTLET: SYSTEM LEGEND

SYSTEM ID	DESCRIPTION
AP	WIRELESS ACCESS POINT COORDINATE WITH ARCHITECT TO CONFIRM MOUNTING LOCATION. MOUNTING REQUIREMENTS: - CEILING MTD: ON NEAREST STRUCTURAL ELEMENT ABOVE ACCESSIBLE CEILINGS - WALL MTD: AT 10'-0" AFF.
PH	TWO WAY PAGING CALL STATION PROVIDE A 2- 3/4"W x 2-3/4"H x 2-3/4"D JUNCTION BOX, PROVIDE 1" CONDUIT FROM EACH BOX TO NEAREST CABLE TRAY UON. MOUNTING HEIGHT: +48"AFF. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.
VO	VOIP PHONE MOUNTING HEIGHT: +48"AFF. COORDINATE WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS EXACT LOCATION AND MOUNTING DETAILS .
GI	OPERATIONAL GEOTECH INSTRUMENTS COORDINATE EXACT LOCATION AND MOUNTING DETAILS WITH GEOTECHNICAL DRAWINGS.

PATHWAYS & MISCELLANEOUS

SYMBOL	DESCRIPTION
# TXXX	DETAIL REFERENCE: # = DETAIL NUMBER; TXXX = DRAWING NUMBER
	SOLID BOTTOM CABLE TRAY WITH COVER
	CR AND/OR ER LADDER RACK
	SLEEVE / CONDUIT END
	CONDUIT OR SLEEVE GOING UP
	CONDUIT OR SLEEVE GOING DOWN
	CONDUIT GOING THROUGH
	IN SLAB CONDUIT
	TELECOM SPACES/ROOM OUTLINE
T-ZONE CR-#	TELECOM ZONE SERVED REFER TO ZONE NAMING LEGEND IN THIS SHEET FOR DETAILS.
PB	PULL BOX
FOPP	FIBER OPTIC PATCH PANEL
CPP	COPPER PATCH PANEL
	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOM MAIN GROUNDING BAR
TGB	TELECOM GROUNDING BAR
2WP	TWO WAY PAGING CALL STATION
S	SERVICE RELIEF LOOP

ABBREVIATIONS

SYMBOL	DESCRIPTION
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AP	ACCESS POINT (WIRELESS)
AWG	AMERICAN WIRE GAUGE
BFC	BELOW FINISHED CEILING
BLDG	BUILDING
C, COND	CONDUIT
CAT	CATEGORY
CDR	NOT IN USE
CE	COMMUNICATION ENCLOSURE
CP	CONSOLIDATION POINT
CPP	COPPER PATCH PANEL
CR	COMMUNICATION ROOM
DAS	DISTRIBUTED ANTENNA SYSTEM
DWG	DRAWING
EO	EQUIPMENT OUTLET
ER	EQUIPMENT ROOM
FO	FIBER OPTIC
FOPP	FIBER OPTIC PATCH PANEL
FT	FEET
HVAC	HEATING, VENTILATION AND AIR-CONDITIONING
HWM	HORIZONTAL WIRE MANAGER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IP	INTERNET PROTOCOL
IN	INCHES
KW	KILOWATT
LAN	LOCAL AREA NETWORK
MAX	MAXIMUM
MCR	MAIN COMMUNICATION ROOM
MDF	MAIN DISTRIBUTION FRAME
MIN	MINIMUM
MM	MULTIMODE FIBER OPTIC CABLE
MTD	MOUNTED
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO, #	NUMBER
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OSP	OUTSIDE PLANT

ABBREVIATIONS

SYMBOL	DESCRIPTION
PB	PULL BOX
PT	POKE THRU
RM	ROOM
RRU	REMOTE RADIO UNIT
RU	RACK MOUNT UNIT
S	STRAIN RELIEF LOOP
SCS	STRUCTURED CABLING SYSTEM
SM	SINGLE-MODE FIBER OPTIC CABLE
SPEC	SPECIFICATION
STP	SHIELDED TWISTED PAIR
TBD	TO BE DETERMINED
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TL	TERMINATION LOAD
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TR	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
VWM	VERTICAL WIRE MANAGER
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WLAN	WIRELESS LOCAL AREA NETWORK

ZONE NAMING LEGEND

EXAMPLES

CE-DR-1

- (C) ENCLOSURE NUMBER (IF REQUIRED)
- (B) ENCLOSURE LOCATION (IF REQUIRED)
- (A) ROOM TYPE

(A) ROOM TYPE

CE: COMMUNICATIONS ENCLOSURE
MCR-CUC: DATA ACQUISITION ROOM
CDR: COMMUNICATIONS DISTRIBUTION ROOM

(B) ENCLOSURE LOCATION

DR: DRIFT
DE: DETECTOR
CC: CENTRAL UTILITY CAVERN

(C) ENCLOSURE NUMBER

#: COMMUNICATIONS ENCLOSURE NUMBER

CABLING SCHEDULE

TAG #	CABLE NAME	UL RATING	CABLE TYPE	TERMINATION	PHASE
01	PRIMARY EXISTING LBNF FIBER OPTIC BACKBONE	-	(1) 192-STRANDS LSZH ARMORED RISER RATED SM FO CABLE.	LC-TYPE EACH END	PRE-EXCAVATION PHASE
02	SECONDARY EXISTING LBNF FIBER OPTIC BACKBONE	-	(1) 192-STRANDS LSZH ARMORED RISER RATED SM FO CABLE.	LC-TYPE EACH END	PRE-EXCAVATION PHASE
11	SM BACKBONE (FOR STRUCTURED CABLING SYSTEM) BETWEEN EXISTING COMM ENCLOSURES AT ROSS AND YATES SIDES AND MCR-CUC	CMP (FT6)	(1) 192-STRANDS LSZH ARMORED RISER RATED SM FO CABLE.	LC-TYPE EACH END	FD BSI UNDERGROUND
12	NOT USED	-	-	-	-
13	SM BACKBONE (FOR STRUCTURED CABLING SYSTEM) EXTENSION BETWEEN MCR AND TELECOMMUNICATIONS ENCLOSURES	CMP (FT6)	(1) 12-STRANDS LSZH SM FO BACKBONE	LC-TYPE EACH END	FD BSI UNDERGROUND
31	HORIZONTAL CABLING (FOR STRUCTURED CABLING SYSTEM)	CMP	CATEGORY 6A CABLE, NUMBER OF CABLES/JACKS AS INDICATED BY OUTLET ON PLAN	T-568B EACH END	FD BSI UNDERGROUND
32	TWO WAY STATION DEVICES CABLING	CMP	2-PAIR UTP AWG 16 CABLES	2-PIN CONNECTOR	FD BSI UNDERGROUND
41	SM PATCH CORD	CMP	2-STRAND SM FIBER CORD PER REQUIRED ACTIVE CONNECTION	LC-TYPE EACH END	FD BSI UNDERGROUND
42	COPPER PATCH CORD	CMP	CATEGORY 6A, 4-UTP CORD PER REQUIRED ACTIVE CONNECTION	T-568B EACH END	FD BSI UNDERGROUND

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LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
SYMBOLS AND ABBREVIATIONS

DRAWING NO. 15-1-6K U1-FD-T-002 REV. 6

10/01/20

NOT FOR CONSTRUCTION

ELECTRONIC SECURITY SYSTEM

1. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL THE WORK DESCRIBED IN THE BID DOCUMENTS AND SHALL BE REFERRED TO THROUGHOUT THESE DOCUMENTS AS "SUBCONTRACTOR" OR "SECURITY CONTRACTOR". THE PROJECT DOCUMENTS SHALL INCLUDE THE CONTRACT DRAWINGS, SPECIFICATIONS, THE PROJECT GENERAL CONDITIONS AND ALL ADDITIONAL RIDERS.
2. NOTES AND GRAPHIC REPRESENTATIONS ON THE DRAWINGS SHALL NOT LIMIT THE EXTENT OF THE WORK REQUIRED. SUBCONTRACTOR SHALL PROVIDE A COMPLETE TURNKEY FULLY OPERATIONAL SYSTEM BASED UPON THE CONSTRUCTION DOCUMENTS. QUESTIONS REGARDING THE INTENT OF THE DESIGN SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE FRA CONSTRUCTION COORDINATOR. .
3. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE FINAL SECURITY SYSTEM EQUIPMENT LAYOUT AS SHOWN ON THE DRAWINGS WITH THE SITE CONDITIONS. CONFLICTS, IF ANY, SHALL BE BROUGHT TO THE ATTENTION OF THE FRA CONSTRUCTION COORDINATOR, WHO SHALL APPROVE ALL CHANGES PRIOR TO THE INSTALLATION OF THE WORK.
4. ALL CONDUITS, PENETRATIONS, JUNCTION BOXES CABLE LADDERS AND REQUIRED SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
5. SUBCONTRACTOR SHALL VERIFY THE SIZE OF ALL CONDUITS AND JUNCTION BOXES (40% MAXIMUM FILL) WITH THE ELECTRICAL CONTRACTOR. THE MINIMUM CONDUIT SIZE SHALL BE 3/4".
6. SUBCONTRACTOR SHALL PROMPTLY NOTIFY THE FRA CONSTRUCTION COORDINATOR PRIOR TO INSTALLATION OF WORK IF ANY MOUNTING LOCATIONS NOTED ON THE DRAWINGS ARE OBSTRUCTED AND/OR IF ANY MOUNTING LOCATION CONFLICTS OR PROBLEMS ARE DISCOVERED.
7. WIRING SYSTEMS SHALL BE CONSISTENTLY COLOR CODED AND TAGGED. COORDINATION OF EXACT WIRE CODING AND TAGGING IS MANDATORY AND PART OF THE SUBMITTAL PROCESS. THE SUBCONTRACTOR IS DIRECTLY RESPONSIBLE FOR COORDINATING WIRING FROM EQUIPMENT MANUFACTURERS' TERMINAL STRIPS TO THE FINAL CONNECTION POINTS OF EQUIPMENT WITHIN THE SCOPE OF THE PROJECT.
8. MINIMUM SIZE OF CONDUCTORS SHALL BE 18 AWG, UNLESS OTHERWISE INDICATED. SUBCONTRACTOR SHALL MODIFY STANDARD EQUIPMENT INPUT/OUTPUT WIRING TERMINALS TO ACCEPT 18 AWG. EXCEPTIONS MAY BE ALLOWED FOR MANUFACTURER PROVIDED LEADS AND INTERNAL EQUIPMENT WIRING, IF APPROVED BY THE FRA CONSTRUCTION COORDINATOR.
9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 110 VAC INPUT POWER FOR POWER SUPPLIES AND OTHER SYSTEM COMPONENTS. SECURITY CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOW VOLTAGE POWER REQUIREMENTS. ALL EQUIPMENT, INCLUDING LOCAL UPS UNITS AND BATTERY BACK-UP POWER SUPPLIES, SHALL BE FROM DEDICATED CIRCUIT BREAKERS CONNECTED TO THE BUILDING'S EMERGENCY POWER DISTRIBUTION SYSTEM.
10. RACEWAYS AND CONDUITS SHALL BE CONCEALED IN WALL AND CEILING. EXPOSED RACEWAYS, WHERE NECESSARY AND APPROVED BY THE FRA CONSTRUCTION COORDINATOR, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS.
11. WHERE CABLES AND/OR CONDUITS PASS THROUGH FIRE RATED, FIRE RESISTANT AND/OR FIRE STOPPED FLOORS AND WALLS USE CABLE SLEEVES THAT PREVENT THE SPREAD OF FIRE OR PRODUCTS OF COMBUSTION. SLEEVES SHALL BE NELSON "FLAME SEAL" OR AS APPROVED BY THE FRA CONSTRUCTION COORDINATOR. APPROVED FIRE SEALS SHALL ALSO BE PROVIDED AT ALL CABLE AND CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS.
12. WHERE CONDUITS PASS THROUGH EXTERIOR WALLS, PENETRATION SHALL BE WATERPROOFED TO MAINTAIN ORIGINAL ENVIRONMENTAL RATING AND PROTECTION.
13. 110 VAC POWER CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME CONDUIT AS LOW VOLTAGE AUDIO, VIDEO, CONTROL, DC POWER OR ANY OTHER LOW VOLTAGE CABLES.
14. ALL CONDUIT ROUTES SHALL BE GROUNDED AND BONDED.
15. THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT THE BEND RADIUS OF CONDUITS SHALL BE NO LESS THAN SIX TIMES THE OUTSIDE DIAMETER OF THAT CONDUIT. (6X CONDUIT OD). BUSHINGS SHALL BE INSTALLED AT THE END OF ALL CONDUITS TO AVOID CHAFFING OF THE CABLE.
16. ALL ELECTRICAL, SAFETY AND FIRE CODES SHALL BE FOLLOWED. IF NATIONAL, STATE AND/OR CITY CODES DIFFER ON THE SAME POINT THEN THE MOST STRICT DEFINITION AND/OR INTERPRETATION SHALL BE FOLLOWED.
17. IF THE SECURITY GENERAL CONDITIONS AND THE PROJECT GENERAL CONDITIONS DIFFER ON THE SAME POINT THEN THE MOST STRICT DEFINITION AND/OR INTERPRETATION SHALL BE FOLLOWED.
18. THE SUBCONTRACTOR SHALL PROVIDE A COMPLETE TURNKEY, FULLY OPERATIONAL SYSTEM AS SPECIFIED WITHIN THE CONSTRUCTION DOCUMENTS. ALL TERMINATIONS ARE TO BE COMPLETED/SUPERVISED BY A SECURITY CONTRACTOR REPRESENTATIVE TRAINED AND AUTHORIZED BY THE SYSTEM MANUFACTURER TO ENSURE ALL SYSTEMS ARE PROPERLY INSTALLED PER THE DIRECTION OF THE MANUFACTURER. INSTALLED SYSTEMS NOT ACCEPTED BY THE SYSTEMS MANUFACTURER SHALL BE REINSTALLED AT THE SECURITY CONTRACTORS EXPENSE.
19. CONDUIT RUNS CANNOT CONTAIN THE EQUIVALENT OF TWO 90-DEGREE TURNS IN ANY DIMENSIONAL PLANE WITHOUT THE ADDITION OF A PULL BOX.
20. CONDUIT INFRASTRUCTURE WILL BE STUBBED TO ACCESSIBLE CEILING AREAS AND CONDUITS AND CONDUIT SLEEVING WILL BE PROVIDED FOR ROUTING TO THE SECURITY ACCESS CONTROL PANELS, PER THE RISER DIAGRAM. SECURITY CABLING WILL BE INSTALLED AS OPEN CABLE IN ACCESSIBLE CEILING AREAS.
21. CONDUITS ARE REQUIRED THROUGH NON-ACCESSIBLE CEILINGS AS REQUIRED. THE SECURITY CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR CONDUIT IN NON-ACCESSIBLE CEILINGS.
22. DEVICE COUNTS ARE PROVIDED AS A GUIDE. THE SECURITY CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DEVICE COUNTS AND PROVIDE THE APPROPRIATE NUMBER OF DEVICES TO COMPLETE THE INTENT OF THE DESIGN.
23. SECURITY EQUIPMENT SCHEDULES ARE PROVIDED AS A GUIDE. THE SECURITY CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DEVICES IDENTIFIED AND PROVIDE THE APPROPRIATE NUMBER OF DEVICES AS IDENTIFIED ON THE FLOOR PLANS.
24. SECURITY CONTRACTOR TO REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATIONS OF ALL SECURITY DEVICES. ALL FINAL EQUIPMENT COLOR AND FINISH SELECTIONS SHALL BE REVIEWED AND APPROVED BY THE PROJECT ARCHITECT.
25. THE ORIENTATION OF THE SYMBOLS REFLECTS THE MOUNTING LOCATION AND DIRECTION OF THE DEVICE.
26. SUBCONTRACTOR SHALL PROVIDE A DEVICE NAMING MATRIX FOR ALL SECURITY DEVICES AND ALARM POINTS PRIOR TO PROGRAMMING FOR OWNER REVIEW, COMMENT AND APPROVAL. SHOULD THE SUBCONTRACTOR PROGRAM DEVICE NAMES PRIOR TO RECEIVING THIS APPROVAL FROM THE OWNER, THE SUBCONTRACTOR IS DEEMED AWARE, THAT THEY WILL BE RESPONSIBLE TO RE-PROGRAM ACCORDING TO THE OWNER'S REQUEST AT NO ADDITIONAL COSTS.

INFRASTRUCTURE

1. ALL CONDUITS, CABLE TRAYS, PENETRATIONS, JUNCTION BOXES CABLE LADDERS AND REQUIRED SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
2. SECURITY CONTRACTORS SHALL VERIFY THE SIZE OF ALL CONDUITS AND JUNCTION BOXES (40% MAXIMUM FILL) WITH THE ELECTRICAL CONTRACTOR.
3. THE MINIMUM CONDUIT SIZE SHALL BE 3/4".
4. THE SECURITY CONTRACTORS SHALL VERIFY THE SIZE OF ALL CONDUCTORS. THE NUMBER OF CONDUCTORS REQUIRED MAY VARY DEPENDENT ON THE MANUFACTURERS OF EQUIPMENT SELECTED BY THE SECURITY CONTRACTOR. IF THE EQUIPMENT THAT THE SECURITY CONTRACTORS INTENDS TO FURNISH AND INSTALL HAS ANY SPECIAL REQUIREMENTS, THE SECURITY CONTRACTORS SHALL PROVIDE FOR THESE REQUIREMENTS IN THE BASE COST WITH NO EXTRA ADDITIONAL COST TO THE OWNER DURING INSTALLATION.
5. ANY CONDUIT RISER REQUIRED SPECIFICALLY FOR THE PHYSICAL SECURITY SYSTEMS, AND IS NOT SHARED BY OTHER SYSTEMS, IS TO BE PROVIDED WITH AN ACCESS POINT AT EACH LEVEL WITHIN THE CONDUIT RISERS.
6. WIRING FOR THE PHYSICAL SECURITY SYSTEMS SHALL BE CONSISTENTLY COLOR CODED AND TAGGED. COORDINATION OF EXACT WIRE CODING AND TAGGING IS MANDATORY.
7. THE SECURITY CONTRACTOR IS DIRECTLY RESPONSIBLE FOR COORDINATING WIRING FROM EQUIPMENT MANUFACTURERS' TERMINAL STRIPS TO THE FINAL CONNECTION POINTS OF EQUIPMENT WITHIN THE SCOPE OF THE PROJECT.
8. RACEWAYS AND CONDUITS SHALL BE CONCEALED IN WALLS AND CEILINGS. ALL RACEWAYS, WHERE NECESSARY AND APPROVED BY THE FRA CONSTRUCTION COORDINATOR, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS.
9. WHERE CABLES PASS THROUGH FIRE RATED, FIRE RESISTANT AND/OR FIRE STOPPED FLOORS AND WALLS USE CABLE SLEEVES THAT PREVENT THE SPREAD OF FIRE OR PRODUCTS OF COMBUSTION.
10. BUSHINGS SHALL BE INSTALLED AT THE END OF ALL CONDUITS TO AVOID CHAFFING OF THE CABLE.
11. THE SECURITY AND/OR ELECTRICAL CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TENSILE FORCE THAT THE MANUFACTURER RECOMMENDS WHEN PULLING CABLE.
12. ALL WIRING SHALL BE INSTALLED ACCORDING TO THE LATEST REVISION OF THE NATIONAL ELECTRIC CODE, ARTICLE 760.
13. ALL CONDUCTORS MUST TEST FREE OF OPENS, SHORTS AND GROUNDS.
14. WHEN INSTALLING SHIELDED CABLE, THE FOLLOWING MUST BE OBSERVED:
    14.1. METALLIC CONTINUITY MUST BE MAINTAINED THROUGHOUT THE ENTIRE LENGTH OF THE CABLE RUN.
    14.2. THE CABLE SHIELD MUST BE ISOLATED FROM GROUND.
    14.3. GROUNDING MUST COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE. GROUNDING CONDUCTOR MUST BE NO. 10 AWG SINGLE CONDUCTOR UNLESS OTHERWISE NOTED.

SYMBOLS

SYMBOL	DESCRIPTION
P CR	CARD READER
MC	MAGNETIC CONTACT
EL	ELECTRIC LOCK SET
I/O	CONTROL PANEL INPUT-OUTPUT
JB	JUNCTION BOX
EPT	ELECTRIC POWER TRANSFER
LPS	LOCK POWER SUPPLY
ACP	ACCESS CONTROL PANEL
Z#	SECURITY DOOR TYPE

ABBREVIATIONS

SYMBOL	DESCRIPTION
BFC	BELOW FINISHED CEILING
C	CONDUIT
CAB	CABINET
CAT	CATEGORY
CB	CONSOLIDATION BOX
COND	CONDUCTOR
D	DATA
DWG	DRAWING
EM	ELEVATOR MACHINE
EO	EQUIPMENT OUTLET
FAS	FIRE ALARM SYSTEM
FO	FIBER OPTIC
FOPP	FIBER OPTIC PATCH PANEL
HVAC	HEATING, VENTILATING, AND AIR-CONDITIONING
KVA	KILO VOLT-AMPERE
KW	KILO-WATT
LAN	LOCAL AREA NETWORK
MCR	MAIN COMMUNICATIONS ROOM
MIN	MINIMUM
MM	MULTIMODE FIBER OPTIC CABLE
MTD	MOUNTED
N	NEUTRAL
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO, #	NUMBER
NTS	NOT TO SCALE
OR	OUTDOOR RATED
PBX	PRIVATE BRANCH EXCHANGE
PVC	POLYVINYL CHLORIDE
PWR	POWER
RMU	RACK MOUNT UNIT
SCS	STRUCTURED CABLING SYSTEM
SEC	SECURITY
SM	SINGLE MODE FIBER OPTIC CABLE
SPEC	SPECIFICATIONS
TBD	TO BE DETERMINED
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOICE
VA	VOLT-AMPERE
WP	WEATHER PROOF

REV.	DATE	DESCRIPTION
5	10/01/20	90% FD UPDATE
4	08/21/20	90% DRAFT FD UPDATE
3	05/03/19	100% FD SUBMISSION
2	02/22/19	90% FD SUBMISSION
1	11/16/18	60% FD SUBMISSION

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Long-Baseline Neutrino Facility

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CHECKED	RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, SECURITY
LEGEND AND GENERAL NOTES

DRAWING NO. 15-1-6K U1-FD-T-003 REV. 5

10/01/20

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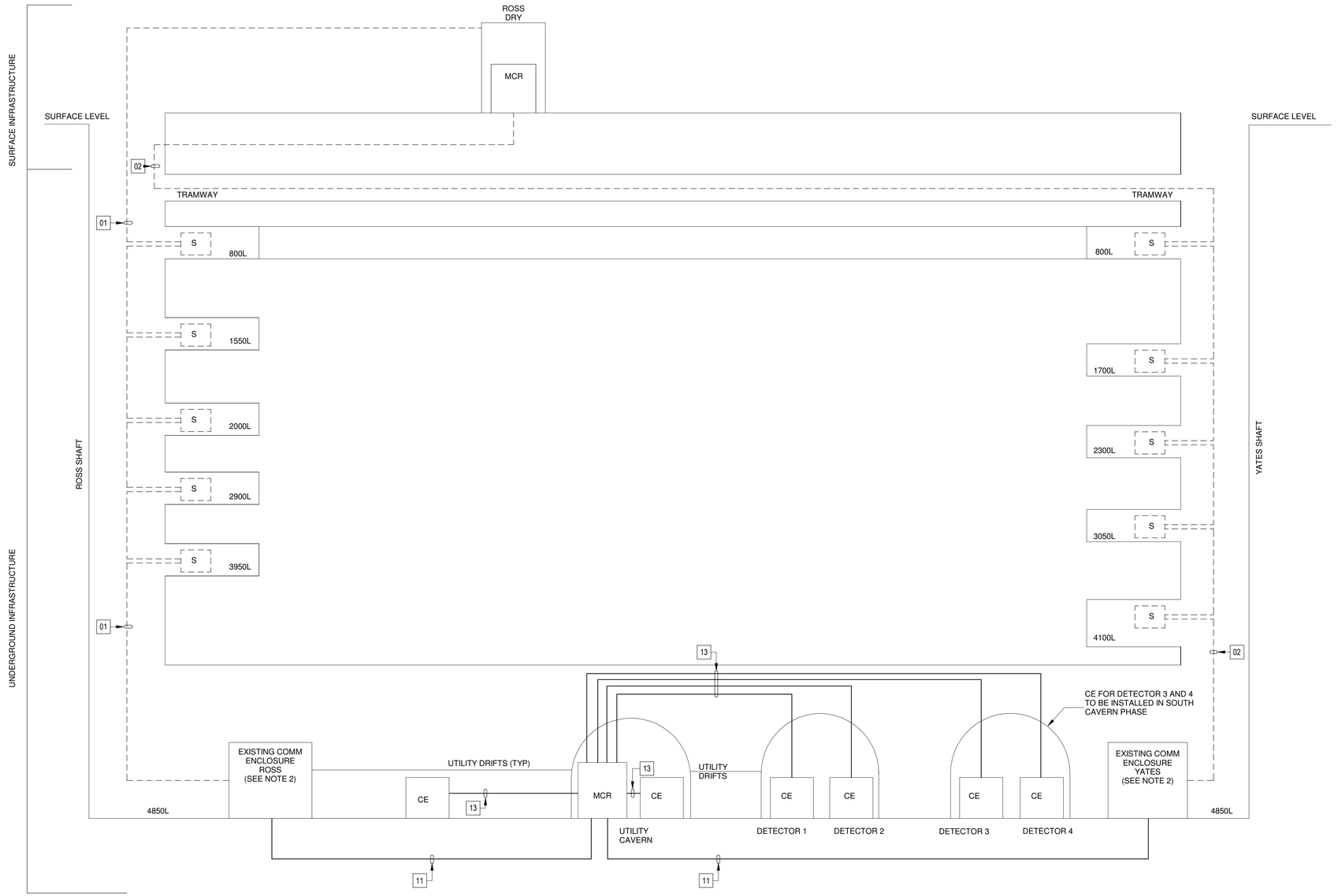

NOTES:

1. REFER TO CABLING SCHEDULE ON T-002 FOR TAG DESIGNATIONS AND DESCRIPTIONS
2. COMMUNICATIONS ENCLOSURES AND BACKBONE CABLING IN YATES AND ROSS SIDES AT 4850 LEVEL (DASHED LINES) SHOWN FOR REFERENCE AND PROVIDED AS PART OF PRE-EXCAVATION
3. STRAIN RELIEF OF CABLE SHOWN FOR REFERENCE AND PROVIDED AT IDENTIFIED LEVELS AS PART OF PRE-EXCAVATION.
4. FIBER PATHWAYS TO ROSS AND YATES ENCLOSURES SHOULD BE PHYSICALLY DIVERSE.

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
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CHECKED	KG	ARUP

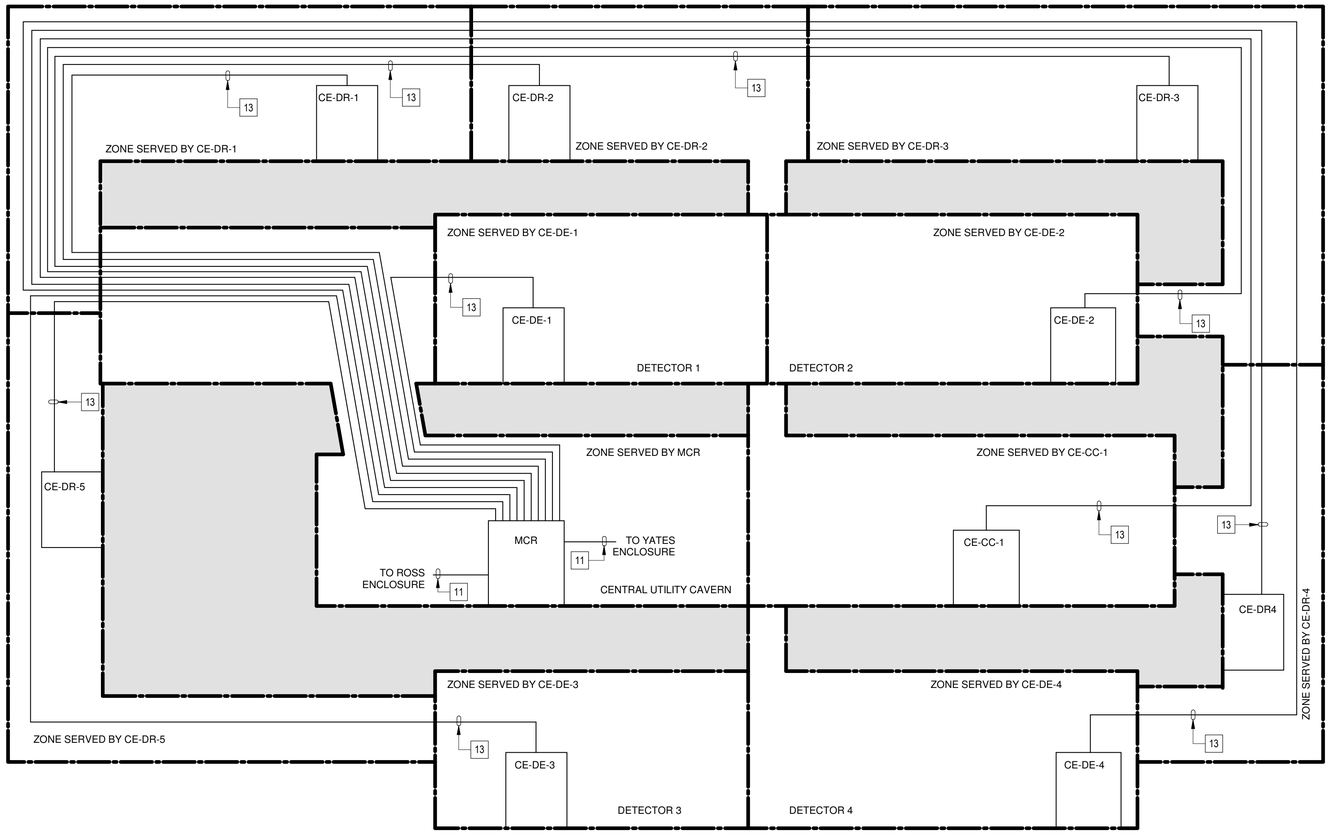
LBNF-FSCF-BSI

UNDERGROUND, CYBERINFRASTRUCTURE SINGLE LINE DIAGRAM SHEET 1 OF 4

DRAWING NO. 15-1-6K U1-FD-T-301 REV. 6

10/01/20

NOT FOR CONSTRUCTION

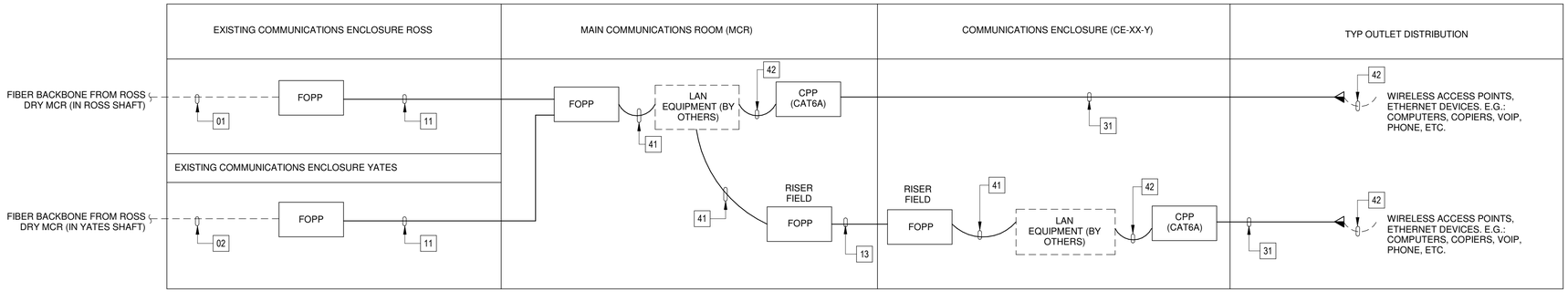


NOTES:

1. REFER TO CABLING SCHEDULE ON T-002 FOR TAG DESIGNATIONS AND DESCRIPTIONS
2. REFER TO PART PLANS FOR EXACT TELECOMMUNICATIONS SPACES AND ZONE DELIMITATIONS
3. BACKBONE CABLEING FOR DETECTOR 3 AND 4 TO BE INSTALLED IN SOUTH CAVERN PHASE

BACKBONE CONNECTIVITY SINGLE LINE DIAGRAM 1

SCALE: NTS



NOTES:

1. REFER TO CABLING LEGEND ON T-002 FOR TAG DESIGNATIONS AND DESCRIPTIONS

CONNECTIVITY SINGLE LINE DIAGRAM 2

SCALE: NTS

REV.	DATE	DESCRIPTION
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5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
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LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE SINGLE LINE DIAGRAM SHEET 2 OF 4

DRAWING NO. 15-1-6K U1-FD-T-303 REV. 6

10/01/20

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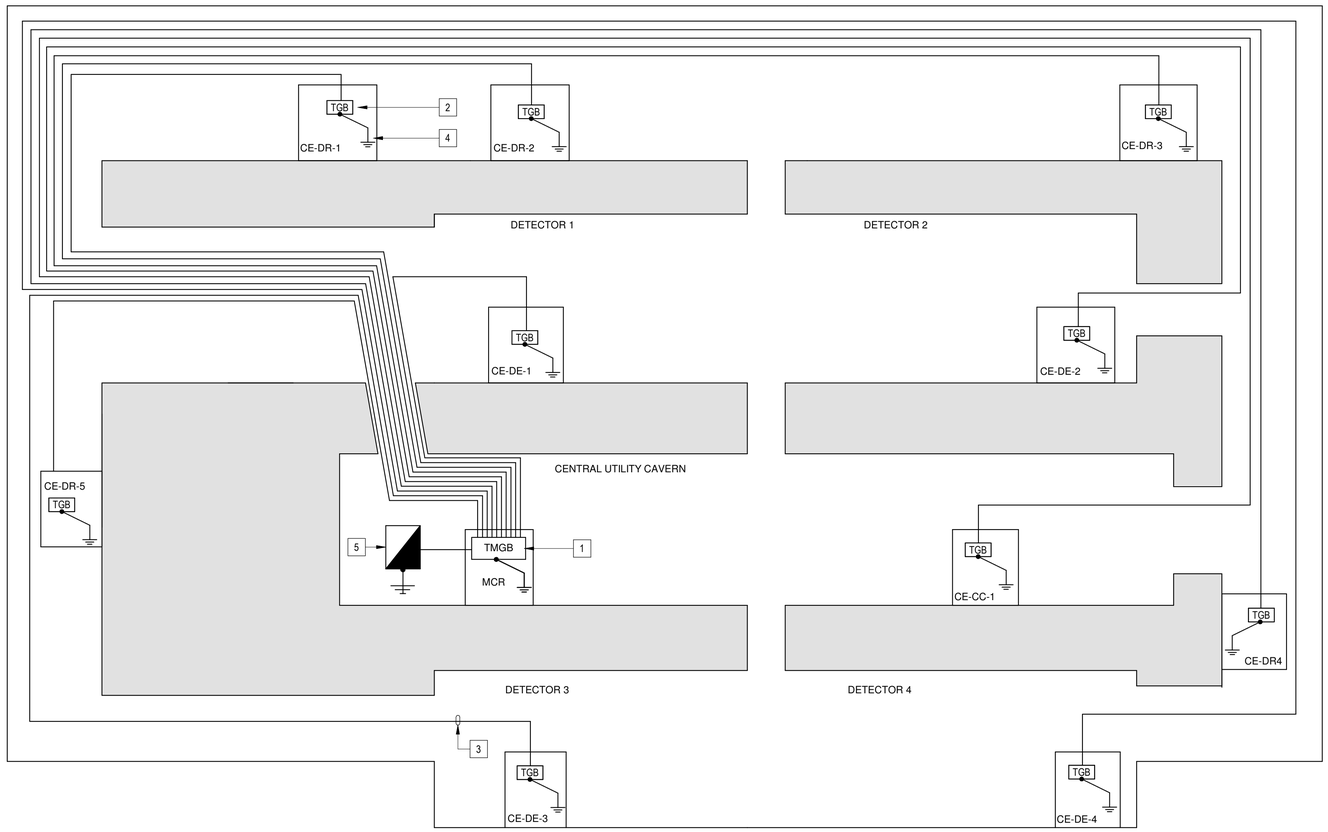

GROUNDING AND BONDING DIAGRAM

1

SCALE: NTS

LEGEND

1. TMGB: TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
2. TGB: TELECOMMUNICTIONS GROUNDING BUSBAR (TYP)
3. TBB: TELECOMMUNICATIONS BONDING BACKBONE (TYP)
4. GROUND TO THE NEAREST ELECTRICAL PANEL (TYP)
5. MAIN ELECTRICAL GROUNDING (TYP)

NOTES:

1. REFER TO PART PLANS FOR EXACT TELECOMMUNICATIONS SPACES LOCATIONS
2. GROUNDING BACKBONE FOR DETECTOR 3 AND 4 TO BE INSTALLED IN SOUTH CAVERN PHASE

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
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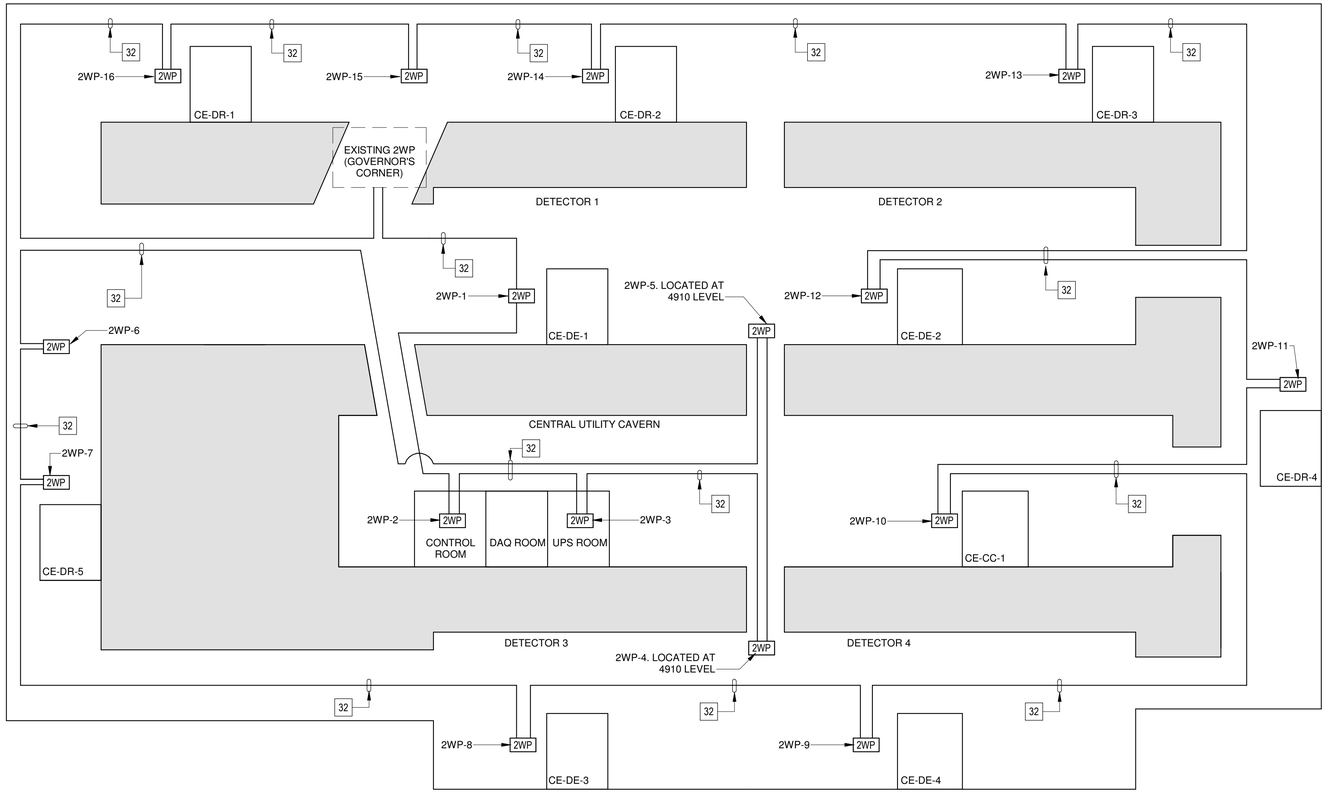
CHECKED	KG	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
SINGLE LINE DIAGRAM
SHEET 3 OF 4

DRAWING NO. 15-1-6K U1-FD-T-304 REV. 6

10/01/20

NOT FOR CONSTRUCTION



NOTES:

1. REFER TO CABLING SCHEDULE ON T-002 FOR TAG DESIGNATIONS AND DESCRIPTIONS
2. REFER TO PART PLANS FOR EXACT TELECOMMUNICATIONS SPACES AND TWO WAY PAGE SYSTEM DEVICES LOCATIONS.

TWO WAY CALL STATION DIAGRAM 1

SCALE: NTS

REV.	DATE	DESCRIPTION
5	10/01/20	90% FD UPDATE
4	08/21/20	90% DRAFT FD UPDATE
3	05/03/19	100% FD SUBMISSION
2	02/22/19	90% FD SUBMISSION
1	11/16/18	60% FD SUBMISSION

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DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

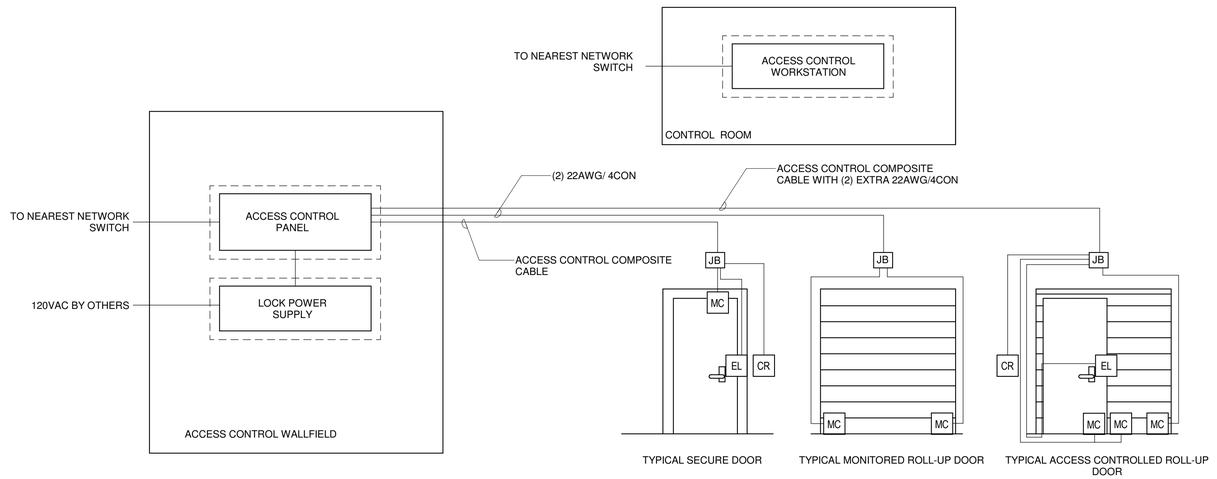
LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
SINGLE LINE DIAGRAM
SHEET 4 OF 4

DRAWING NO. **15-1-6K** **U1-FD-T-305** REV. **5**

10/01/20

NOT FOR CONSTRUCTION

ACCESS CONTROL ALARM MONITORING SYSTEM



NOTES:

1. RISER DIAGRAM REPRESENTS INDICATIVE CONCEPT OF SECURITY DEVICE CONNECTIVITY.
2. REFER TO SECURITY SCHEDULES AND FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF ACCESS CONTROL DEVICES.
3. ACCESS CONTROL FIELD DEVICES TO BE HOMERUN TO NEAREST SECURITY ACCESS CONTROL PANEL. REFER TO T-601 SECURITY ACCESS CONTROL SCHEDULES FOR EXACT TERMINATION POINT OF DEVICES.
4. ALL ACCESS CONTROL HEAD-END EQUIPMENT TO BE HOUSED WITHIN ENCLOSURES PROVIDED WITH TAMPER ALARMS. TAMPER ALARMS TO REPORT TO ACCESS CONTROL SYSTEM.
5. FIRE ALARM CONTROL PANEL TO RELEASE DOORS UPON FIRE ALARM CONDITION, AS REQUIRED BY CODE. REFER TO SECURITY SCHEDULES FOR FAIL-SAFE DOORS.
6. REFER TO SECURITY DETAILS SHEET T-806 FOR DOOR ELEVATIONS

REV.	DATE	DESCRIPTION
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4	08/21/20	90% DRAFT FD UPDATE
3	05/03/19	100% FD SUBMISSION
2	02/22/19	90% FD SUBMISSION
1	11/16/18	60% FD SUBMISSION

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UNDERGROUND, SECURITY SINGLE LINE DIAGRAM

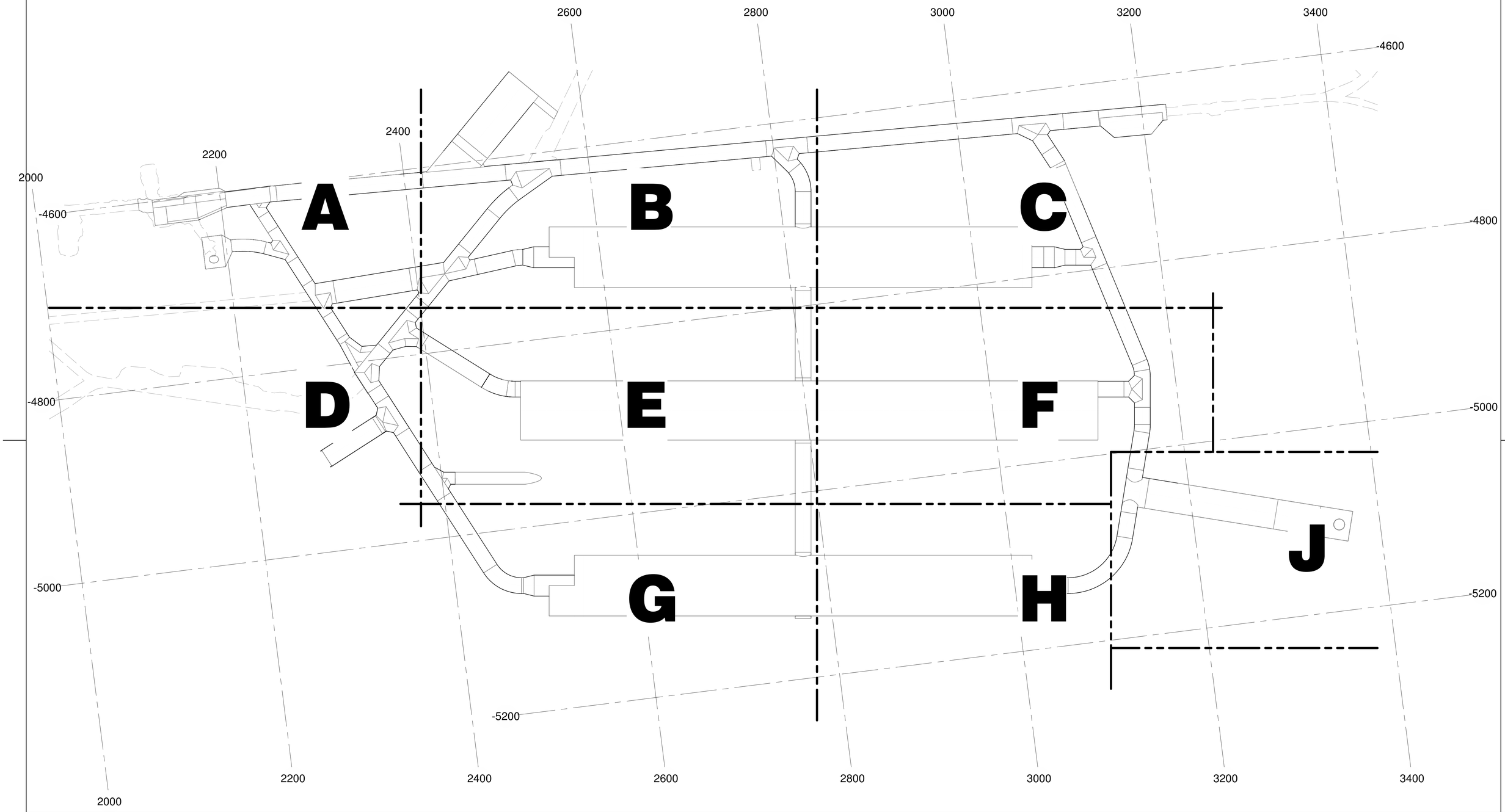
DRAWING NO. **15-1-6K U1-FD-T-306** REV. **5**

10/01/20

NOT FOR CONSTRUCTION

NOTE:

THE BUILDING PLANS ARE DIVIDED TO THE SECTORS INDICATED BELOW.



REV.	DATE	DESCRIPTION
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5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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PROJECT NORTH

N E S W

SCALE:

1" = 50'-0"

50 0 50 100
SCALE FEET

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Long-Baseline Neutrino Facility

DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
OVERALL PLAN

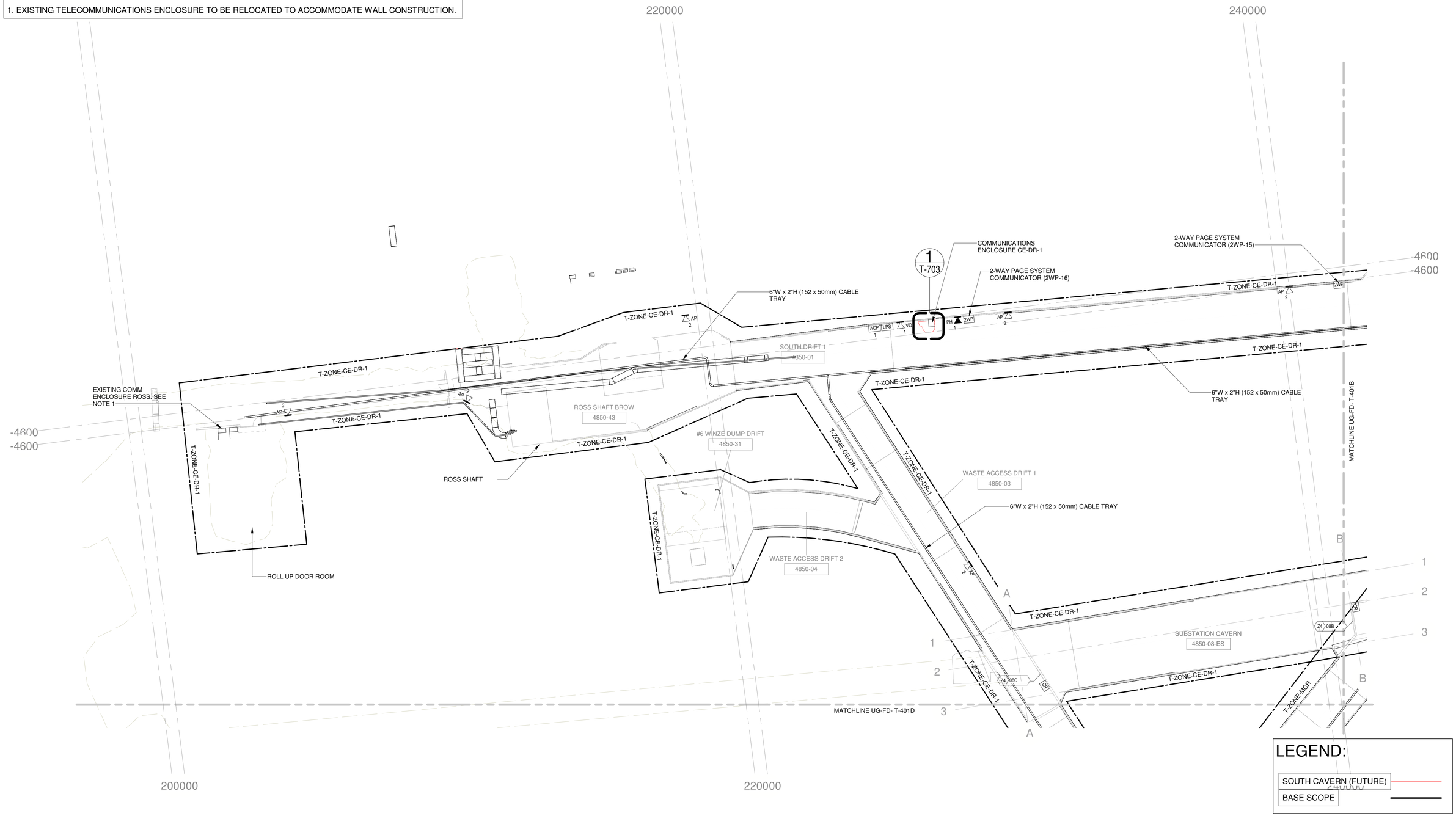
DRAWING NO. 15-1-6K U1-FD-T-401 REV. 6

10/01/20

NOT FOR CONSTRUCTION

NOTE:

1. EXISTING TELECOMMUNICATIONS ENCLOSURE TO BE RELOCATED TO ACCOMMODATE WALL CONSTRUCTION.



LEGEND:

- SOUTH CAVERN (FUTURE)
- BASE SCOPE

REV.	DATE	DESCRIPTION
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5	08/21/20	90% DRAFT FD UPDATE
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PROJECT NORTH

SCALE:
1/16" = 1'-0"
16 0 16 32
SCALE FEET

Fermilab
Long-Baseline Neutrino Facility

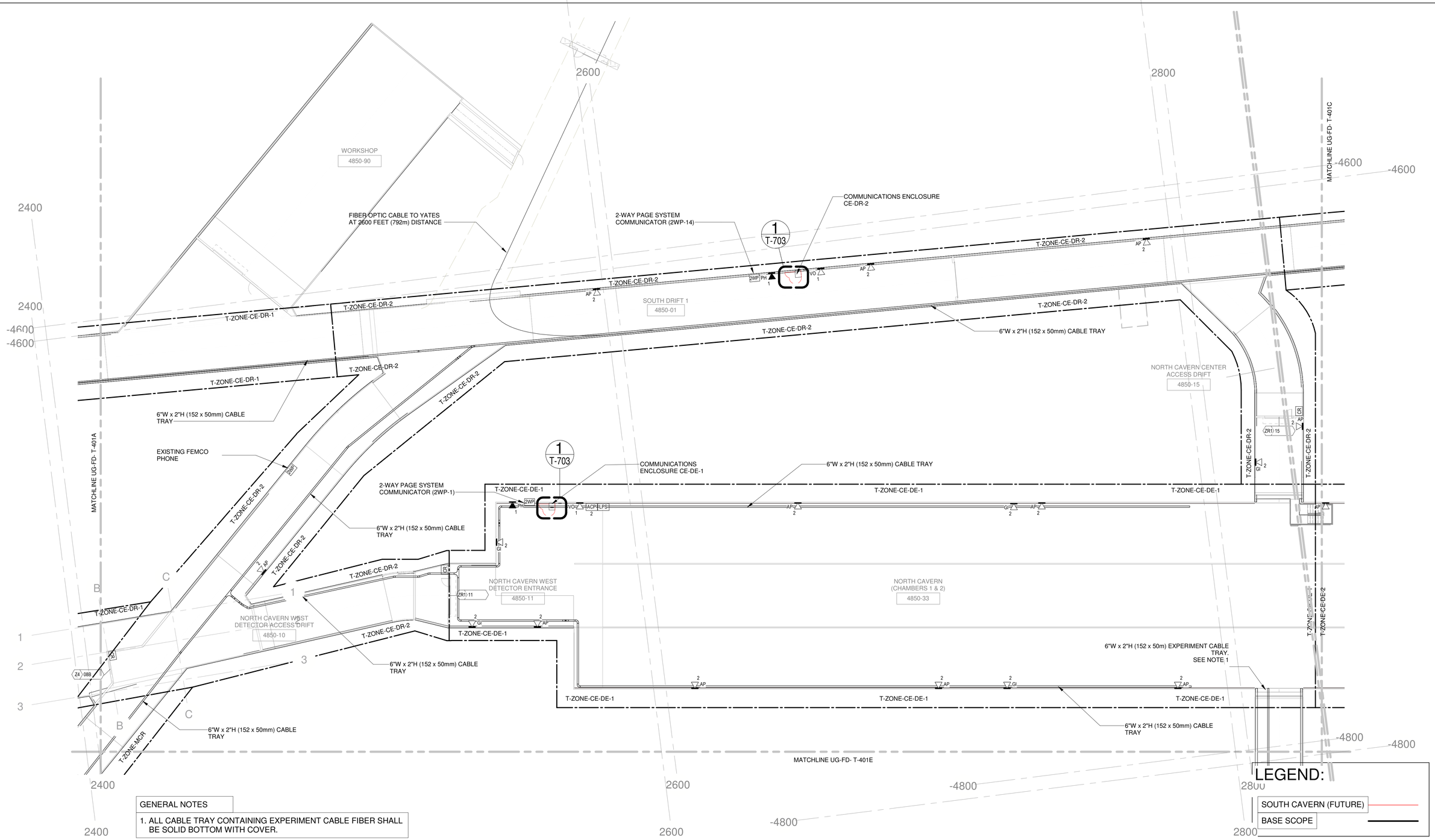
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION A

DRAWING NO. 15-1-6K U1-FD-T-401A REV. 6

10/01/20

NOT FOR CONSTRUCTION



GENERAL NOTES

1. ALL CABLE TRAY CONTAINING EXPERIMENT CABLE FIBER SHALL BE SOLID BOTTOM WITH COVER.

LEGEND:

- SOUTH CAVERN (FUTURE)
- BASE SCOPE

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
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SCALE:
1/16" = 1'-0"
16 0 16 32
SCALE FEET

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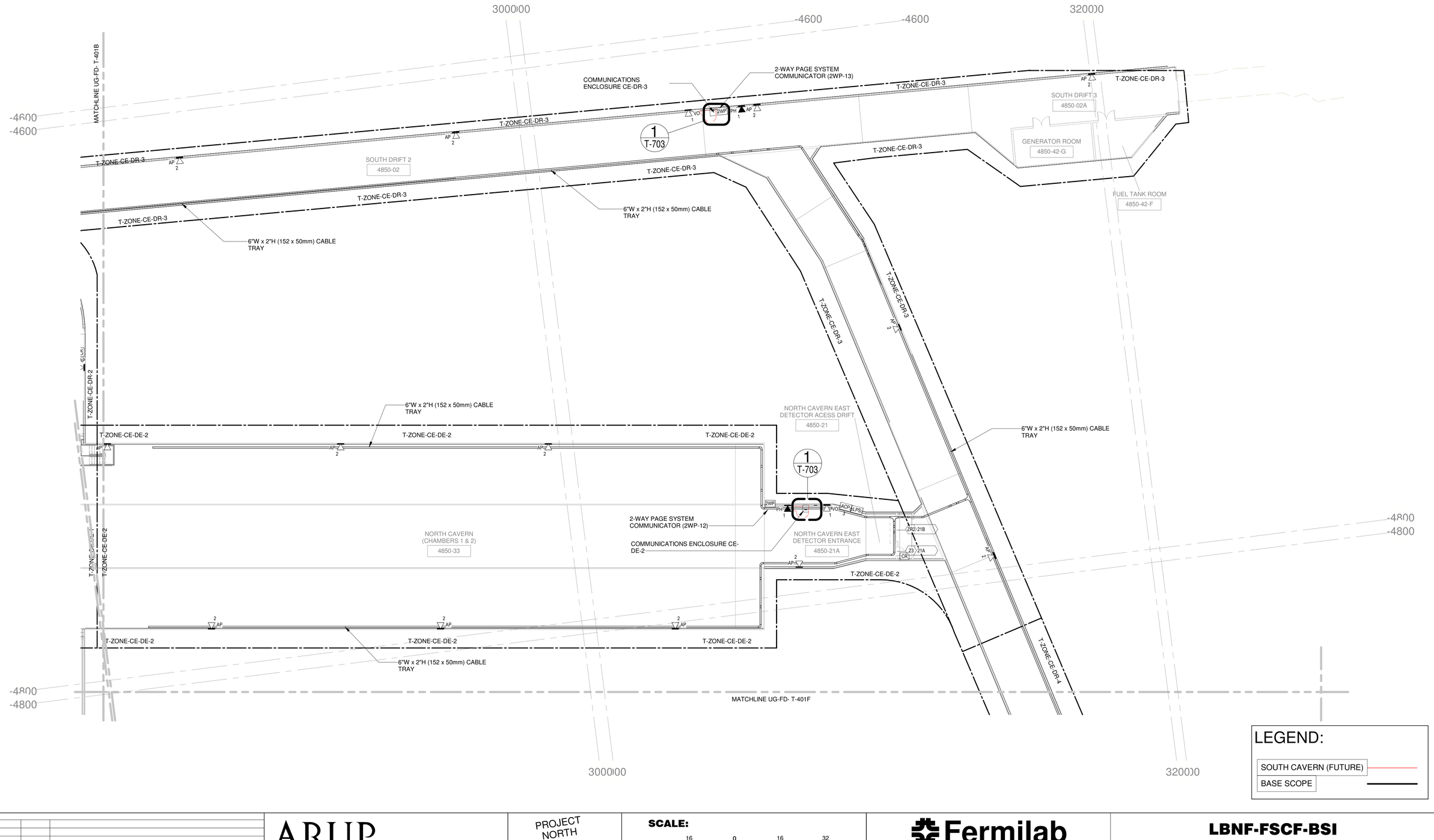
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION B

DRAWING NO. 15-1-6K U1-FD-T-401B REV. 6

10/01/20

NOT FOR CONSTRUCTION



REV.	DATE	DESCRIPTION
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16 0 16 32
SCALE FEET

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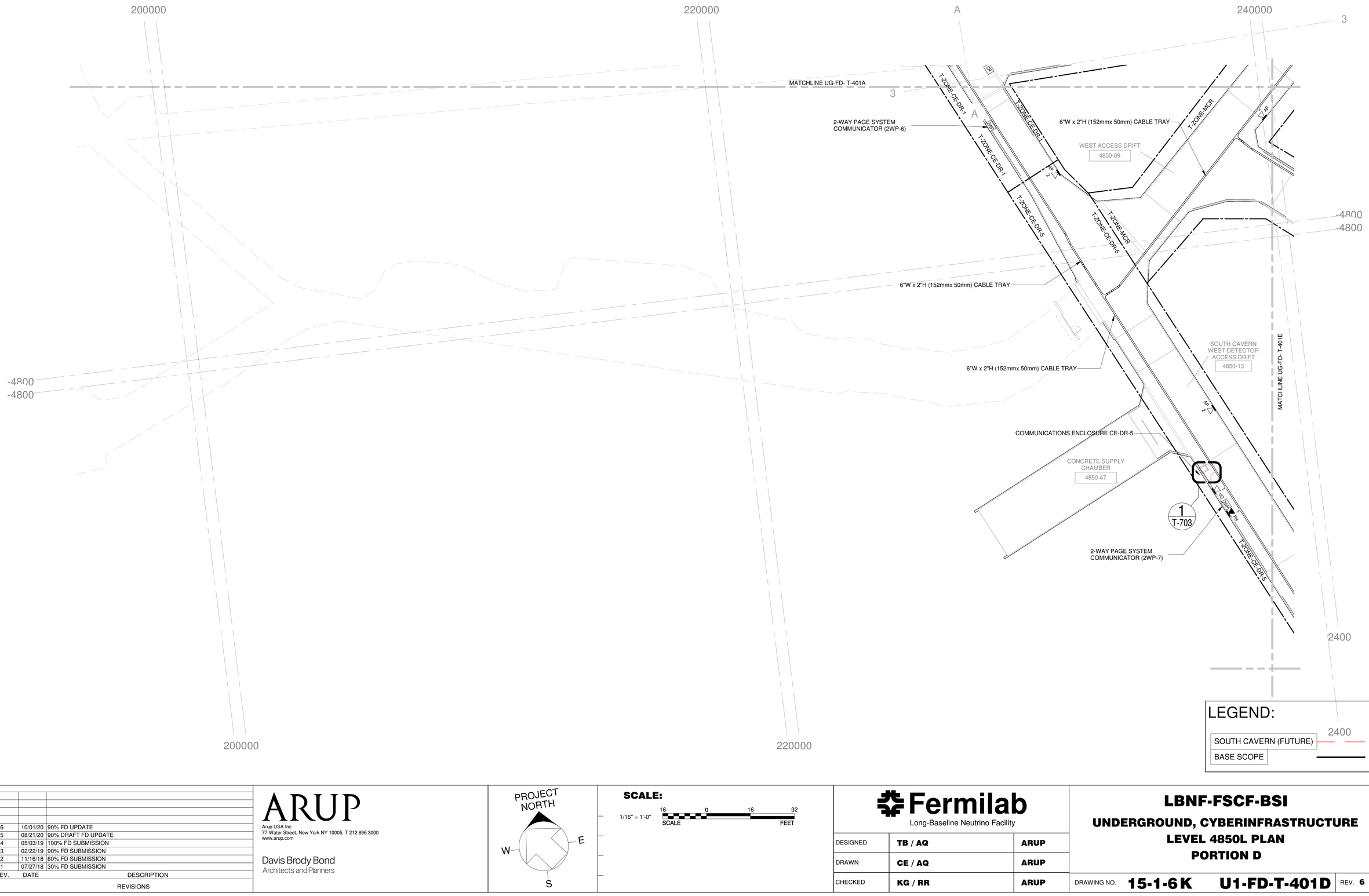
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION C

DRAWING NO. 15-1-6K U1-FD-T-401C REV. 6

10/01/20

NOT FOR CONSTRUCTION



REV.	DATE	DESCRIPTION
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SCALE:

1/16" = 1'-0"

16 0 16 32
SCALE FEET

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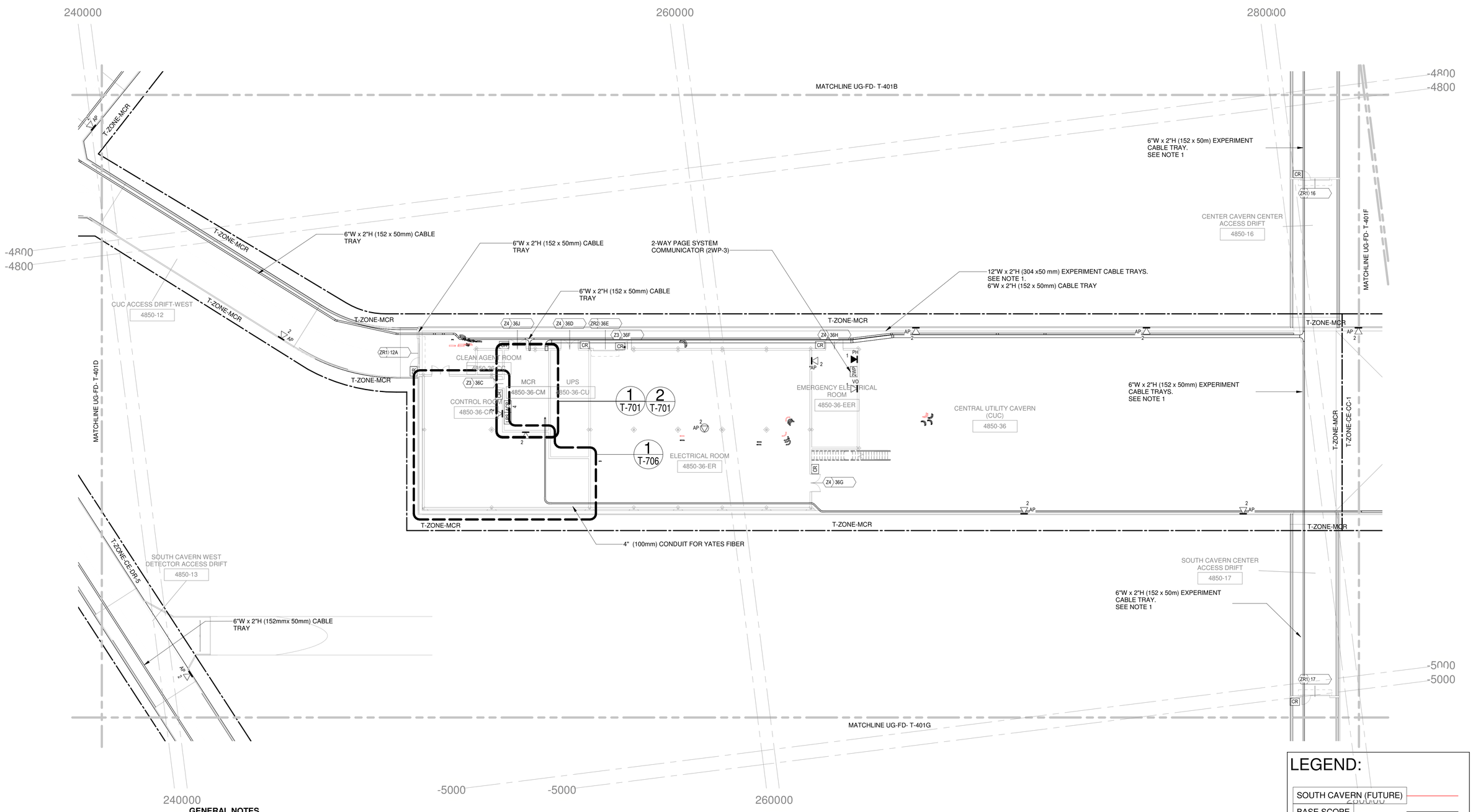
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION D

DRAWING NO. 15-1-6K U1-FD-T-401D REV. 6

10/01/20

NOT FOR CONSTRUCTION



GENERAL NOTES

1. ALL CABLE TRAY CONTAINING EXPERIMENT CABLE FIBER SHALL BE SOLID BOTTOM WITH COVER.

LEGEND:

- SOUTH CAVERN (FUTURE)
- BASE SCOPE

REV.	DATE	DESCRIPTION
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PROJECT NORTH

SCALE:

1/16" = 1'-0"

16 0 16 32
SCALE FEET

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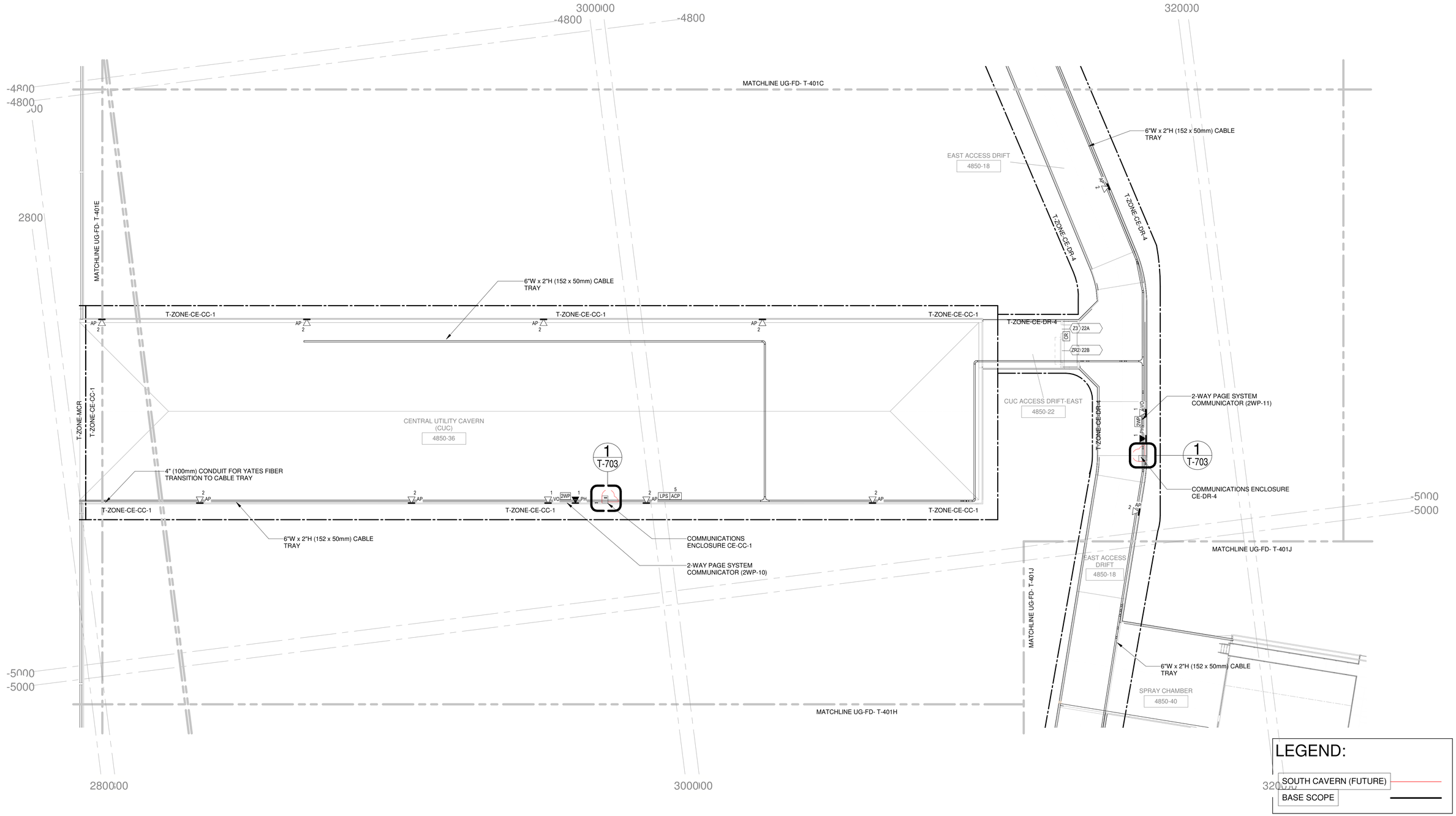
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION E

DRAWING NO. 15-1-6K U1-FD-T-401E REV. 6

10/01/20

NOT FOR CONSTRUCTION



REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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Architects and Planners

PROJECT NORTH

SCALE:
1/16" = 1'-0"
16 0 16 32
SCALE FEET

Fermilab
Long-Baseline Neutrino Facility

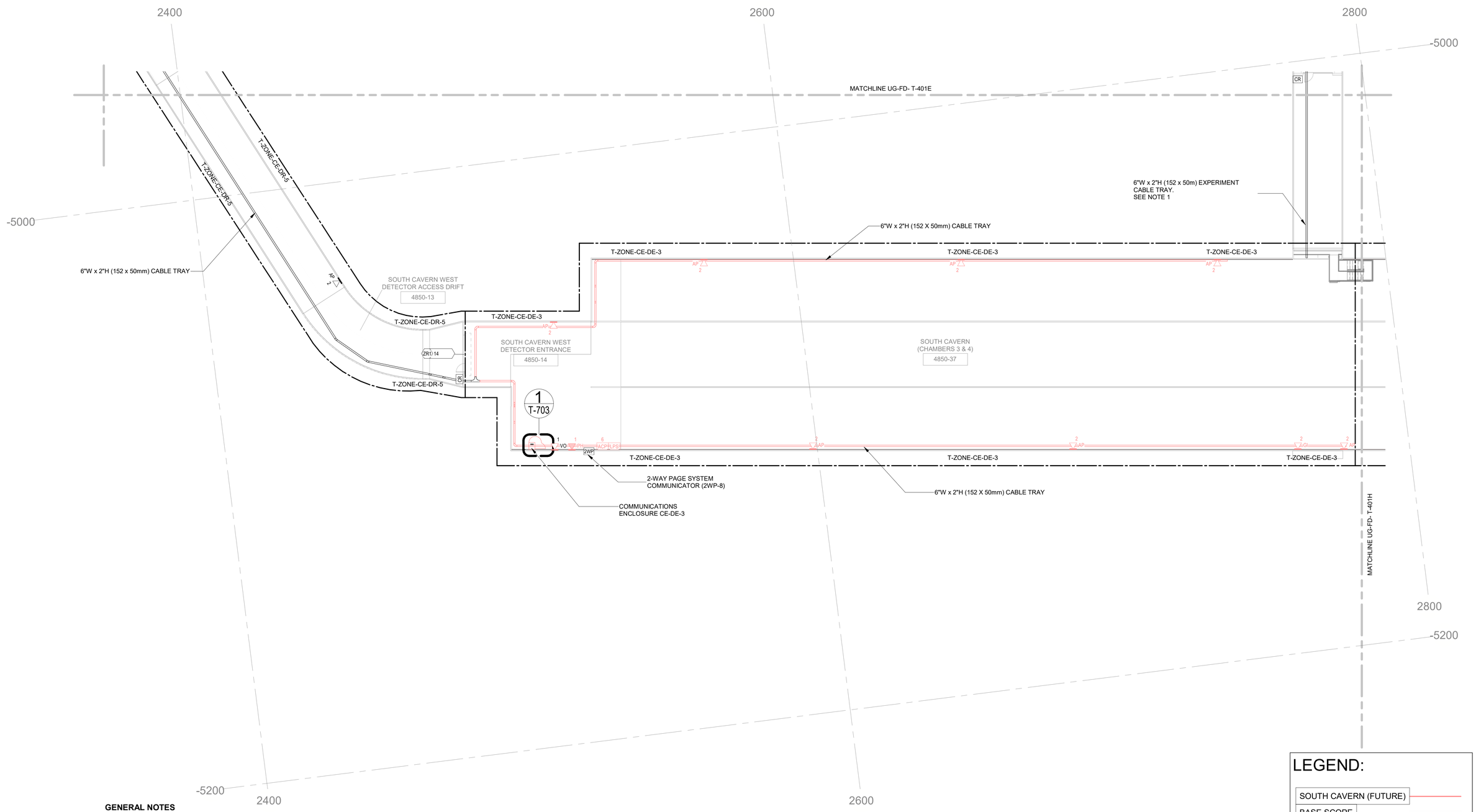
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION F

DRAWING NO. 15-1-6K U1-FD-T-401F REV. 6

10/01/20

NOT FOR CONSTRUCTION



GENERAL NOTES

1. ALL CABLE TRAY CONTAINING EXPERIMENT CABLE FIBER SHALL BE SOLID BOTTOM WITH COVER.
2. ALL NETWORK OUTLETS IN T-ZONE-CE-DE-3 PHASED WITH SOUTH CAVERN

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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PROJECT NORTH

SCALE:

1/16" = 1'-0"

16 0 16 32
SCALE FEET

Fermilab
Long-Baseline Neutrino Facility

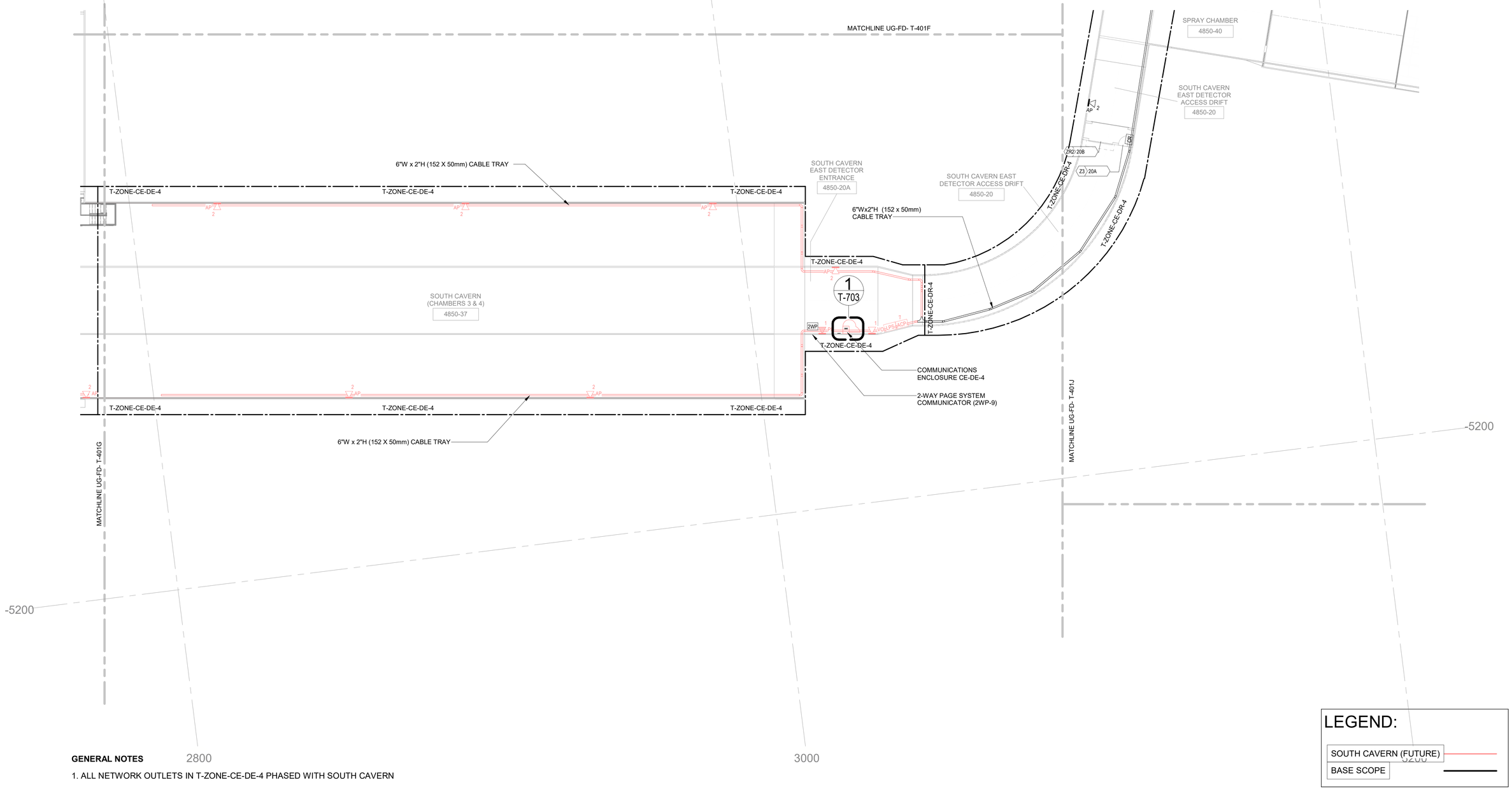
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION G

DRAWING NO. 15-1-6K U1-FD-T-401G REV. 6

10/01/20

NOT FOR CONSTRUCTION



GENERAL NOTES

1. ALL NETWORK OUTLETS IN T-ZONE-CE-DE-4 PHASED WITH SOUTH CAVERN

LEGEND:

- SOUTH CAVERN (FUTURE)
- BASE SCOPE

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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PROJECT NORTH

SCALE:

1/16" = 1'-0"

16 0 16 32
SCALE FEET

Fermilab
Long-Baseline Neutrino Facility

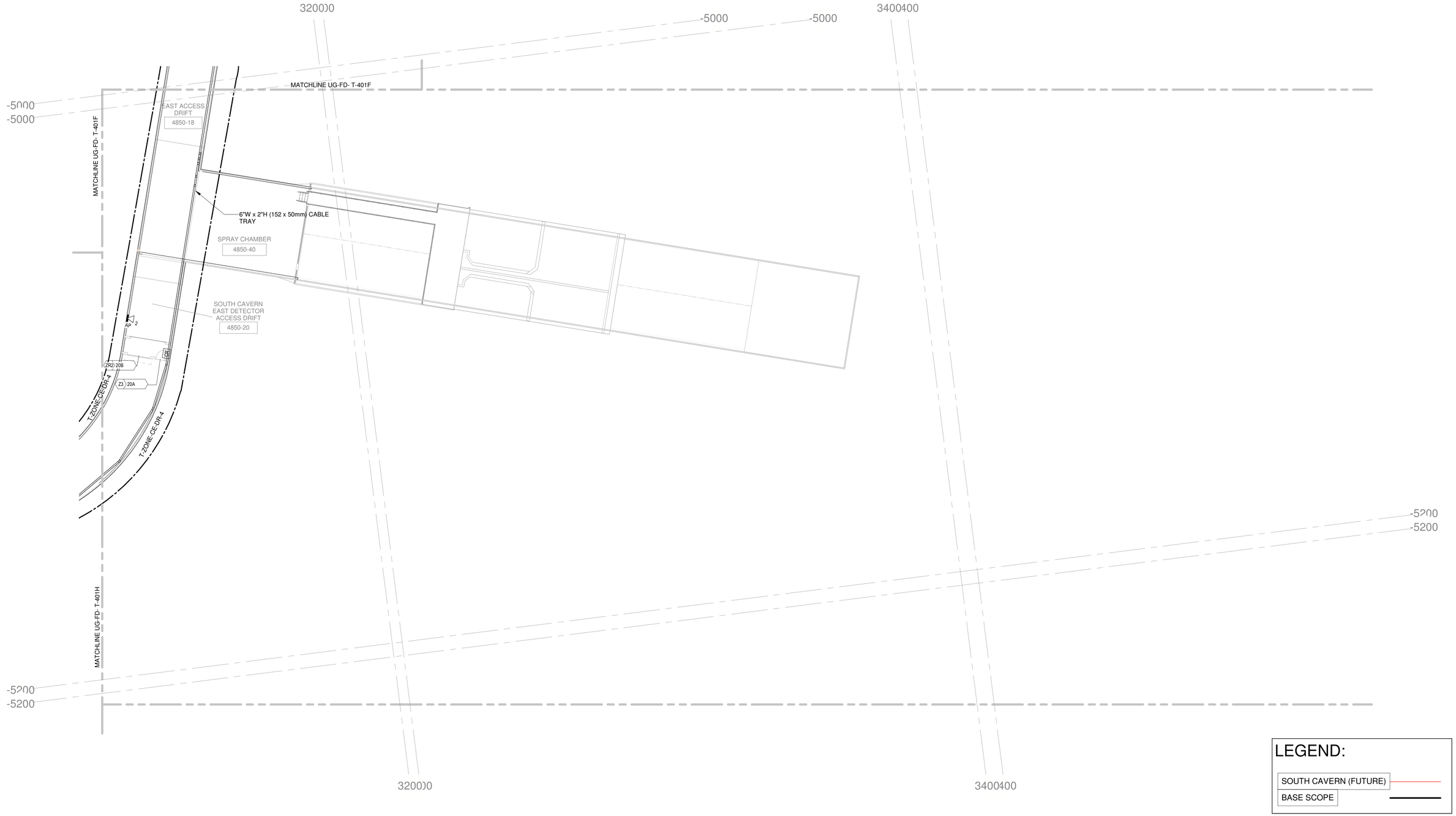
DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION H

DRAWING NO. 15-1-6K U1-FD-T-401H REV. 6

10/01/20

NOT FOR CONSTRUCTION



REV.	DATE	DESCRIPTION
4	10/01/20	90% FD UPDATE
3	08/21/20	90% DRAFT FD UPDATE
2	05/03/19	100% FD SUBMISSION
1	02/22/19	90% FD SUBMISSION

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PROJECT NORTH

SCALE:
1/16" = 1'-0"
16 0 16 32
SCALE FEET

Fermilab
Long-Baseline Neutrino Facility

DESIGNED	TB / AQ	ARUP
DRAWN	CE / AQ	ARUP
CHECKED	KG / RR	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
LEVEL 4850L PLAN
PORTION J

DRAWING NO. 15-1-6K U1-FD-T-401J REV. 4

10/01/20

NOT FOR CONSTRUCTION

SECURITY UNDERGROUND ACCESS CONTROL SCHEDULE								
Door Number	**Security Door Type**	**Card Reader**	**Recessed Magnetic Contact**	**Overhead Door Magnetic Contact**	**Electrified Lockset with Integrated Request to Exit**	**Electric Power Transfer Hinge**	**Fail Secure**	**ACP Location**
08B	Z4	X	X	-	X	X	-	ACP-1
08C	Z4	X	X	-	X	X	-	ACP-1
11	ZR1	X	X	X	X	X	-	ACP-2
15	ZR1	X	X	X	X	X	-	ACP-2
21A	Z3	X	X	-	X	X	-	ACP-3
21B	ZR2	-	-	X	-	-	-	ACP-3
12A	ZR1	X	X	X	X	X	-	ACP-4
16	ZR1	X	X	X	X	X	-	ACP-4
36C	Z4	X	X	-	X	X	X	ACP-4
36D	Z4	X	X	-	X	X	X	ACP-4
36E	ZR2	-	-	X	-	-	-	ACP-4
36F	Z3	X	X	-	X	X	X	ACP-4
36G	Z4	X	X	-	X	X	X	ACP-4
36H	Z4	X	X	-	X	X	X	ACP-4
36J	Z4	X	X	-	X	X	X	ACP-4
17	ZR1	X	X	X	X	X	-	ACP-4
22A	Z3	X	X	-	X	X	-	ACP-5
22B	ZR1	X	X	X	X	X	-	ACP-5
14	ZR1	X	X	X	X	X	-	ACP-6
20A	Z3	X	X	-	X	X	-	ACP-7
20B	ZR2	-	-	X	-	-	-	ACP-7

REV.	DATE	DESCRIPTION
5	10/01/20	90% FD UPDATE
4	08/21/20	90% DRAFT FD UPDATE
3	05/03/19	100% FD SUBMISSION
2	02/22/19	90% FD SUBMISSION
1	11/16/18	60% FD SUBMISSION

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SCALE:

Fermilab
Long-Baseline Neutrino Facility

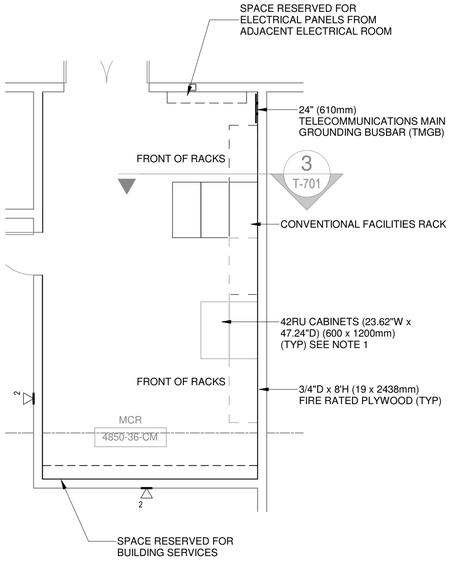
DESIGNED	**AQ**	**ARUP**
DRAWN	**AQ**	**ARUP**
CHECKED	**RR**	**ARUP**

LBNF-FSCF-BSI
UNDERGROUND, SECURITY ACCESS CONTROL SCHEDULES

DRAWING NO. **15-1-6K U1-FD-T-601** REV. **5**

10/01/20

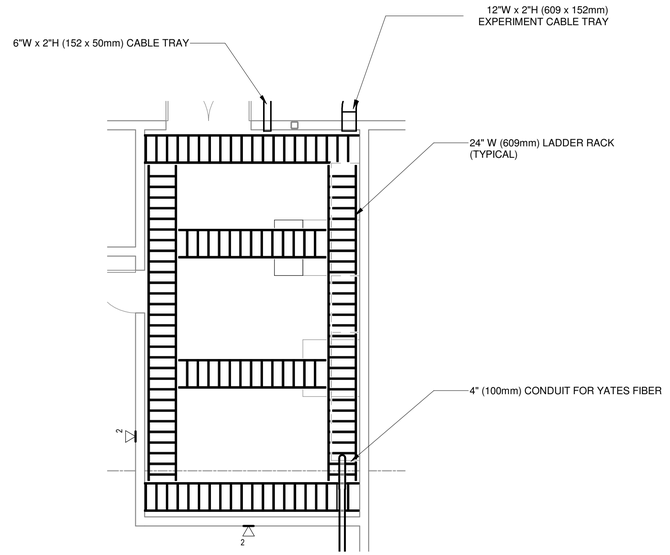
NOT FOR CONSTRUCTION



MCR ROOM LAYOUT

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

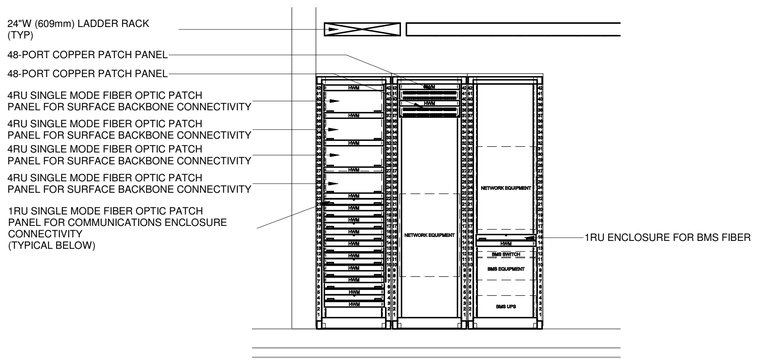
1



MCR ROOM OVERHEAD LADDER RACK LAYOUT

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

2



DAQ RACK ELEVATIONS - CF

SCALE: 1/2" = 1'-0"

3

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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SCALE:

AS NOTED

Fermilab
Long-Baseline Neutrino Facility

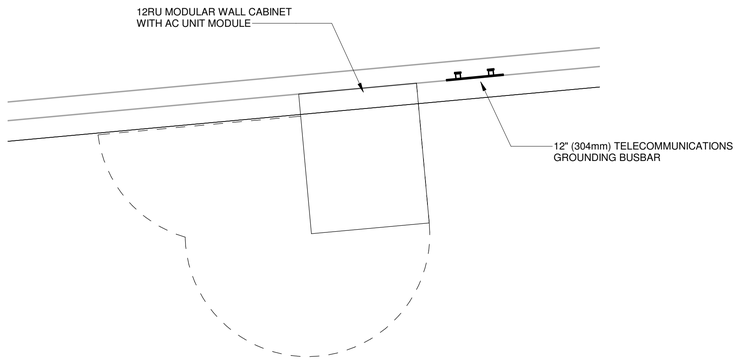
DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
ENLARGED VIEWS
SHEET 1 OF 5

DRAWING NO. 15-1-6K U1-FD-T-701 REV. 6

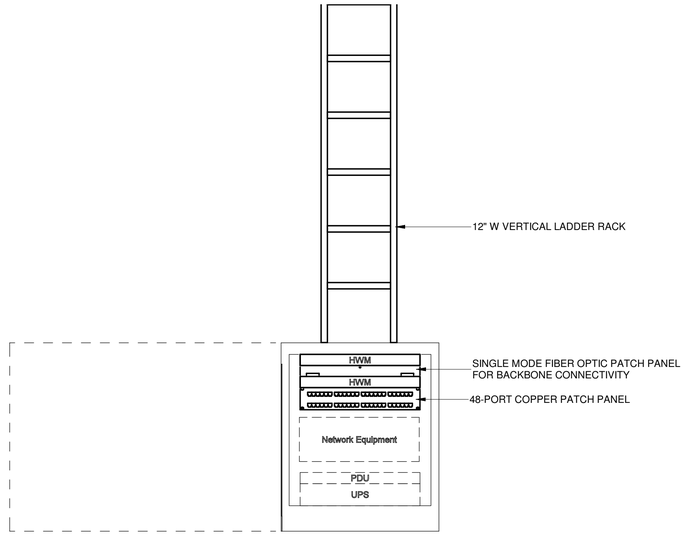
10/01/20

NOT FOR CONSTRUCTION



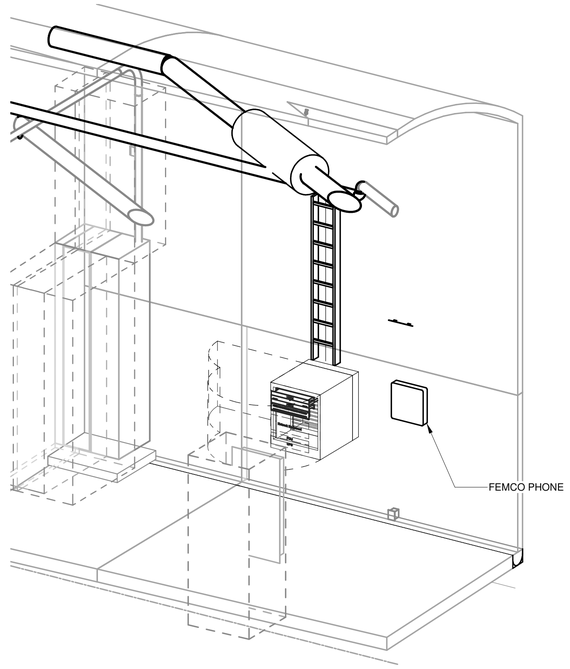
COMMUNICATIONS ENCLOSURE LAYOUT (TYPICAL) 1

SCALE: 3/4" = 1'-0"



COMMUNICATIONS ENCLOSURE ELEVATION (TYPICAL) 2

SCALE: 1" = 1'-0"



COMMUNICATIONS ENCLOSURE ISOMETRIC VIEW (TYP) 3

SCALE: NTS

REV.	DATE	DESCRIPTION
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5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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SCALE:

AS NOTED

Fermilab
Long-Baseline Neutrino Facility

DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

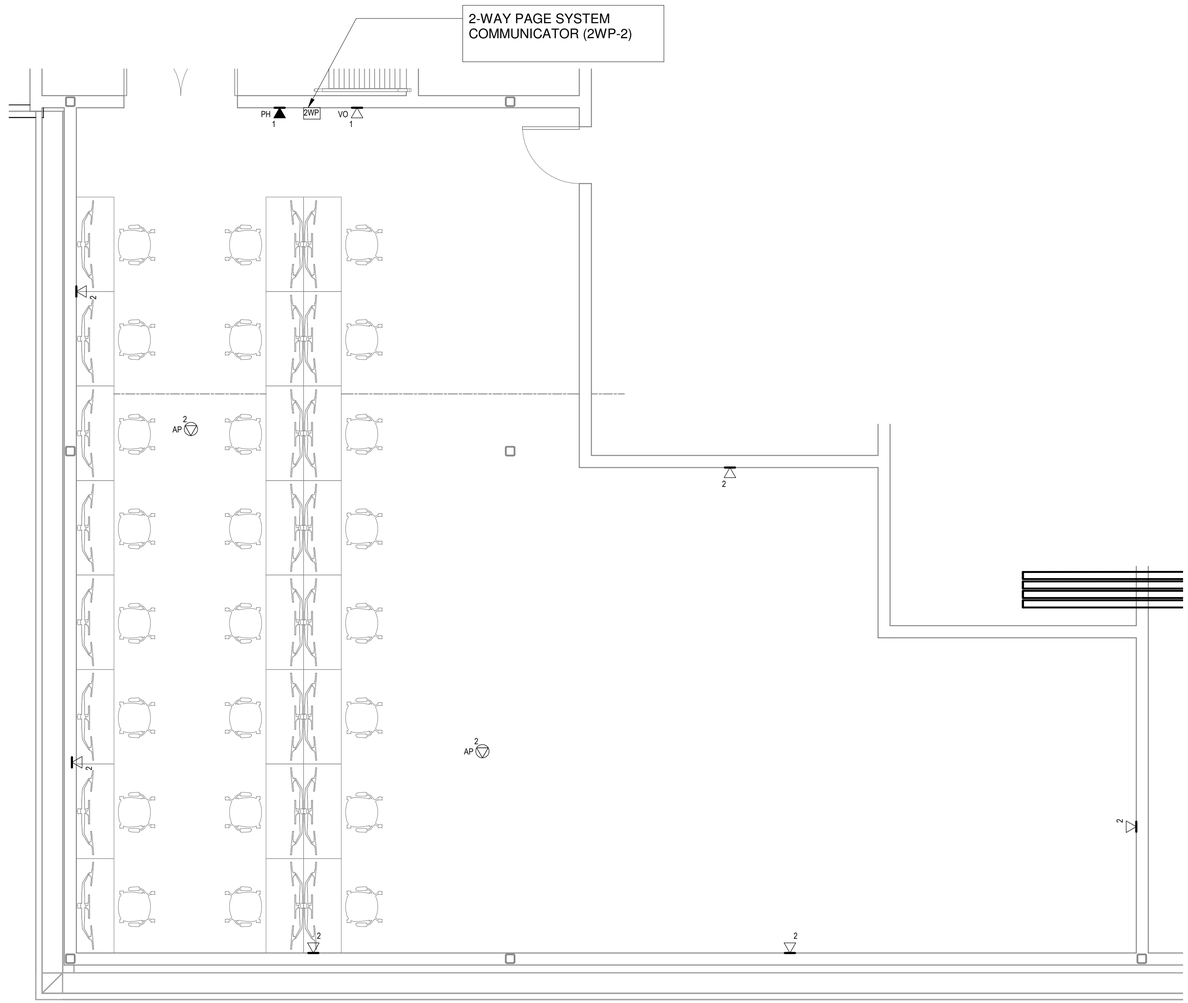
LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE ENLARGED VIEWS SHEET 3 OF 5

DRAWING NO. 15-1-6K U1-FD-T-703 REV. 6

10/01/20

NOT FOR CONSTRUCTION

NOTES:
1. ADD ALLOWANCE FOR (24) 2-CABLE ETHERNET OUTLETS FOR DESKS FED FROM THE ADJACENT MCR.
2. FURNITURE SHOWN FOR REFERENCE BUT NOT INCLUDED AS PART OF THE PROJECT



CONTROL ROOM

SCALE: 1/4" = 1'-0"

1

REV.	DATE	DESCRIPTION
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5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
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1	07/27/18	30% FD SUBMISSION

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PROJECT NORTH
W E S

SCALE:

AS NOTED

Fermilab
Long-Baseline Neutrino Facility

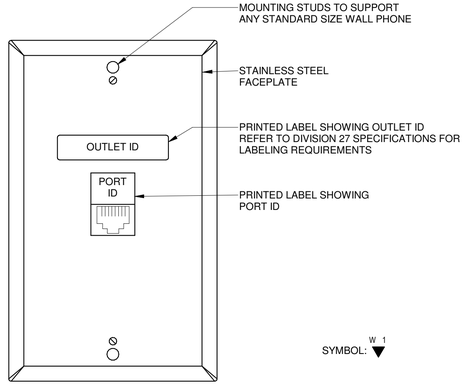
DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE
ENLARGED VIEWS
SHEET 4 OF 5

DRAWING NO. 15-1-6K U1-FD-T-706 REV. 6

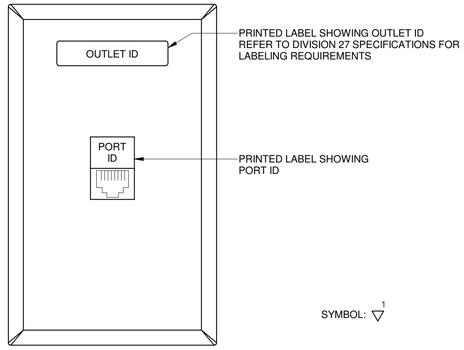
10/01/20

NOT FOR CONSTRUCTION



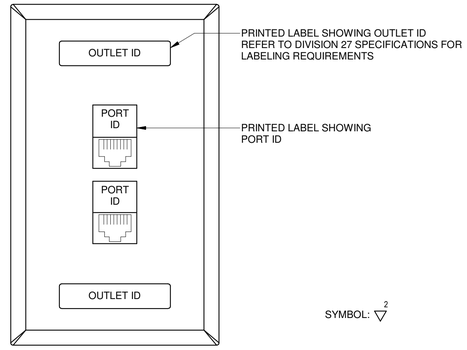
WALL PHONE OUTLET SINGLE GANG FACEPLATE 1

SCALE: NTS



ONE-PORT DATA OUTLET SINGLE GANG FACEPLATE 2

SCALE: NTS



TWO-PORT DATA OUTLET SINGLE GANG FACEPLATE 3

SCALE: NTS

GENERAL NOTES:

1. REFER TO TELECOMMUNICATION GENERAL NOTES AND LEGENDS FOR OUTLET REQUIREMENTS.
2. REFER TO FLOOR PLANS AND DIVISION 27 SPECIFICATIONS FOR OUTLET AND TERMINATION TYPES USED FOR THE PROJECT.
3. COORDINATE FACEPLATE COLORS WITH ARCHITECT.

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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SCALE:

NTS

Fermilab
Long-Baseline Neutrino Facility

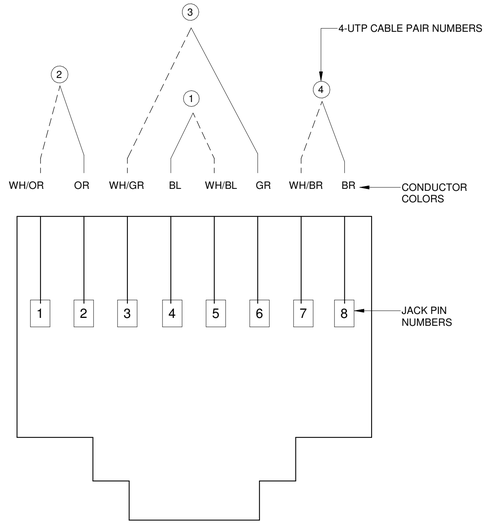
DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

LBNF-FSCF-BSI
UNDERGROUND, CYBERINFRASTRUCTURE DETAILS
SHEET 1 OF 5

DRAWING NO. 15-1-6K U1-FD-T-801 REV. 6

10/01/20

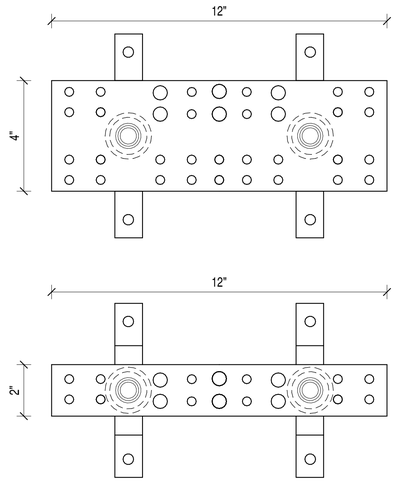
NOT FOR CONSTRUCTION



TIA 568B WIRING SCHEME

1

SCALE: NTS

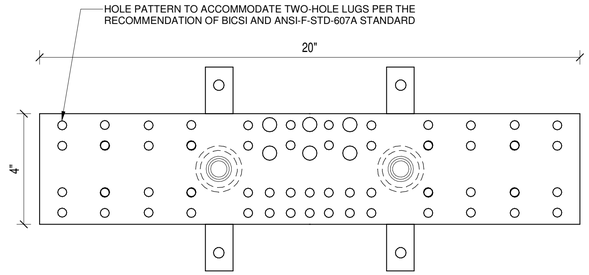


NOTE: FOR USE IN COMMUNICATIONS ROOMS OR COMMUNICATIONS ENCLOSURES

TELECOMMUNICATIONS GROUNDING BUS BARS

2

SCALE: NTS



NOTE: FOR USE IN COMMUNICATION DISTRIBUTION ROOM

TELECOMMUNICATIONS MAIN GROUNDING BUS BARS

3

SCALE: NTS

MAXIMUM NUMBER OF CABLES ALLOWED BASED ON FILL RATES

CONDUIT TRADE SIZE: IN (mm)	4.5 mm (0.18 in)	5 mm (0.2 in)	6 mm (0.24 in)	7 mm (0.28 in)	8 mm (0.31 in)	9 mm (.35 in)
3/4 (21)	9	6	5	3	3	2
1 (27)	14	10	9	6	5	3
1 1/4 (35)	25	17	16	11	9	6
1 1/2 (41)	34	23	21	15	12	8
2 (53)	56	39	36	24	20	14
2 1/2 (63)	80	56	51	35	29	20
3 (78)	124	86	79	54	45	30
3 1/2 (91)	166	115	106	72	60	41
4 (103)	214	149	136	93	78	52

NOTE: SHALL NOT EXCEED 30% FILL FOR MIXED CABLE DIAMETERS

CONDUIT SIZING TABLE

4

SCALE: NTS

SIZING OF THE TELECOM BONDING BACKBONE (TBB)

TBB LINEAR LENGTH (m)	TBB LINEAR LENGTH (FT)	TBB SIZE (AWG)
LESS THAN 4	LESS THAN 13	6
4-6	13 - 19	4
6-8	19 - 26	3
8-10	26 - 32	2
10-13	32 - 42	1
13-16	42 - 52	1/0
16-20	52 - 65	2/0
GREATER THAN 20	GREATER THAN 65	3/0

TELECOMMUNICATIONS BONDING BACKBONE SIZING TABLE

5

SCALE: NTS

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
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SCALE:

NTS

Fermilab
Long-Baseline Neutrino Facility

DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

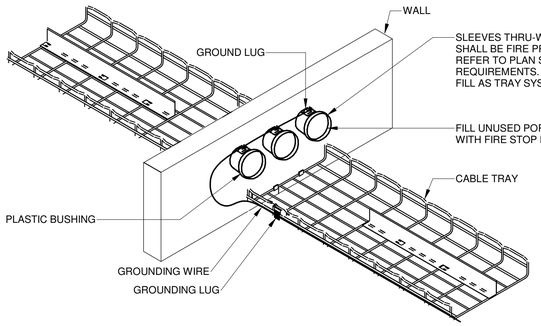
LBNF-FSCF-BSI

UNDERGROUND, CYBERINFRASTRUCTURE DETAILS SHEET 2 OF 5

DRAWING NO. 15-1-6K U1-FD-T-802 REV. 6

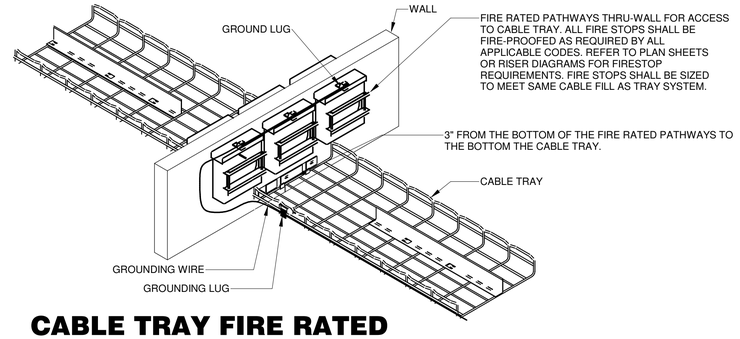
10/01/20

NOT FOR CONSTRUCTION



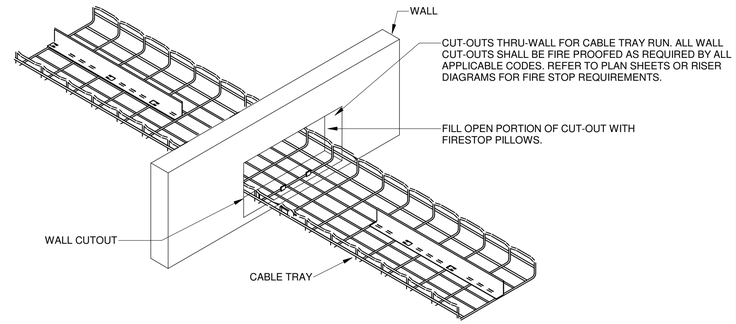
CABLE TRAY FIRE WALL SLEEVE 1

SCALE: NTS



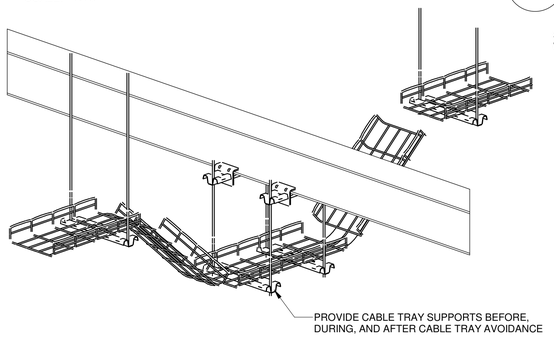
CABLE TRAY FIRE RATED PATHWAY 2

SCALE: NTS



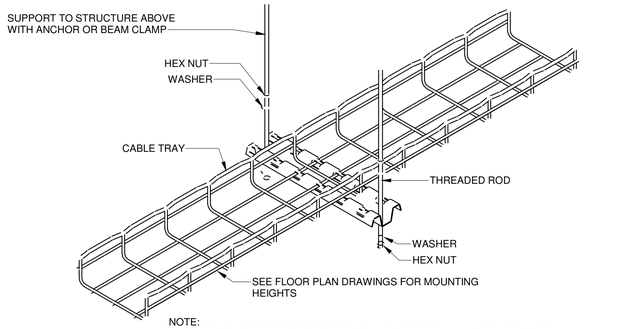
CABLE TRAY THRU FIRE WALL 3

SCALE: NTS



CABLE TRAY OBSTACLE AVOIDANCE 4

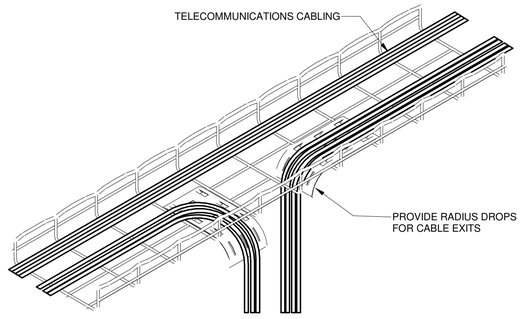
SCALE: NTS



NOTE:
PROTRUSION OF THREADED ROD BEYOND BASKET TRAY HANGER BRACKET MUST BE CAPPED, ALTERNATIVELY THREADED ROD MAY NOT PROTRUDE BEYOND HEX NUT.

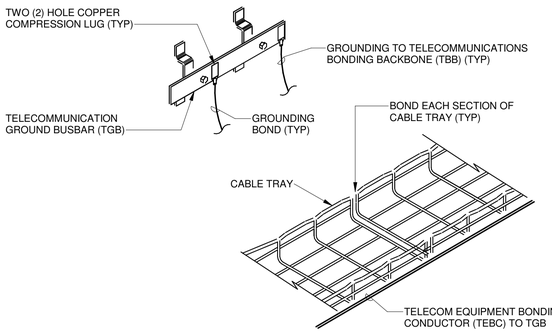
CABLE TRAY SUPPORT 5

SCALE: NTS



CABLE TRAY RADIUS DROP 6

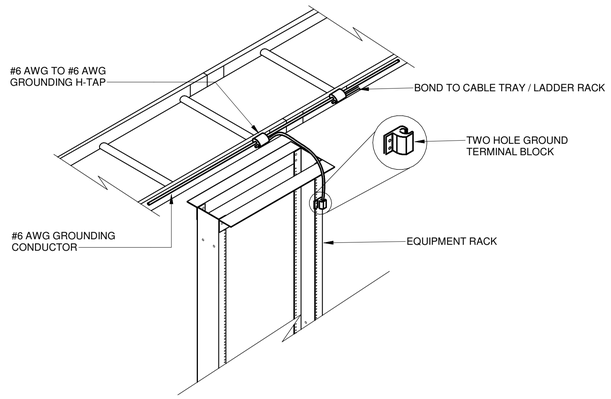
SCALE: NTS



NOTES:
1. TELECOM GROUNDING BUSBAR (TGB) TO BE INSTALLED AND GROUNDED TO TELECOMMUNICATIONS BONDING BACKBONE (TBB).
2. FURNISH AND INSTALL A MINIMUM OF A #6 AWG STRANDED GROUNDING CONDUCTOR AND A TWO (2) HOLE COPPER COMPRESSION LUG FOR EACH INDIVIDUAL EQUIPMENT RACK AND CABLE TRAY.
3. SEE ELECTRICAL DETAILS FOR ADDITIONAL GROUNDING INFORMATION.
4. PROVIDE GROUNDING AT EVERY 6 FEET AND AT EVERY PIECE OF TRAY.

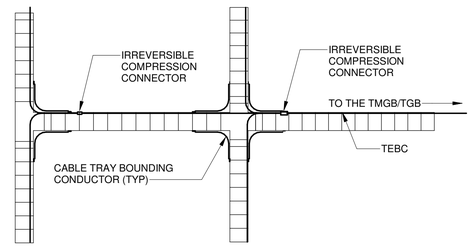
CABLE TRAY GROUNDING 7

SCALE: NTS



TYPICAL TRAY AND RACK GROUNDING 8

SCALE: NTS



CABLE TRAY SYSTEM GROUNDING 9

SCALE: NTS

GENERAL NOTES:
1. REFER TO TELECOMMUNICATIONS GENERAL NOTES FOR CABLE TRAY ROUTING AND INSTALLATION REQUIREMENTS.
2. REFER TO FLOOR PLANS AND DIVISION 27 SPECIFICATIONS FOR CABLE TRAY / LADDER TYPE USED FOR THE PROJECT.

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
3	02/22/19	90% FD SUBMISSION
2	11/16/18	60% FD SUBMISSION
1	07/27/18	30% FD SUBMISSION

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Long-Baseline Neutrino Facility

DESIGNED	TB	ARUP
DRAWN	CE	ARUP
CHECKED	KG	ARUP

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UNDERGROUND, CYBERINFRASTRUCTURE DETAILS
SHEET 3 OF 5

DRAWING NO. 15-1-6K U1-FD-T-803 REV. 6

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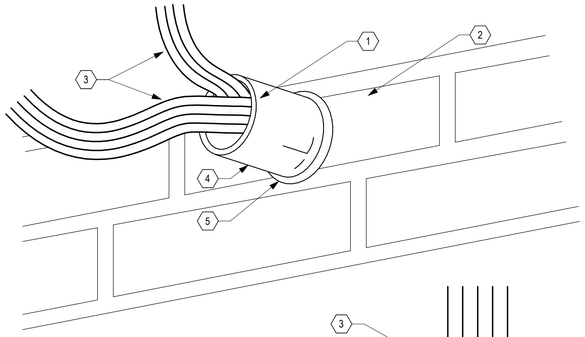
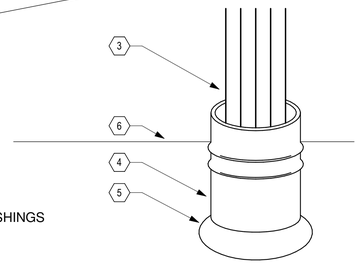
WALL PENETRATION





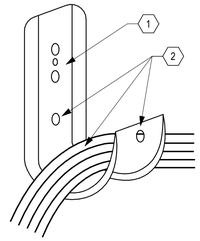
FLOOR PENETRATION

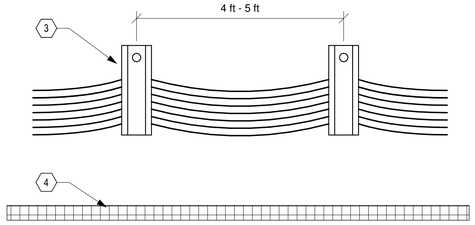
KEYNOTES:

1. ALL PENETRATIONS SHALL HAVE BUSHINGS
2. PENETRATED WALL
3. CABLES
4. SLEEVE
5. ALL OPENINGS SHALL BE FIRE-STOPPED AS REQUIRED
6. FLOOR

TYPICAL SLEEVE PENETRATIONS 1

SCALE: NTS



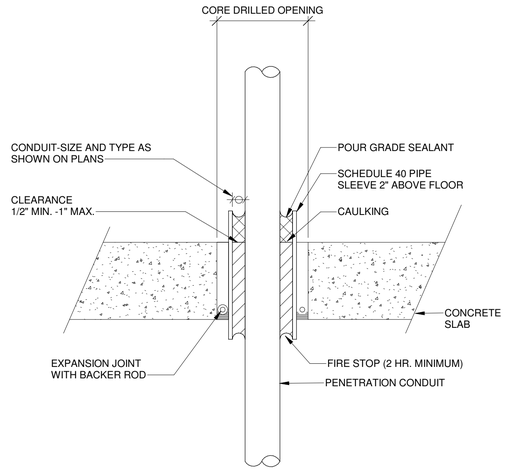


KEYNOTES:

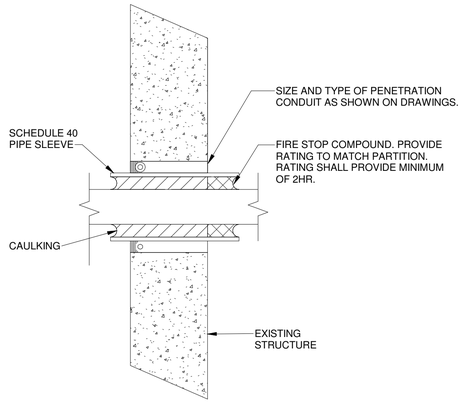
1. APPROVED CABLE SUPPORT, USE 2 OR MORE HANGERS AT ALL TURNS TO MAINTAIN MANUFACTURER'S BEND RADIUS REQUIREMENTS
2. SECURE CABLES TO HOOK IN AREAS WHERE CABLES CHANGE DIRECTIONS
3. SADDLE TYPE CABLE HANGERS DESIGNED AND APPROVED FOR ALL SYSTEM CABLING
4. CEILING

TYPICAL J-HOOK INSTALLATION 2

SCALE: NTS



FLOOR PENETRATION



WALL PENETRATION

TYPICAL CONDUIT PENETRATION FIRESTOPPING 3

SCALE: NTS

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
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CHECKED	KG	ARUP

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UNDERGROUND, CYBERINFRASTRUCTURE DETAILS

SHEET 4 OF 5

DRAWING NO. **15-1-6K U1-FD-T-804** REV. **6**

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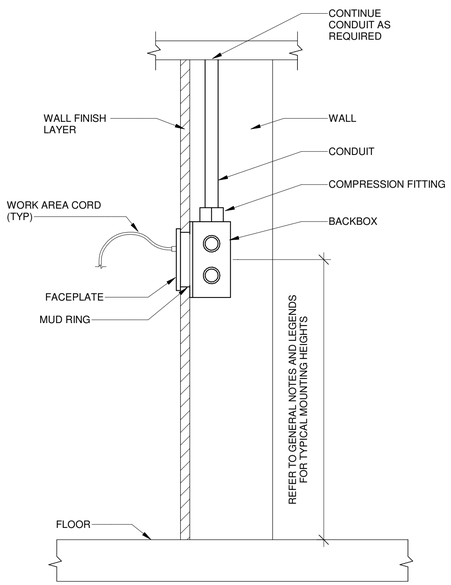
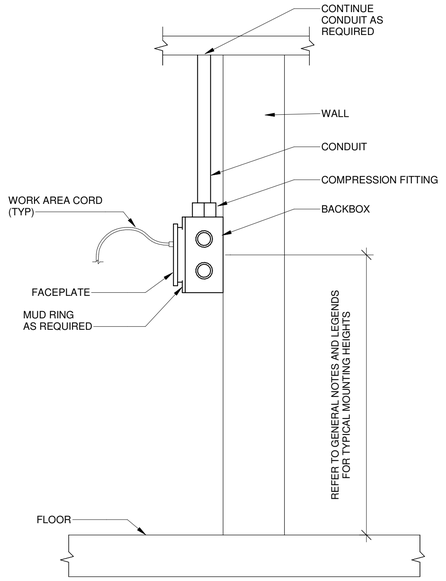


DETAIL NOTES: SYMBOL:

1. REFER TO TELECOMMUNICATIONS GENERAL NOTES AND LEGENDS FOR OUTLET BACKBOX, MUD RING, FACEPLATE AND HEIGHT REQUIREMENTS.
2. REFER TO ARCHITECT FOR WALL DETAILS.
3. CONTINUE CONDUIT ROUTING AS REQUIRED BY THE CEILING TYPE. REFER TO GENERAL NOTES FOR CONDUIT ROUTING REQUIREMENTS.

TYPICAL WALL MOUNTED OUTLET 1

SCALE: NTS

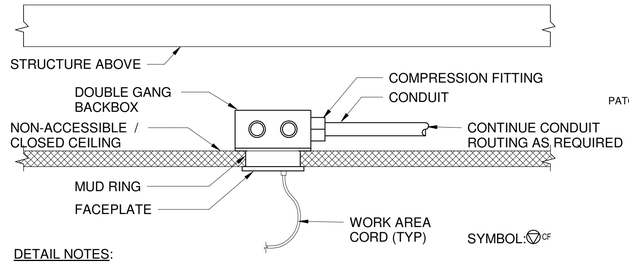


DETAIL NOTES: SYMBOL:

1. REFER TO TELECOMMUNICATIONS GENERAL NOTES AND LEGENDS FOR OUTLET BACKBOX, MUD RING, FACEPLATE AND HEIGHT REQUIREMENTS.
2. REFER TO ARCHITECT FOR WALL DETAILS.
3. CONTINUE CONDUIT ROUTING AS REQUIRED BY THE CEILING TYPE. REFER TO GENERAL NOTES FOR CONDUIT ROUTING REQUIREMENTS.

TYPICAL SURFACE WALL MOUNTED OUTLET 2

SCALE: NTS



DETAIL NOTES:

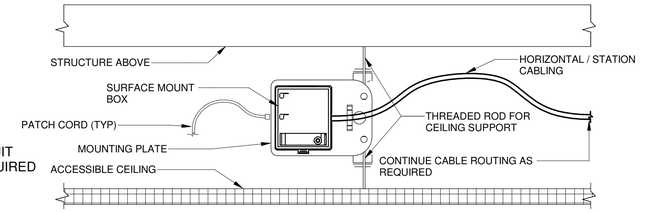
1. COORDINATE WITH ARCHITECT FOR EXACT MOUNTING LOCATION

TYPICAL FLUSH CEILING MOUNTED OUTLET FOR CLOSED / NON-ACCESSIBLE CEILINGS 3

SCALE: NTS

GENERAL NOTES:

1. REFER TO TELECOMMUNICATIONS GENERAL NOTES AND LEGENDS FOR OUTLET REQUIREMENTS.
2. REFER TO FLOOR PLANS AND DIVISION 27 SPECIFICATIONS FOR OUTLET MOUNTING TYPES USED FOR THE PROJECT.
3. COORDINATE FINAL MOUNTING REQUIREMENTS WITH SYSTEM OWNER.

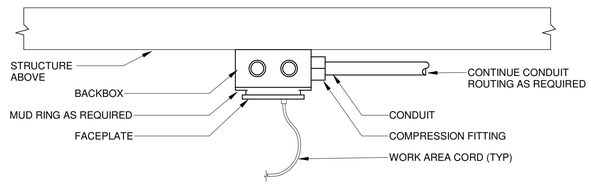


DETAIL NOTES: SYMBOL:

1. COORDINATE WITH ARCHITECT AND CEILING MANUFACTURER FOR ACCEPTANCE OF OUTLET MOUNTING ON CEILING SUPPORT THREADED RODS.

TYPICAL EXPOSED CABLING CEILING MOUNTED OUTLET FOR ACCESSIBLE CEILINGS 4

SCALE: NTS



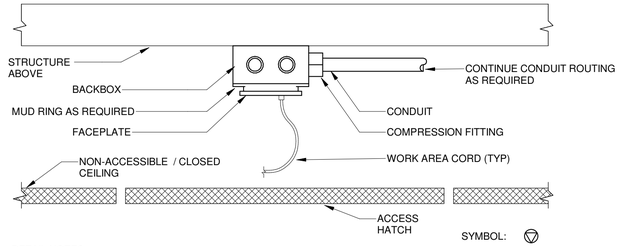
SYMBOL:

DETAIL NOTES:

1. CEILING OUTLETS SHALL NOT BE INSTALLED ABOVE ANY CEILING BUILDING SERVICES SUCH AS MECHANICAL DUCTS, PIPING, CONDUITS, AND LIGHT FIXTURES.
2. OUTLET AND JACK(S) SHALL BE COMPLETELY ACCESSIBLE WITH MINIMUM 6" CLEARANCE.

TYPICAL CEILING MOUNTED OUTLET FOR OPEN / ACCESSIBLE CEILINGS 5

SCALE: NTS



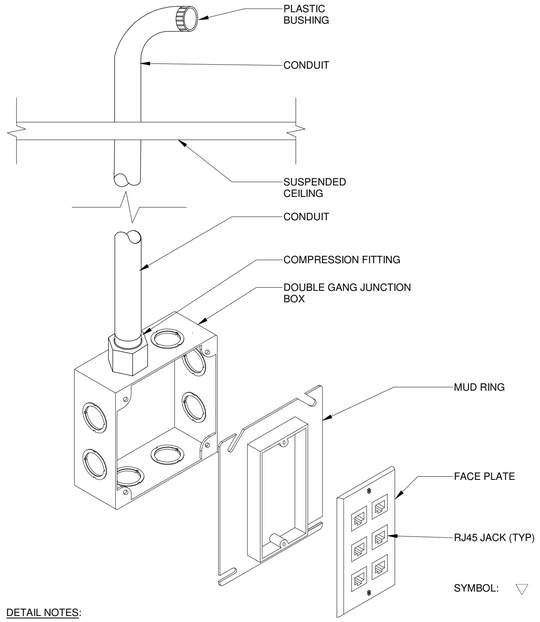
SYMBOL:

DETAIL NOTES:

1. CEILING OUTLETS SHALL NOT BE INSTALLED ABOVE ANY CEILING BUILDING SERVICES SUCH AS MECHANICAL DUCTS, PIPING, CONDUITS, AND LIGHT FIXTURES.
2. OUTLET AND JACK(S) SHALL BE COMPLETELY ACCESSIBLE WITH MINIMUM 6" CLEARANCE.

TYPICAL HIDDEN CEILING MOUNTED OUTLET FOR CLOSED / NON-ACCESSIBLE CEILINGS 6

SCALE: NTS



DETAIL NOTES:

1. REFER TO TELECOMMUNICATION GENERAL NOTES AND LEGENDS FOR OUTLET AND CONDUIT REQUIREMENTS.

TYPICAL TELECOM OUTLET DETAIL 7

SCALE: NTS

REV.	DATE	DESCRIPTION
6	10/01/20	90% FD UPDATE
5	08/21/20	90% DRAFT FD UPDATE
4	05/03/19	100% FD SUBMISSION
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UNDERGROUND, CYBERINFRASTRUCTURE DETAILS
SHEET 5 OF 5

DRAWING NO. 15-1-6K U1-FD-T-805 REV. 6

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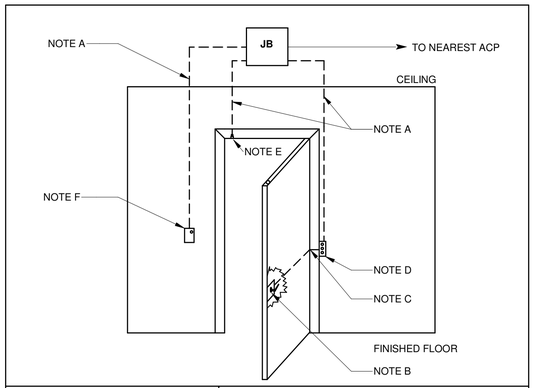
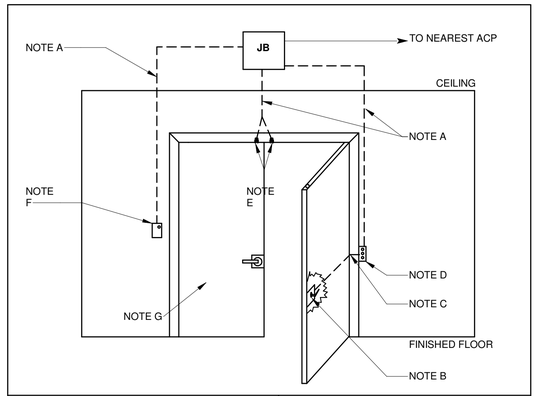


DOOR NOTES	FLOOR PLAN DIAGRAM
A. 3/4" CONDUIT (BEHIND FINISHED WALL) B. ELECTRIFIED LOCKSET (INTEGRATED REQUEST-TO-EXIT) C. ELECTRIC POWER TRANSFER HINGE D. BACKBOX E. RECESSED MAGNETIC CONTACT F. CARD READER	SECURE SIDE CR MC EPT EL UNSECURE SIDE

ELECTRIC LOCKSET SINGLE DOOR ACCESS CONTROL ONE DIRECTION

Z3 — 1

SCALE: NTS

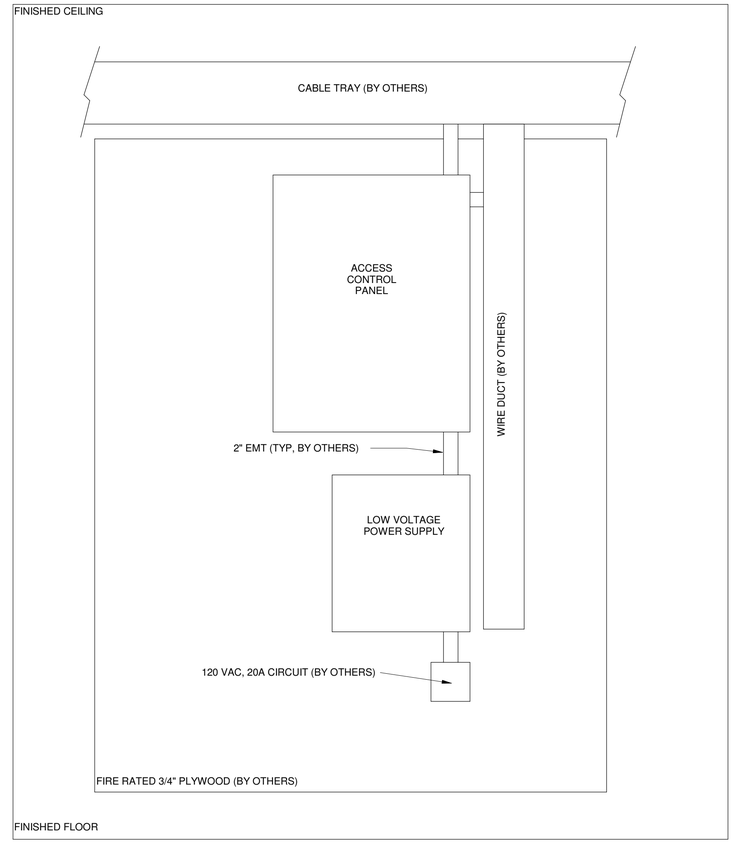


DOOR NOTES	FLOOR PLAN DIAGRAM
A. 3/4" CONDUIT (BEHIND FINISHED WALL) B. ELECTRIFIED LOCKSET (INTEGRATED REQUEST-TO-EXIT) C. ELECTRIC POWER TRANSFER HINGE D. BACKBOX E. RECESSED MAGNETIC CONTACT F. CARD READER G. MECHANICALLY FIXED LEAF	SECURE SIDE CR MC MC EPT EL UNSECURE SIDE

ELECTRIC LOCKSET DOUBLE DOOR ACCESS CONTROL ONE DIRECTION

Z4 — 2

SCALE: NTS



ACCESS CONTROL WALLFIELD TYPICAL DETAIL

5

SCALE: NTS

NOTES:
1. PROXIMITY CARD READERS TO BE MOUNTED 48" AFF
2. MAGNETIC CONTACTS TO BE MOUNTED 6" FROM HANDLE SIDE OF SWING DOORS
3. CONTRACTOR TO COORDINATE AND CONFIRM EXACT LOCATION AND LAYOUT OF ACCESS CONTROL WALLFIELD, AND EXACT QUANTITIES OF ACCESS CONTROL PANELS.

DOOR NOTES	FLOOR PLAN DIAGRAM
A. 3/4" CONDUIT (BEHIND FINISHED WALL) B. OVERHEAD DOOR MAGNETIC CONTACT C. ELECTRIFIED LOCKSET (INTEGRATED REQUEST-TO-EXIT) D. ELECTRIC POWER TRANSFER HINGE E. IN FLOOR MAGNETIC CONTACT F. CARD READER G. BACKBOX	SECURE SIDE CR EPT MC MC MC EL UNSECURE SIDE

ROLL UP DOOR WITH INTEGRATED SWING DOOR

ZR1 — 3

SCALE: NTS

DOOR NOTES	FLOOR PLAN DIAGRAM
A. 3/4" CONDUIT (BEHIND FINISHED WALL) B. RECESSED MAGNETIC CONTACT	SECURE SIDE MC MC UNSECURE SIDE

ROLL UP DOOR

ZR2 — 4

SCALE: NTS

REV.	DATE	DESCRIPTION
5	10/01/20	90% FD UPDATE
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CHECKED	RR	ARUP

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