

**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

CONTRACT PLANS

FINANCIAL PROJECT ID
BROWARD COUNTY

DISTRICT 4 HIGH BAND TO VOTED SYSTEM

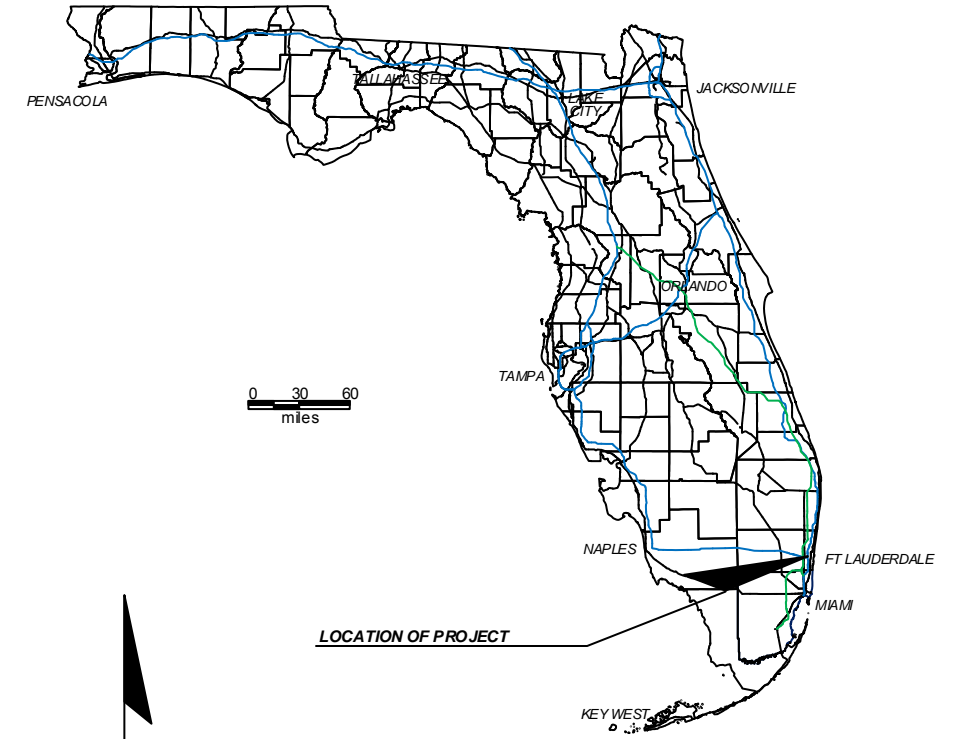
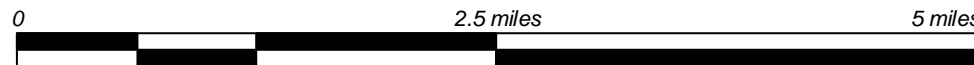
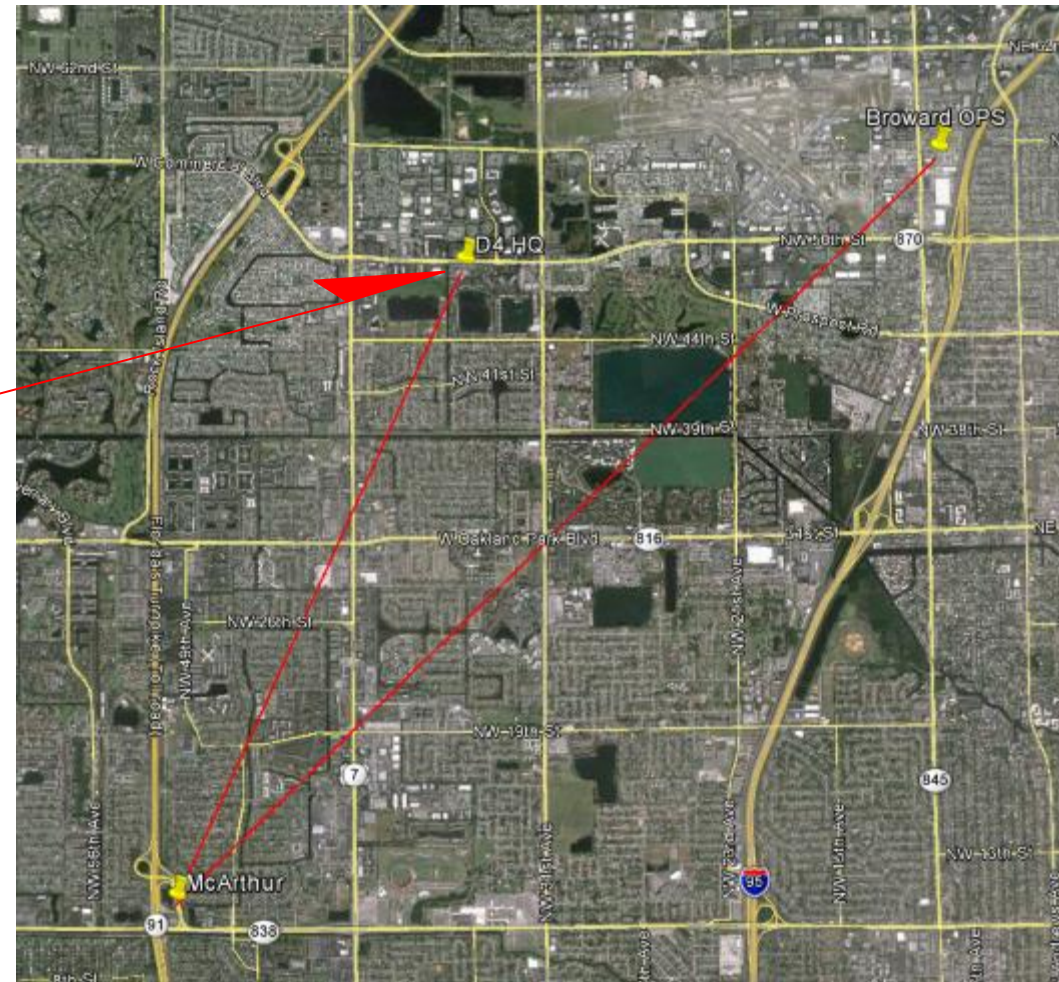
INTELLIGENT TRANSPORTATION SYSTEMS PLANS

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DISTRICT 4 HQ



LOCATION OF PROJECT

TOWER SITE ADDRESS(ES):

DISTRICT 4 HEADQUARTERS
3400 WEST COMMERCIAL BOULEVARD
FT. LAUDERDALE, FL 33309-3421

MCARTHUR TOWER
5100 WEST SUNRISE BOULEVARD
FT. LAUDERDALE, FL 33313

BROWARD OPS
5548 NW 9TH AVENUE
FT. LAUDERDALE, FL 33309-2804

TOWER SITE LOCATION(S):

DISTRICT 4 HEADQUARTERS
LATITUDE: 26-11-8.03 N (NAD 83)
LONGITUDE: 80-11-39.40 W

MCARTHUR TOWER
NE CORNER OF FLORIDA'S TURNPIKE AND SUNRISE BLVD. (EXIT 58)
LATITUDE: 26-08-15.08 N (NAD 83)
LONGITUDE: 80-13-3.52 W

BROWARD OPS
LATITUDE: 26-11-40.47 N
LONGITUDE: 80-09-14.64 W

NOTE: THE SCALE OF THESE PLANS MAY
HAVE CHANGED DUE TO REPRODUCTION.

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
DESIGN STANDARDS DATED 2015,
AND STANDARD SPECIFICATIONS FOR ROAD AND
BRIDGE CONSTRUCTION DATED 2015,
AS AMENDED BY CONTRACT DOCUMENTS.

ENGINEER OF RECORD: TERRYA POSEY, P.E.

P.E. NO.: 36151

FDOT PROJECT MANAGER: RANDY PIERCE

CONTRACT PLANS RECORD

DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
07/07/16	1.0	DISTRICT 4 HIGH BAND TO VOTED SYSTEM			
8/24/16	2.1				



FLORIDA DEPARTMENT OF TRANSPORTATION
605 SUWANNEE STREET, MS 90
TALLAHASSEE, FL 32399-0450
PH. (850)-410-5600
FAX. (850)-410-5501

**STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION**

SITE NAME	COUNTY	FINANCIAL PROJECT ID
FT. LAUDERDALE	BROWARD	

**DISTRICT 4 HIGH BAND
KEY SHEET**

SHEET NO.

IT-1

GENERAL NOTES:

1. THE VENDOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDITIONS AND MEASUREMENTS RELATING TO THE WORK IN THE FIELD PRIOR TO PROCEEDING WITH INSTALLATION, REMOVAL, AND DISPOSAL ACTIVITIES. THE VENDOR SHALL COORDINATE ANY MODIFICATIONS REQUIRED WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) IN ADVANCE.
2. THE VENDOR IS RESPONSIBLE FOR ALL EQUIPMENT, MATERIALS, AND SERVICES REQUIRED TO COMPLETE THIS PROJECT. THE VENDOR IS RESPONSIBLE FOR VERIFYING THE COMPLETENESS OF MATERIALS REQUIRED AND SUITABILITY OF DEVICES TO MEET THESE PLANS. THE VENDOR SHALL PROVIDE AND INSTALL, WITHOUT CLAIM, ANY ADDITIONAL EQUIPMENT AND SERVICES REQUIRED FOR OPERATION IN ACCORDANCE WITH THESE PLANS.
3. THE VENDOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND MEETING BUILDING CODE REQUIREMENTS, INCLUDING ASSOCIATED FEES. THE VENDOR SHALL BE RESPONSIBLE FOR CONTACTING APPLICABLE BUILDING OFFICIALS FOR PERMIT APPLICATIONS AND SUBMIT TO THE FDOT FOR SIGNATURE.
4. THE VENDOR SHALL BE RESPONSIBLE FOR FILING ANY NECESSARY NOTIFICATIONS OF CONSTRUCTION OR OTHER NOTIFICATIONS OR STUDIES WITH THE FAA.
5. ALL EQUIPMENT AND COMPONENT PARTS FURNISHED SHALL BE NEW, MEET OR EXCEED THE MINIMUM REQUIREMENTS STATED HEREIN, AND PERFORM TO MANUFACTURER'S SPECIFICATIONS. NO PART OR ATTACHMENT SHALL BE SUBSTITUTED OR APPLIED CONTRARY TO THE MANUFACTURER'S RECOMMENDATIONS AND STANDARD PRACTICES.
6. THE VENDOR SHALL STORE THE TRASH GENERATED FROM THE INSTALLATION, INCLUDING LUNCH BAGS AND DRINKS, IN A NEAT MANNER UNTIL DISPOSED OF PROPERLY. THE VENDOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING OF TRASH IN A TIMELY MANNER. THE VENDOR SHALL NOT ALLOW TRASH TO BLOW AROUND OR AWAY FROM ANY CONSTRUCTION SITE.
7. THE FDOT WILL INSPECT THE EQUIPMENT INSTALLATIONS FOR COMPLIANCE WITH THESE SPECIFICATIONS.
8. THE VENDOR SHALL NOTIFY THE FDOT UPON COMPLETION OF ALL OTHER SYSTEM INSTALLATION WORK.
9. THE FDOT WILL WITNESS COMMISSIONING AND TESTING OF THE HIGH-BAND REPEATER, MICROWAVE LINK AND NETWORK CONNECTION(S) AT EACH OF THE THREE (3) DISTRICT 4 TRANSMISSION SITES, AND NOTIFY THE VENDOR OF FINAL ACCEPTANCE.
10. ALL EXISTING DRIVEWAYS, EASEMENTS, AND GROUNDS SHALL BE PROTECTED OR RESTORED TO INITIAL CONDITION IF DAMAGED OR DISTURBED AS A RESULT OF WORK AT THE SITE.

DISTRICT 4 HEADQUARTERS INSTALLATION NOTES:

1. THE VENDOR SHALL REMOVE TWO (2) MIDLAND BASETECH BASE STATION RADIOS FROM AN EXISTING CABINET IN THE DISTRICT 4 HEADQUARTERS EQUIPMENT ROOM. THE VENDOR SHALL RETURN THESE RADIOS TO SPARES INVENTORY.
2. THE VENDOR SHALL INSTALL AND CONFIGURE A NEW MIDLAND BASETECH 3 VHF HIGH-BAND REPEATER IN THIS CABINET, AND REUSE THE EXISTING POWER SUPPLY. THE FDOT WILL FURNISH THE REPEATER. THE VENDOR SHALL FURNISH AND INSTALL A NEW BIRD/TXRX SYSTEMS DUPLEXER MODEL 28-37-06C (CABINET MOUNT), CONNECT IT TO THE NEW HIGH BAND REPEATER AND CONFIGURE BOTH FOR THE FOLLOWING FREQUENCIES: TX: 154.68 MHZ, RX: 156.24 MHZ. THE TRANSMIT FREQUENCY IS LICENSED TO THE STATE WITH CALL SIGN WQXV737. BOTH RECEIVE AND TRANSMIT CTCSS TONES SHALL BE 151.4 HZ. REFER TO SHEETS IT-4, NETWORK DESIGN AND IT-6, D4 EQUIPMENT ROOM.
3. THE VENDOR SHALL REUSE TWO EXISTING ½" TRANSMISSION LINES AND AN EXISTING ROOF-MOUNTED DB224 (VHF HIGH BAND) ANTENNA. ONE OF THE TRANSMISSION LINES IS CONNECTED TO A DB-201 (VHF LOW BAND) ANTENNA. THE VENDOR SHALL REMOVE AND RETURN THE LOW BAND ANTENNA TO SPARES INVENTORY. THAT TRANSMISSION LINE SHALL BE USED FOR A MICROWAVE ANTENNA THAT IS TO BE LOCATED ON THE SOUTH-FACING INNER PARAPET WALL ON THE ROOF OF THE DISTRICT 4 HEADQUARTERS BUILDING. SEE SHEET IT-5, D4 HQ ROOF APPURTENANCES.
4. THE VENDOR SHALL FURNISH AND INSTALL AN ADDITIONAL 150 FEET OF 7/8", FOAM-FILLED TRANSMISSION LINE FOR A HORIZONTAL RUN ALONG THE INNER PARAPET WALL, BEGINNING AT THE POINT WHERE THE ½" TRANSMISSION LINES PENETRATE THE ROOF NEAR THE NORTH-FACING PORTION OF THE INNER PARAPET WALL, AND ENDING AT THE MICROWAVE ANTENNA PLACEMENT SITE ON THE SOUTH-FACING PORTION OF THE INNER PARAPET WALL AS SHOWN ON SHEET IT-5, D4 HQ ROOF APPURTENANCES. THE VENDOR SHALL CONNECT THE NEW 7/8" LINE TO THE ½" LINE PREVIOUSLY USED BY THE LOW BAND ANTENNA WITH A COMPATIBLE TERMINATION, AND ENSURE THE CONNECTION IS WEATHERPROOFED USING BEST INDUSTRY PRACTICES AND MATERIALS.

NEW TRANSMISSION LINE SHALL BE RFS LCF78-50J, EUPEN EC5-50-A, DRAKA NKRF07800 OR APPROVED EQUIVALENT. 7/16 DIN-TYPE FEMALE CONNECTORS SHALL BE RFS 716F-LCF78-072, EUPEN 7/16F50V78MA, DRAKA NKC1078200 OR APPROVED EQUIVALENT AND OF APPROPRIATE TYPE FOR THE TRANSMISSION LINE SELECTED. 7/16 DIN-TYPE MALE CONNECTORS SHALL BE RFS 716M-LCF78-072, EUPEN 7/16M50V78MA, DRAKA NKC1078100, OR APPROVED EQUIVALENT AND OF APPROPRIATE TYPE FOR THE SELECTED TRANSMISSION LINE. CONNECTORS AND ADAPTERS FOR THE TRANSMISSION LINES TO EACH ANTENNA SHALL BE FROM THE SAME MANUFACTURER AS THE SELECTED TRANSMISSION LINES. HANGERS FOR TRANSMISSION LINES SHALL BE OF THE BOLT-ON TYPE, MADE OF STAINLESS STEEL AND SHALL BE SECURED TO A SUPPORT MEMBER OF THE INNER PARAPET WALL. SNAP-IN HANGERS AND 'TWIST-TIE' TYPE HANGERS SHALL NOT BE PERMITTED. GROUND KITS SHALL BE OF APPROPRIATE SIZE AND TYPE, AND FROM THE SAME MANUFACTURER AS THE SELECTED TRANSMISSION LINE(S).

5. THE VENDOR SHALL ALSO FURNISH AND INSTALL A NEW, 4RF APRISA MODEL XE MICROWAVE RADIO IN THE CABINET AND CONNECT IT TO THE SAME TRANSMISSION LINE PREVIOUSLY USED FOR THE DB-201 (VHF LOW BAND) ANTENNA. THE APRISA SHALL BE CONFIGURED AS FOLLOWS:
TX FREQUENCY: 933.375 MHZ, RX FREQUENCY: 942.375 MHZ, POLARIZATION: HORIZONTAL. THE FDOT WILL SECURE AN FCC LICENSE FOR THIS STATION. THE VENDOR SHALL ASSIGN THE APRISA THE FOLLOWING NETWORK ADDRESS:

IP ADDRESS: 172.16.17.21

SUBNET MASK: 255.255.254.0

DEFAULT GATEWAY: 172.16.16.19

DISTRICT 4 HEADQUARTERS INSTALLATION NOTES (CONT.):

6. THE VENDOR SHALL ALSO WIRE A 4-WIRE E&M CONNECTION BETWEEN THE APRISA XE AND THE BASETECH 3 2020 BOARD.
7. THE VENDOR SHALL INSTALL NEW SURGE PROTECTIVE DEVICES IN THE CABINET AT THE DISTRICT 4 HQ EQUIPMENT ROOM BETWEEN THE 4-WIRE E&M PORT OF THE APRISA XE AND THE 2020 BOARD OF THE NEW BASETECH 3 HIGH BAND REPEATER. THE FDOT SHALL PROVIDE THIS SPD. THE VENDOR SHALL FURNISH AND INSTALL A NEW 19" DIN RAIL WITHIN THE EQUIPMENT CABINET IN THE DISTRICT 4 HQ RADIO EQUIPMENT ROOM FOR THIS SPD. THE DIN RAIL SHALL BE DR24500 OR APPROVED EQUIVALENT AND SHALL BE SECURELY BONDED TO THE RADIO CABINET.
8. THE VENDOR SHALL FURNISH AND INSTALL A NEW KATHREIN-SCALA MF-950 GRID ANTENNA ON THE SOUTH-FACING SIDE OF THE INNER PARAPET WALL ON THE ROOF OF THE DISTRICT 4 HEADQUARTERS BUILDING, CONFIGURE IT FOR HORIZONTAL POLARIZATION AND ALIGN IT FOR A LINK WITH THE MCARTHUR INTERCHANGE TOWER SITE (AZIMUTH: APPROXIMATELY 203.9 DEGREES). THIS ANTENNA SHALL BE CONNECTED TO THE APRISA THROUGH THE COMBINATION OF NEW 7/8" TRANSMISSION LINE AND THE ½" TRANSMISSION LINE FORMERLY CONNECTED TO THE DB-201 (VHF LOW BAND) ANTENNA. SEE SHEET IT-5, D4 HQ ROOF APPURTENANCES AND SHEET IT-4, NETWORK DESIGN.
9. THE VENDOR SHALL FURNISH AND INSTALL LIGHTNING PROTECTION FOR BOTH THE HIGH BAND AND MICROWAVE RADIOS, WHICH SHALL BE CONNECTED TO THE ½" TRANSMISSION LINES ORIGINATING IN THE EQUIPMENT ROOM AT DISTRICT 4 HEADQUARTERS. THE SPDS SHALL BE POLYPHASED IS-B50HN-C2-ME OR APPROVED EQUIVALENT. THE VENDOR SHALL PROVIDE SUITABLE HARDWARE FOR THE PROPER MOUNTING OF THE LIGHTNING PROTECTOR TO THE EQUIPMENT ROOM GROUND BUS BAR. CONNECTORS FOR THE TRANSMISSION LINES TO EACH ANTENNA AND LIGHTNING PROTECTOR SHALL BE FROM THE SAME MANUFACTURER AS THE SELECTED TRANSMISSION LINES AND OF APPROPRIATE SIZE AND TYPE. REFER TO SHEET IT-6, D4 HQ EQUIPMENT ROOM AND SHEET IT-4, NETWORK DESIGN.
10. THE VENDOR SHALL NOTIFY THE FDOT UPON COMPLETION OF ALL ANTENNA/FEED LINE, HIGH-BAND REPEATER, MICROWAVE RADIO, SURGE PROTECTIVE DEVICE/GROUNDING/BONDING AND NETWORK EQUIPMENT INSTALLATION WORK AT DISTRICT 4 HEADQUARTERS AS IT IS COMPLETED.

MCARTHUR INSTALLATION NOTES:

1. THE VENDOR SHALL FURNISH AND INSTALL TWO (2) NEW JPS INTEROPERABILITY SOLUTIONS SVM-2 CARDS IN PORTS 7 & 8 OF THE SNV-12 (VOTER) CHASSIS AT THE MCARTHUR INTERCHANGE SHELTER IN FT. LAUDERDALE.
2. THE VENDOR SHALL FURNISH AND INSTALL TWO (2) NEW APRISA XE MICROWAVE RADIOS IN THE 19" VOTER RACK AT THE MCARTHUR INTERCHANGE SHELTER.

THE APRISA FOR THE LINK TO DISTRICT 4 HEADQUARTERS SHALL BE CONFIGURED AS FOLLOWS - TRANSMIT FREQUENCY: 942.375 MHZ, RECEIVE FREQUENCY: 933.375 MHZ, POLARIZATION: HORIZONTAL. THE FDOT WILL SECURE AN FCC LICENSE FOR THIS STATION.

THE VENDOR SHALL ASSIGN THIS APRISA THE FOLLOWING NETWORK ADDRESS: IP ADDRESS: 172.16.17.20

SUBNET MASK: 255.255.254.0

DEFAULT GATEWAY: 172.16.17.19

THE APRISA FOR THE LINK TO BROWARD OPS SHALL BE CONFIGURED AS FOLLOWS - TRANSMIT FREQUENCY: 943.375 MHZ, RECEIVE FREQUENCY: 934.375 MHZ, POLARIZATION: VERTICAL. THE FDOT WILL SECURE AN FCC LICENSE FOR THIS STATION.

THE VENDOR SHALL ASSIGN THIS APRISA THE FOLLOWING NETWORK ADDRESS: IP ADDRESS: 172.16.17.30


SUBNET MASK: 255.255.254.0

DEFAULT GATEWAY: 172.16.17.19

3. THE VENDOR SHALL THEN WIRE TWO (2) 4-WIRE E&M CIRCUITS. THE FIRST SHALL BE BETWEEN PORT 7 OF THE VOTER CHASSIS AND THE APRISA DEDICATED FOR THE DISTRICT 4 HEADQUARTERS LINK. THE SECOND SHALL BE BETWEEN PORT 8 OF THE VOTER CHASSIS AND THE APRISA DEDICATED FOR THE BROWARD OPS LINK.
4. THE VENDOR SHALL INSTALL SURGE PROTECTIVE DEVICES TO PROTECT THE AUDIO (VOICE FREQUENCY) CIRCUITS BETWEEN THE APRISAS AND THE SNV-12 VOTER. THE FDOT SHALL PROVIDE THESE SPDS. THE VENDOR SHALL FURNISH AND INSTALL A NEW 19" DIN RAIL IN THE 19" RACK WITH THE VOTER AND APRISAS, AND ENSURE THE RACK IS PROPERLY BONDED TO THE SHELTER'S MAIN GROUND BUS. THE DIN RAIL SHALL BE DR24500 OR APPROVED EQUIVALENT.
5. THE VENDOR SHALL FURNISH AND INSTALL NEW TRANSMISSION LINE FOR THE MICROWAVE LINKS FROM MCARTHUR TO DISTRICT 4 HEADQUARTERS AND BROWARD OPS. FOR THE LINK TO DISTRICT 4 HEADQUARTERS, THE VENDOR SHALL PROVIDE 120' OF NEW 7/8" TRANSMISSION LINE. FOR THE LINK TO BROWARD OPS, THE VENDOR SHALL PROVIDE 130' OF NEW 7/8" TRANSMISSION LINE. TRANSMISSION LINE SHALL BE RFS LCF78-50J, EUPEN EC5-50-A, DRAKA NKRF07800 OR APPROVED EQUIVALENT. 7/16 DIN-TYPE FEMALE CONNECTORS SHALL BE RFS 716F-LCF78-072, EUPEN 7/16F50V78MA, DRAKA NKC1078200 OR APPROVED EQUIVALENT AND OF APPROPRIATE TYPE FOR THE TRANSMISSION LINE SELECTED. 7/16 DIN-TYPE MALE CONNECTORS SHALL BE RFS 716M-LCF78-072, EUPEN 7/16M50V78MA, DRAKA NKC1078100, OR APPROVED EQUIVALENT AND OF APPROPRIATE TYPE FOR THE SELECTED TRANSMISSION LINE.
6. THE VENDOR SHALL FURNISH AND INSTALL TWO (2) NEW, KATHREIN-SCALA MF-950 GRID ANTENNAS ON THE TOWER AT THE MCARTHUR INTERCHANGE SITE (ASR: 1049428). FOR THE LINK TO DISTRICT 4 HEADQUARTERS, THE ANTENNA SHALL BE MOUNTED ON LEG 'A', AT 100' AGL AND CONFIGURED FOR HORIZONTAL POLARIZATION. FOR THE LINK TO BROWARD OPS, THE ANTENNA SHALL ALSO BE MOUNTED ON LEG 'A', AT 110' AGL AND CONFIGURED FOR VERTICAL POLARIZATION. SEE SHEET IT-7, MCARTHUR TOWER LOADING AND SHEET IT-4, NETWORK DESIGN.

CONNECTORS AND ADAPTERS FOR THE TRANSMISSION LINES TO EACH ANTENNA SHALL BE FROM THE SAME MANUFACTURER AS THE SELECTED TRANSMISSION LINES. HANGERS FOR TRANSMISSION LINES SHALL BE OF THE BOLT-ON TYPE, MADE OF STAINLESS STEEL AND SHALL BE SECURED TO A HORIZONTAL SUPPORT MEMBER. SNAP-IN HANGERS AND 'TWIST-TIE' TYPE HANGERS SHALL NOT BE PERMITTED. GROUND KITS SHALL BE OF APPROPRIATE SIZE AND TYPE, AND FROM THE SAME MANUFACTURER AS THE SELECTED TRANSMISSION LINE(S).

CONTRACT PLANS RECORD					
DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
7/7/16	1.0	DISTRICT 4 HIGH BAND TO VOTED NETWORK			
8/24/16	2.1				

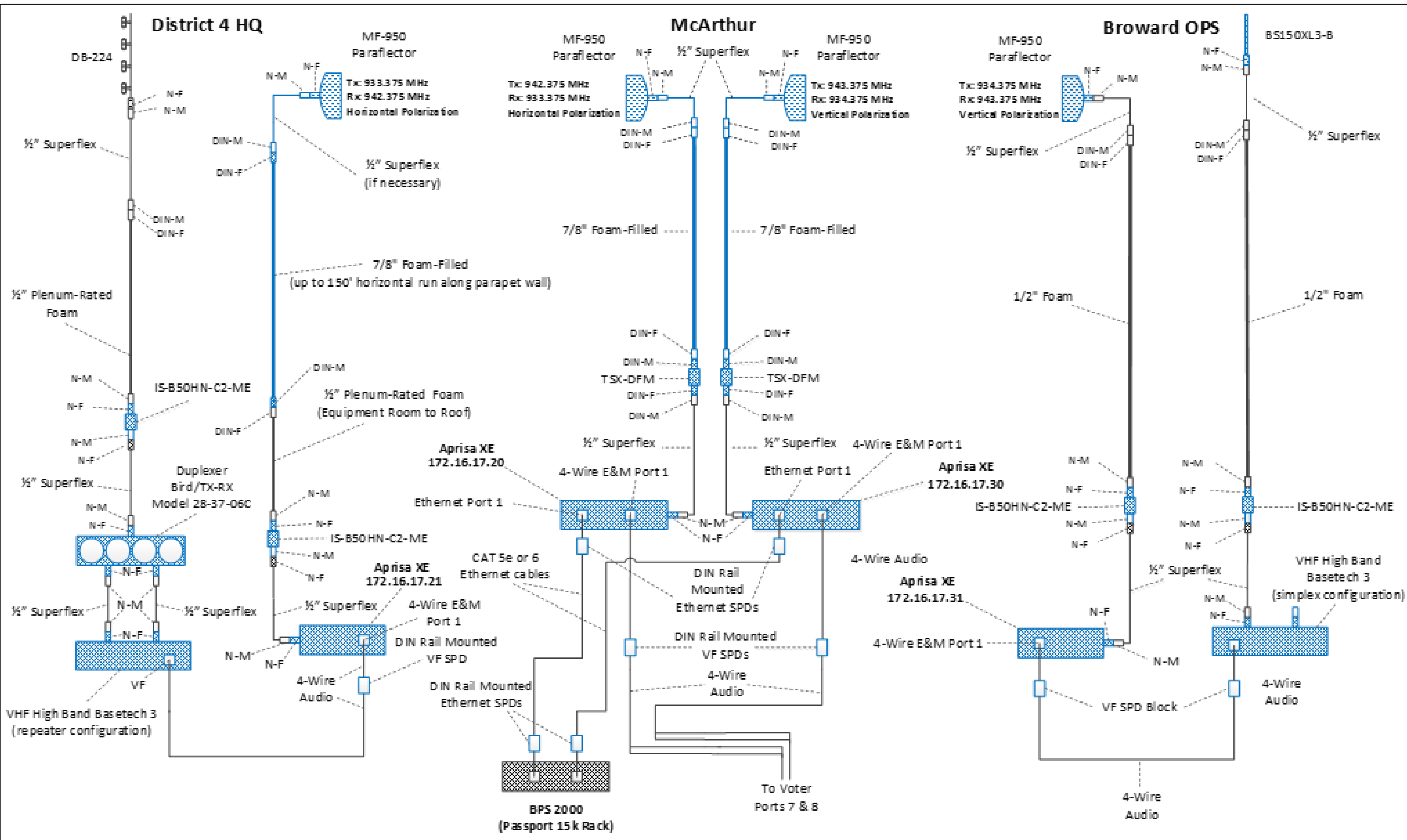


FLORIDA DEPARTMENT OF TRANSPORTATION
605 SUWANNEE STREET, MS 90
TALLAHASSEE, FL 32399-0450
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITE NAME	COUNTY	FINANCIAL PROJECT ID
DISTRICT 4	BROWARD	

*DISTRICT 4 HIGH BAND
INSTALLATION NOTES*

SHEET NO. IT-2



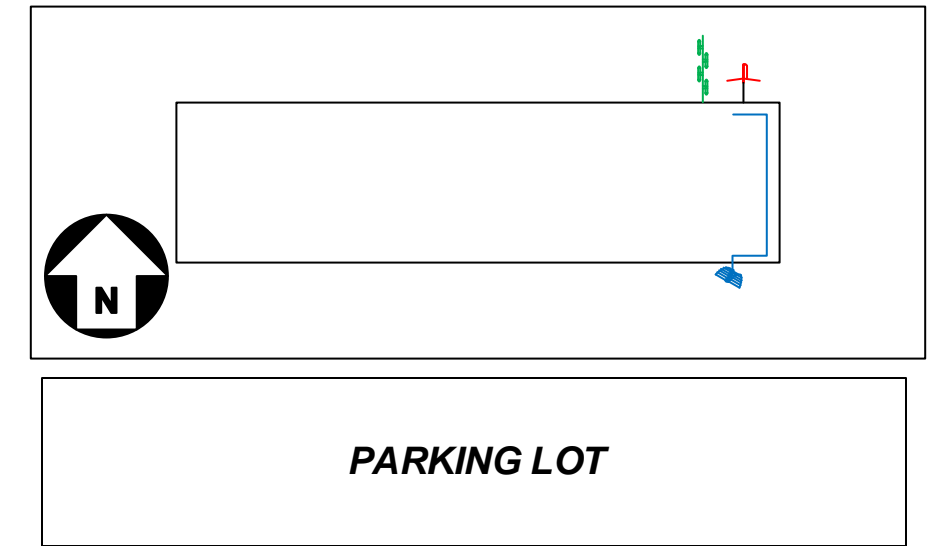
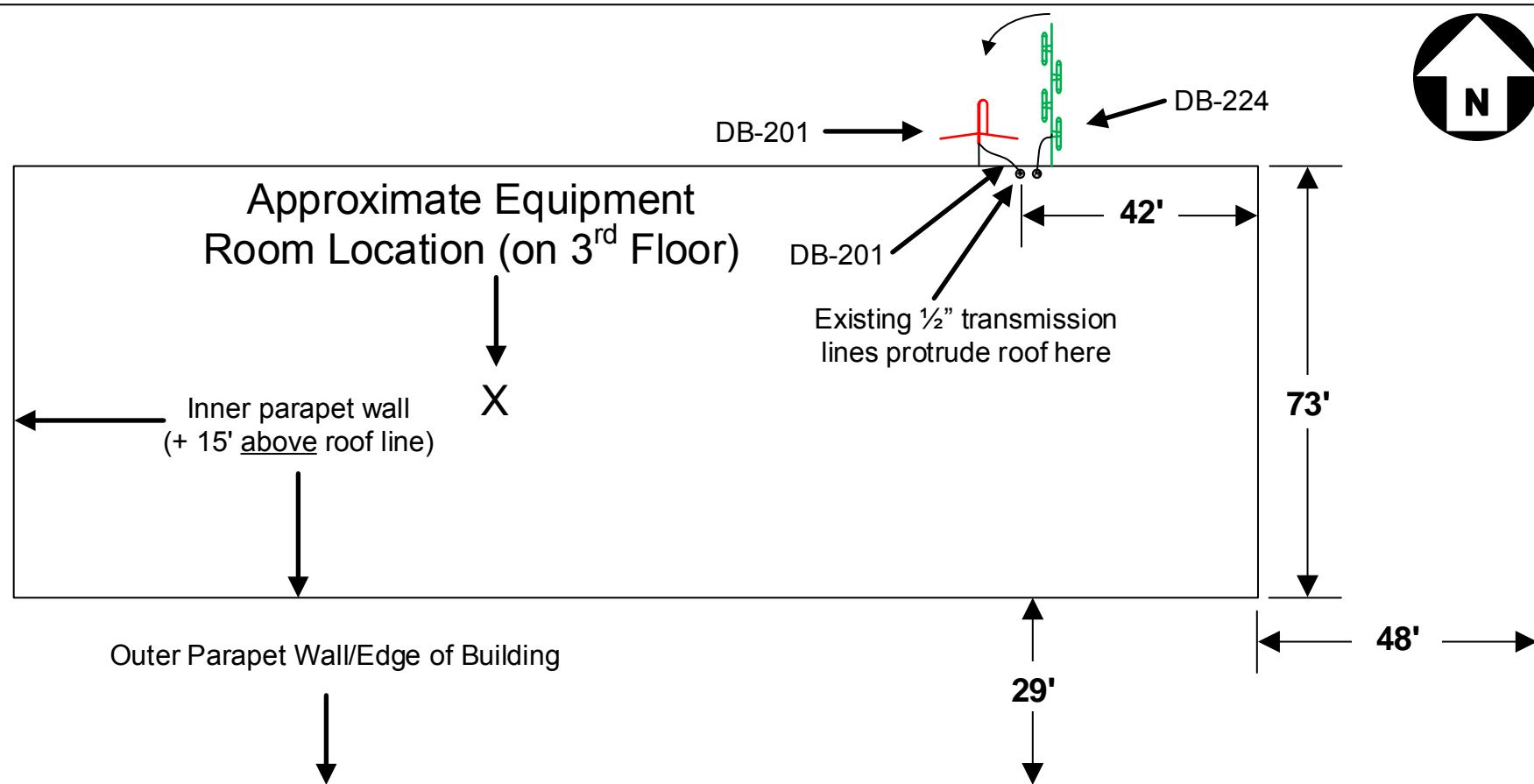
CONTRACT PLANS RECORD					
DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
07/07/16	1.0	DISTRICT 4 HIGH BAND TO VOTER NETWORK			
8/24/16	2.1				

FDOT FLORIDA DEPARTMENT OF TRANSPORTATION
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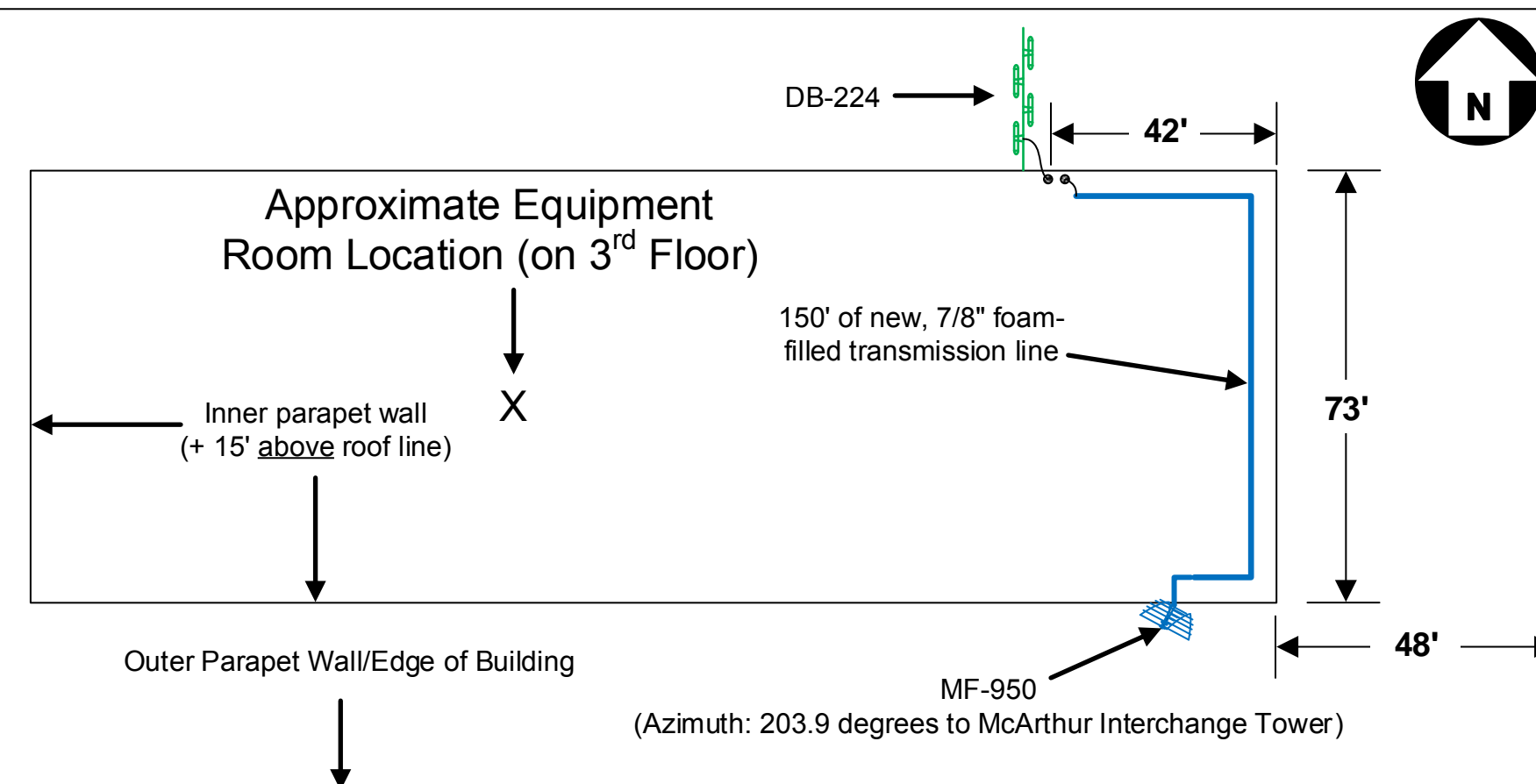
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITE NAME	COUNTY	FINANCIAL PROJECT ID
DISTRICT 4	BROWARD	

**DISTRICT 4 HIGH BAND
TO VOTER NETWORK** SHEET NO. IT-4

Roof Appurtenances and Dimensions
 3400 Commercial Boulevard
 District 4 Headquarters
Relocations, Removals and Additions



----- COMMERCIAL BOULEVARD -----



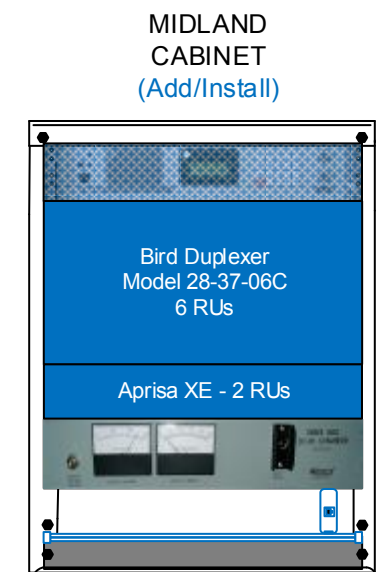
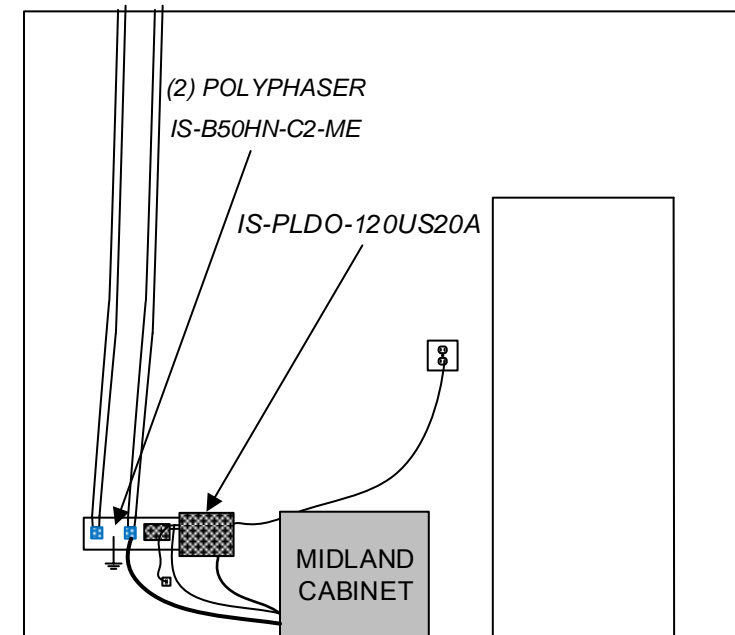
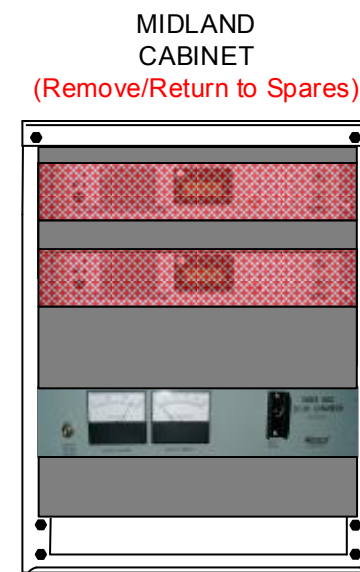
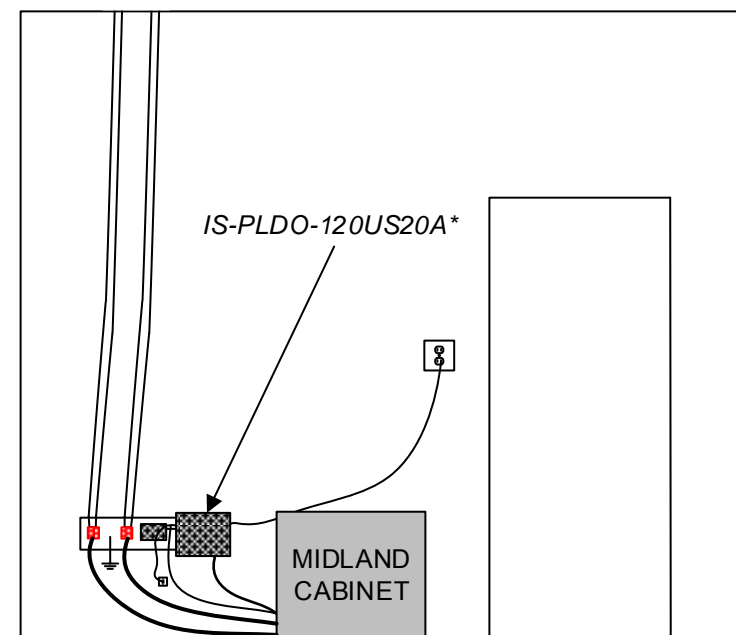
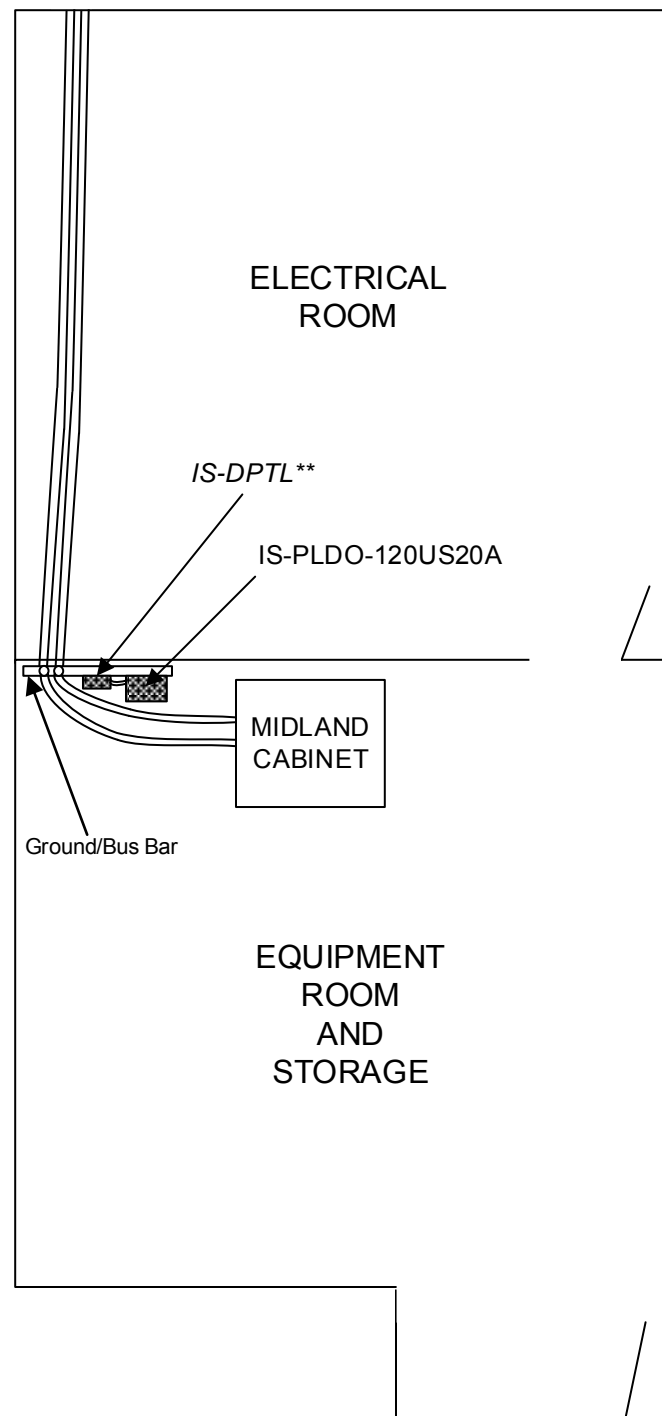
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITE NAME	COUNTY	FINANCIAL PROJECT ID
BROWARD OPS	BROWARD	

*DISTRICT 4
 HEADQUARTERS ROOF
 APPURTENANCES*

SHEET NO.
IT-5



NOTES:

1. Remove and return to spares inventory two (2) Midland Basetech 2/3 transmitter(s).
2. Install and configure one (1) new Midland Basetech 3. The FDOT will provide the new Basetech 3.
3. Furnish, install and configure a new Bird/TX-RX Duplexer (Model 28-37-06C).
4. Remove and return to spares inventory two (2) Polyphaser lightning arrestors.
5. Install two (2) new lightning arrestors (POLYPHASER IS-B50HN-C2-ME) in place of the old parts.
6. Furnish, install and configure a new, 900 MHz 4RF Aprisa XE.
7. Install a new voice frequency SPD to protect the audio circuit between the new Basetech 3 and the 4-wire E&M port of the Aprisa XE. The FDOT will provide this SPD.

* Polyphaser 120 VAC/20A surge protection between house power/UPS and Midland Power Supply – remains in-place.
 ** Polyphaser 4-Wire E&M surge protection and interface to MT-0X handset – remains in-place.



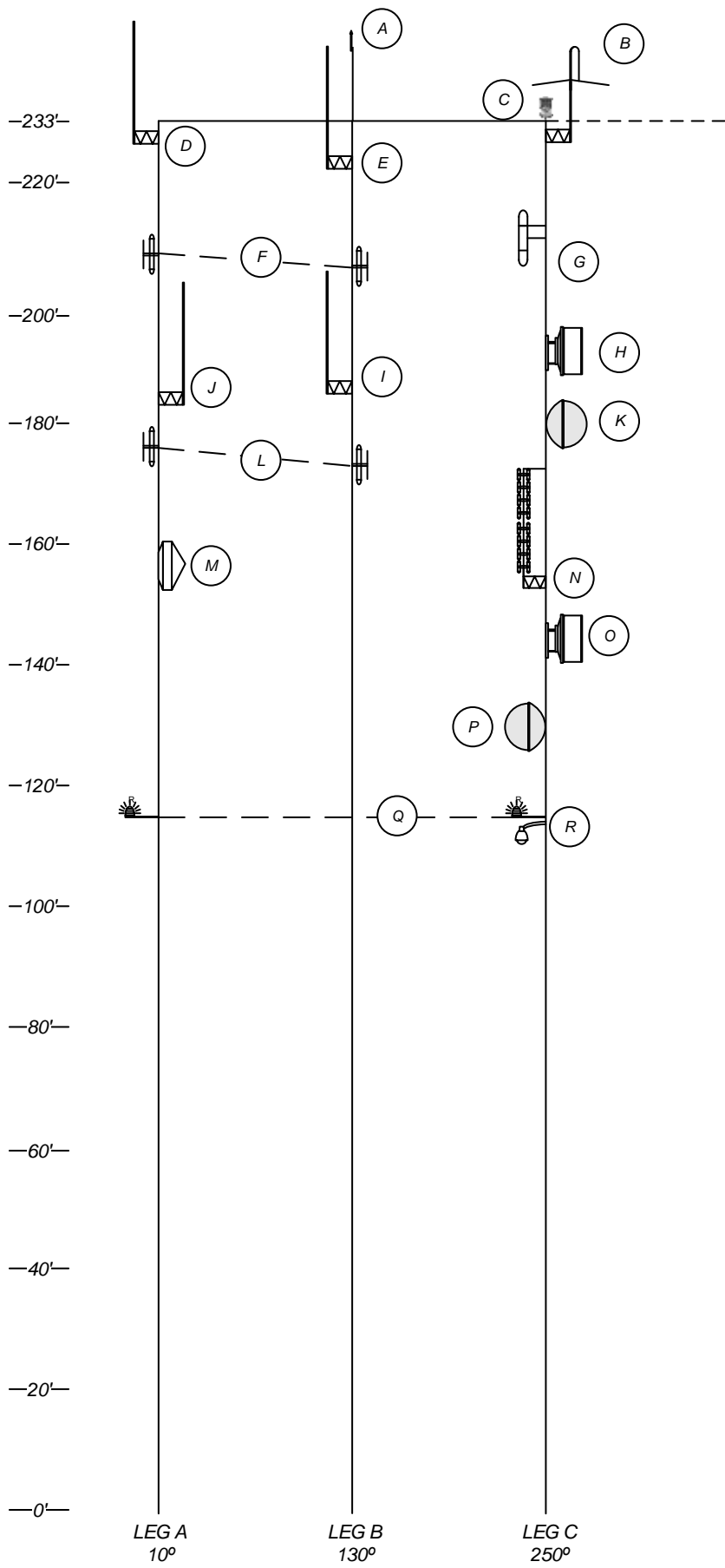
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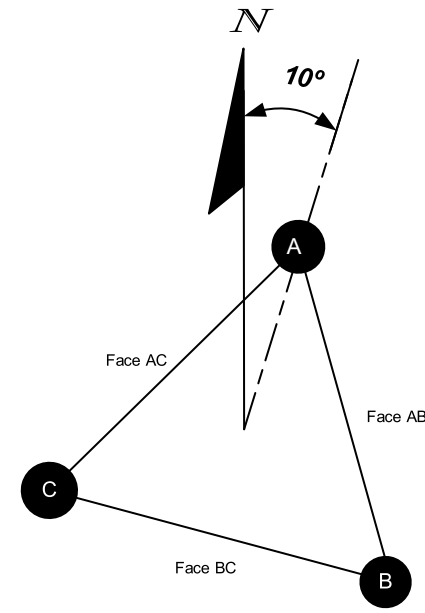
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITENAME	COUNTY	FINANCIAL PROJECT ID
DISTRICT 4 HQ	BROWARD	

*DISTRICT 4 HQ
 EQUIPMENT ROOM AND
 CABINET DETAILS*

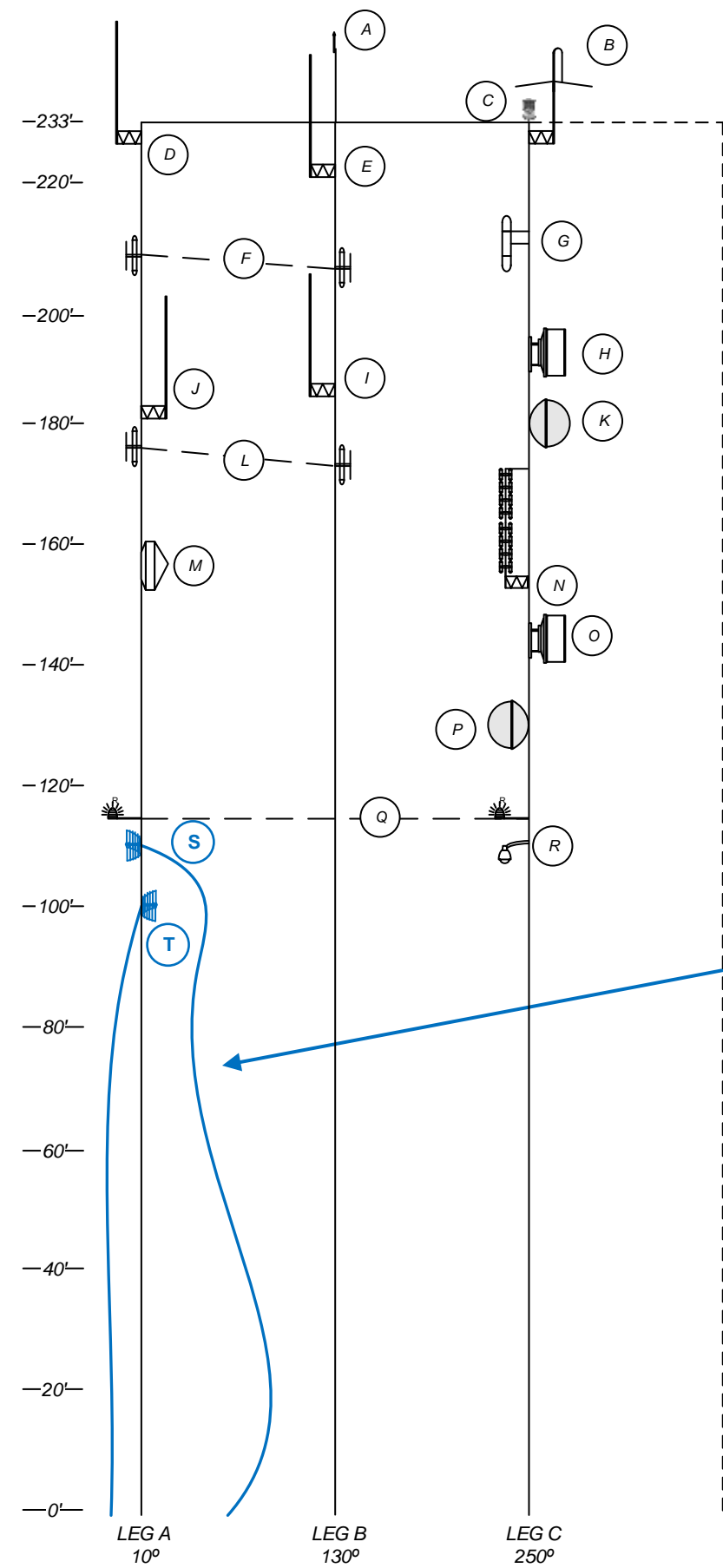
SHEET NO.
IT-6



ID	MODEL	MTG. HGT.	LEG/FACE	AZIM.	NOTES
A	PIPE W/ LIGHTNING ROD	240' (BASE)	B	-	
B	DB-201	234' (BASE)	C	-	
C	RED/WHITE BEACON	230' (BASE)	C	-	
D	ASP705K	228' (BASE)	A	-	
E	ASP705K	223' (BASE)	B	-	
F	DB-225-2	207', 206' (C.L.)	A, B	-	
G	ASP705K	211' (BASE)	C	-	
H	DA8-65	193' (C.L.)	C	212.2	
I	ASP705	185' (BASE)	B	-	
J	ASP705K	183' (BASE)	A	-	
K	PA8-65	180' (C.L.)	C	272.0	
L	DB-225-2	177', 176' (C.L.)	A,B	-	
M	PA8-65	158' (C.L.)	A	22.9	
N	DB-420	154' (BASE)	C	-	
O	DA8-65	144' (C.L.)	C	212.2	
P	PA8-65	131' (C.L.)	C	-	
Q	SIDE MARKERS (2)	116' (C.L.)	A,C	-	
R	CAMERA	114' (C.L.)	C	-	

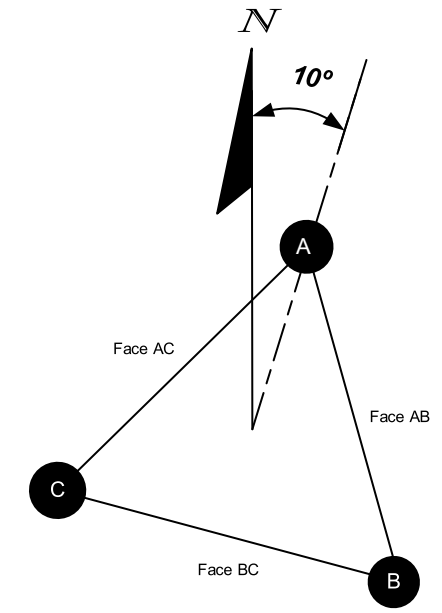


EXISTING TOWER LOADING DETAIL



ID	MODEL	MTG. HGT.	LEG/FACE	AZIM.	NOTES
A	PIPE W/ LIGHTNING ROD	240' (BASE)	B	-	
B	DB-201	234' (BASE)	C	-	
C	RED/WHITE BEACON	230' (BASE)	C	-	
D	ASP705K	228' (BASE)	A	-	
E	ASP705K	223' (BASE)	B	-	
F	DB-225-2	207', 206' (C.L.)	A, B	-	
G	COMPROD 531-70	211' (BASE)	C	-	
H	DA8-65	193' (C.L.)	C	212.2	
I	ASP705	185' (BASE)	B	-	
J	ASP705K	183' (BASE)	A	-	
K	PA8-65	180' (C.L.)	C	272.0	
L	DB-225-2	180', 177' (C.L.)	A,B	-	
M	PA8-65	160' (C.L.)	A	22.9	
N	DB-420	154' (BASE)	C	-	
O	DA8-65	144' (C.L.)	C	212.2	
P	PA8-65	131' (C.L.)	C	-	
Q	SIDE MARKERS (2)	116' (C.L.)	A,C	-	
R	CAMERA	114' (C.L.)	C	-	
S	MF-950	110' (C.L.)	A	23.9	1
T	MF-950	100' (C.L.)	A	45	1

1) Furnish and install 130' of 7/8" foam-filled transmission line for 'S', and 120' of 7/8" foam-filled transmission line for 'T' - both on leg 'A'.



NEW TOWER LOADING DETAIL

CONTRACT PLANS RECORD					
DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
07/07/16	1.0	DISTRICT 4 HIGH BAND TO VOTED NETWORK			
8/24/16	2.1				

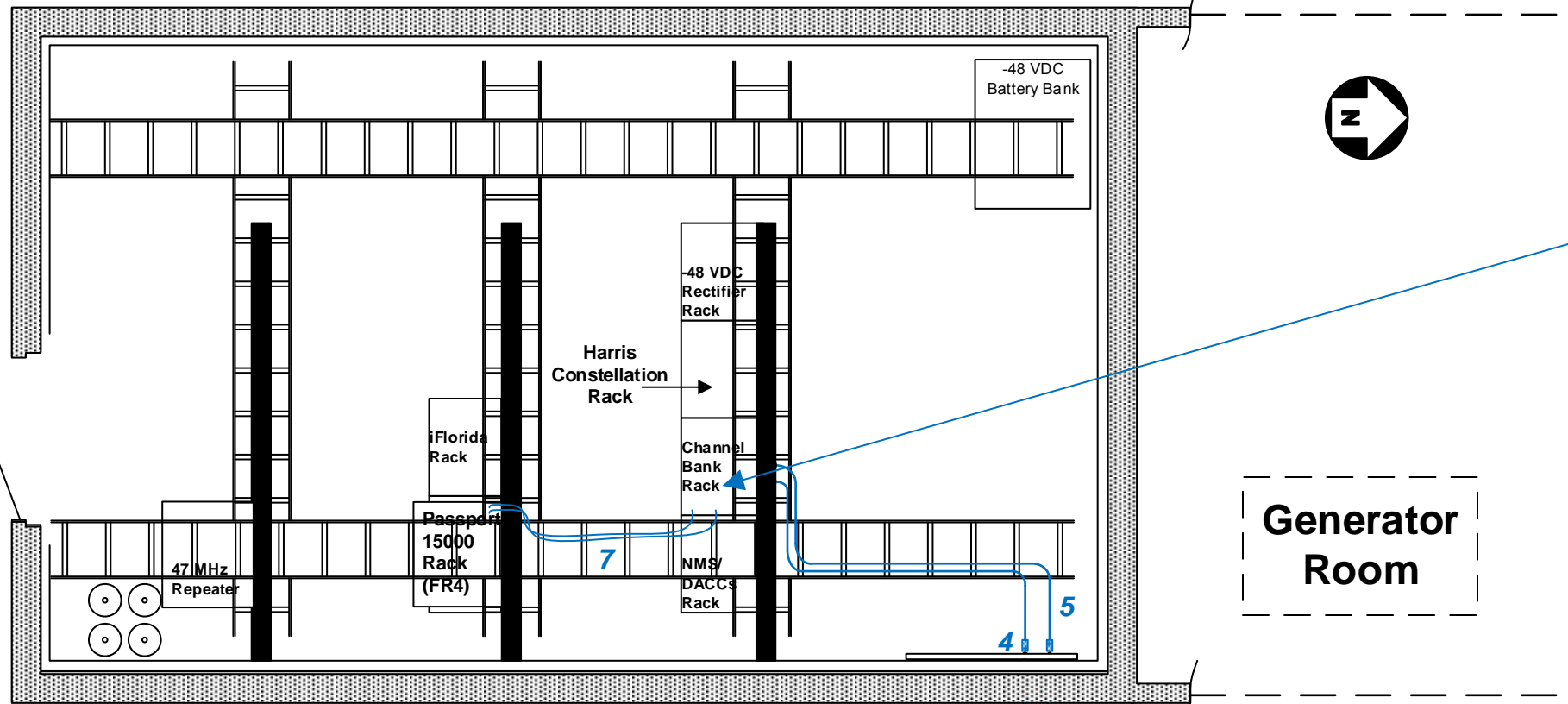
FDOT FLORIDA DEPARTMENT OF TRANSPORTATION
 605 SUWANNEE STREET, MS 90
 TALLAHASSEE, FL 32399-0450
 PH. (850)-410-5600
 FAX. (850)-410-5501

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITE NAME	COUNTY	FINANCIAL PROJECT ID
MCARTHUR	BROWARD	

**MCARTHUR
TOWER LOADING
DETAILS**

SHEET NO. IT-7

McArthur Shelter – Floorplan and Cable Tray Layout



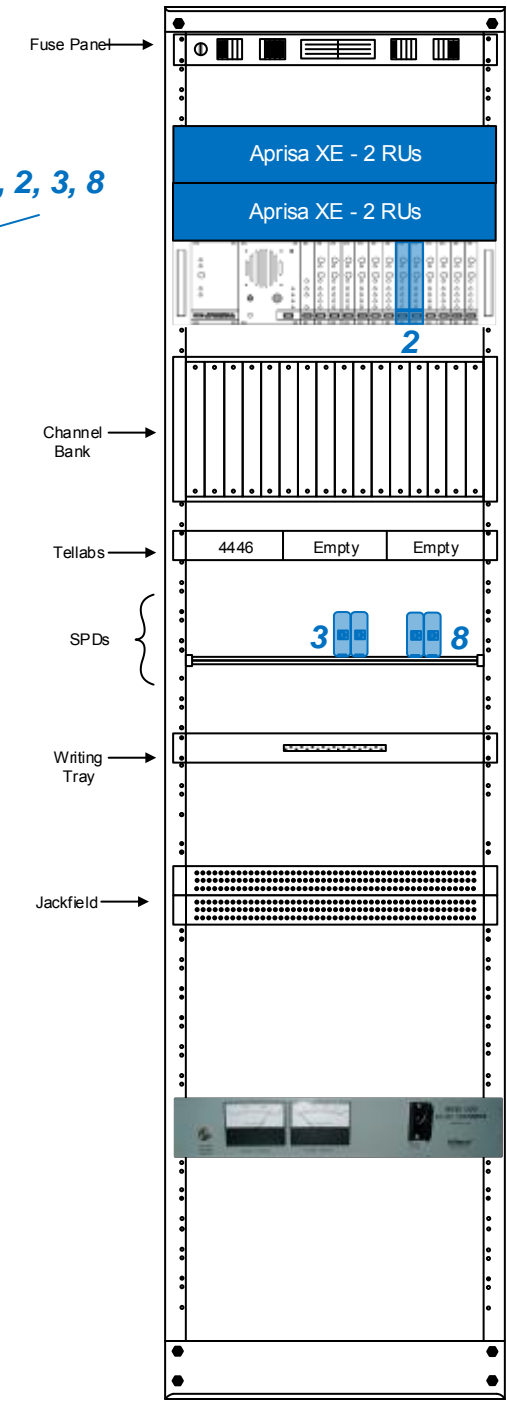
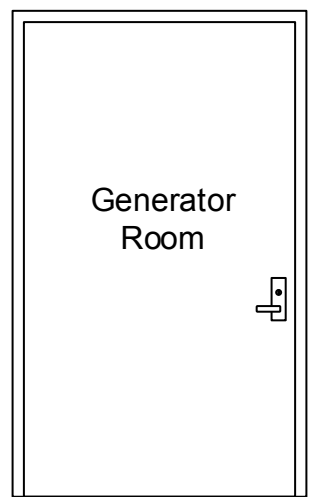
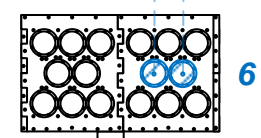
1, 2, 3, 8

Generator Room

McArthur Shelter - East Exterior Wall and Entry Port Detail

NOTES:

1. Furnish and install two (2) new Aprisa XE microwave radios in the Channel Bank rack
2. Furnish and install two (2) new SVM-2 voter cards in ports 7 & 8 of the SNV-12 voter chassis
3. Install two (2) SPDs (Surge Protective Devices) to protect the audio circuit between the microwave radios and the voter cards in a new DIN rail (ZB24500) as shown. (The FDOT will provide the SPDs.)
4. Furnish and install lightning protection (TSX-DFM) for the microwave radios on the main ground bus bar at the entry ports, as shown.
5. Furnish and install two (2) new lengths of 1/2" 'Superflex'.
6. Use ports 9 and 10 for the new 7/8" transmission line from the microwave antennas on the tower.
7. Furnish and install two (2) new lengths of CAT 5e or CAT 6 with RJ-45 connectors between the Aprisa XEs in the Channel Bank Rack, and the BPS 2000 in the Passport 15000 Rack.
8. Furnish and install two (2) Ethernet SPDs (Surge Protective Devices) Model ZB24596 (or approved equivalent) on the same DIN rail as the audio (voice frequency) SPDs.



JPS Interoperability Solutions
SNV-12 DSP Signal-to-Noise Voter
- two (2) new SVM-2 cards in ports 7 & 8

Wilmore Series 1500
DC-DC Converter

Channel Bank Rack

CONTRACT PLANS RECORD					
DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
7/7/16	1.0	DISTRICT 4 HIGH BAND TO VOTED SYSTEM			
8/24/16	2.1				



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TALLAHASSEE, FL 32399-0450
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FAX. (850)-410-5501

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
SITENAME	COUNTY	FINANCIAL PROJECT ID
MCARTHUR	BROWARD	

MCARTHUR
COMMUNICATIONS
SHELTER DETAILS

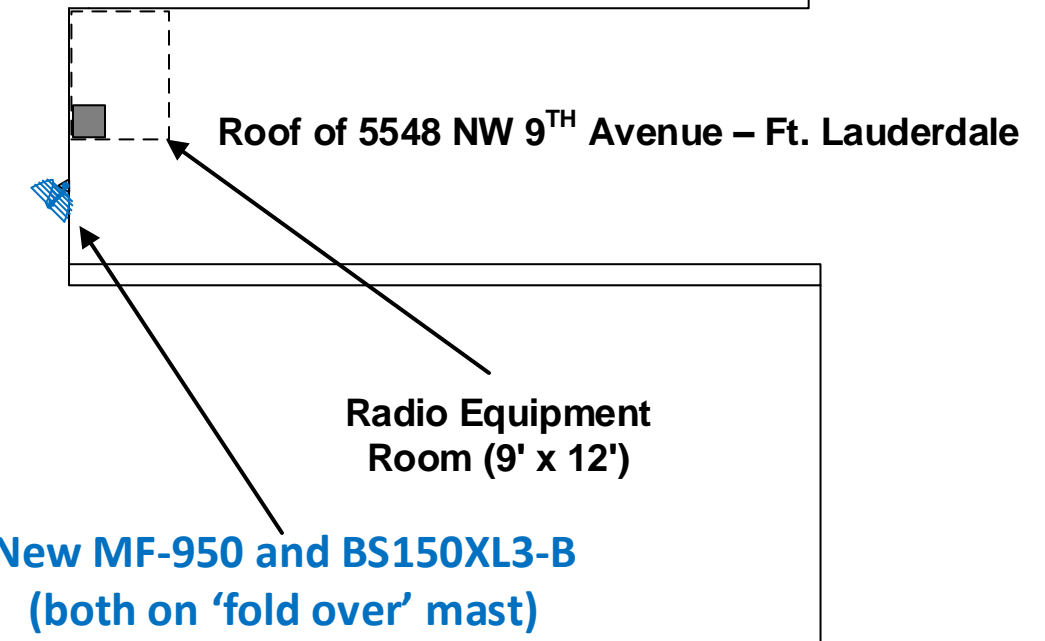
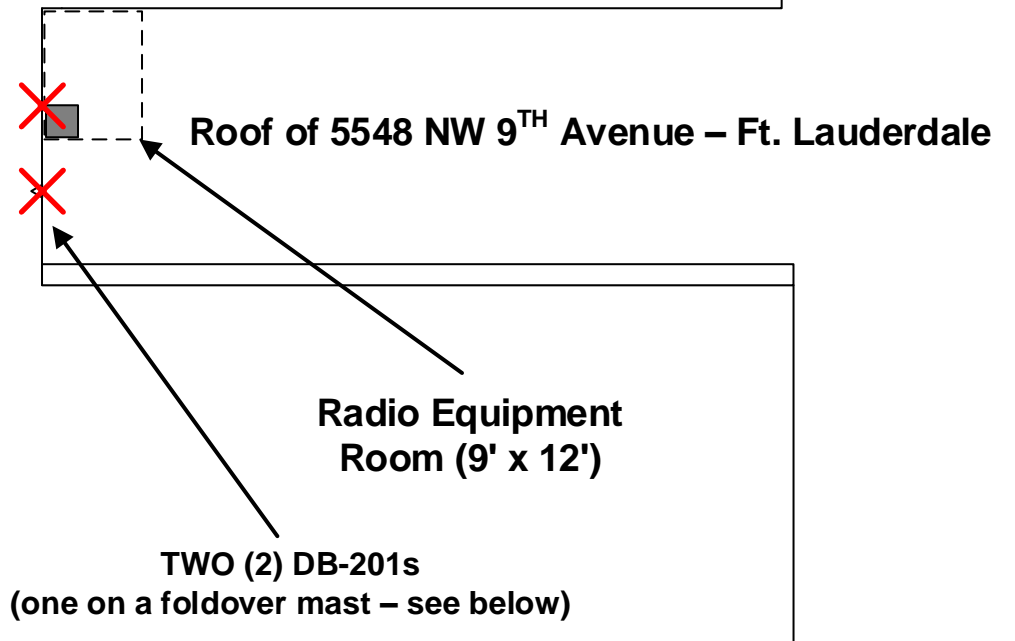
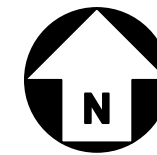
SHEET NO.
IT-8



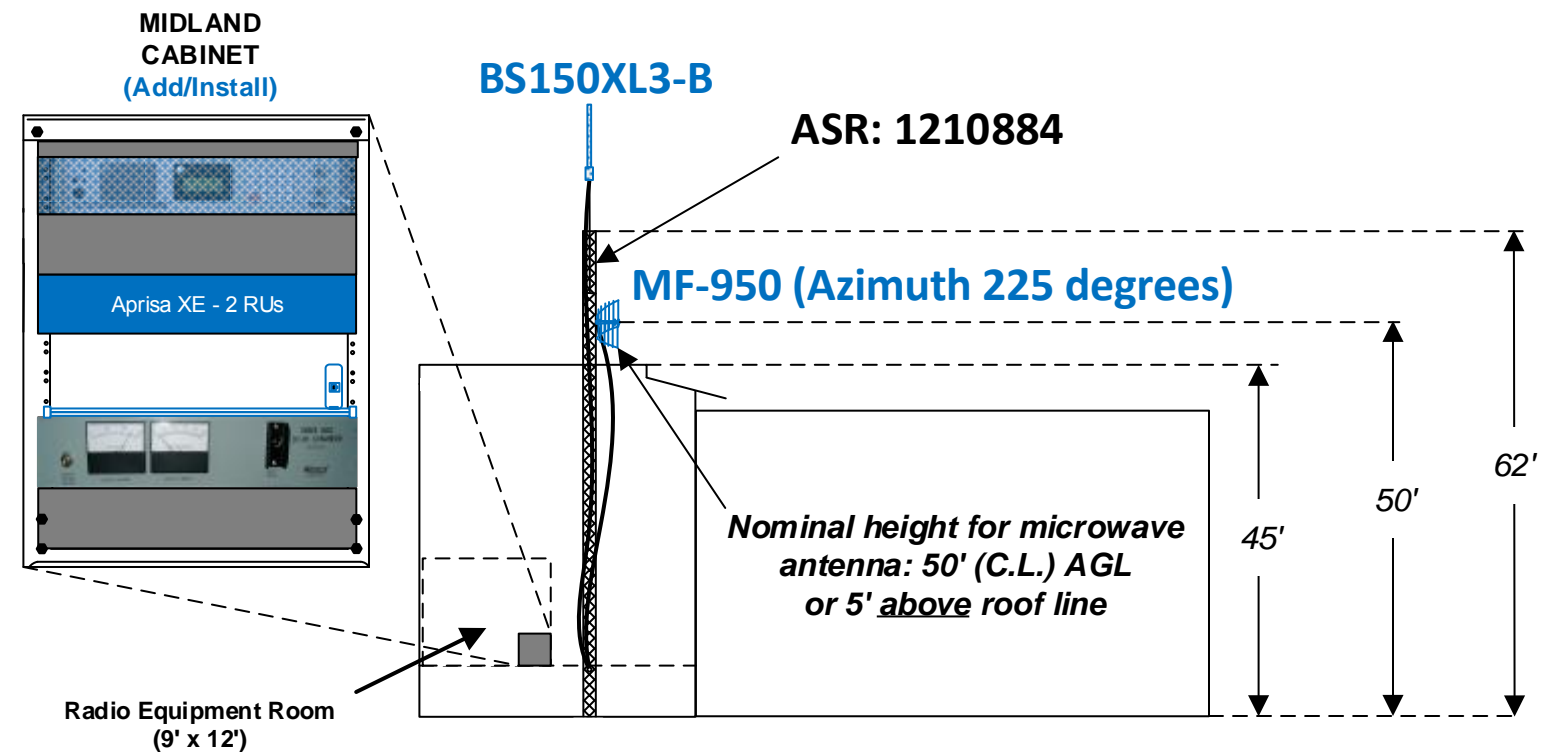
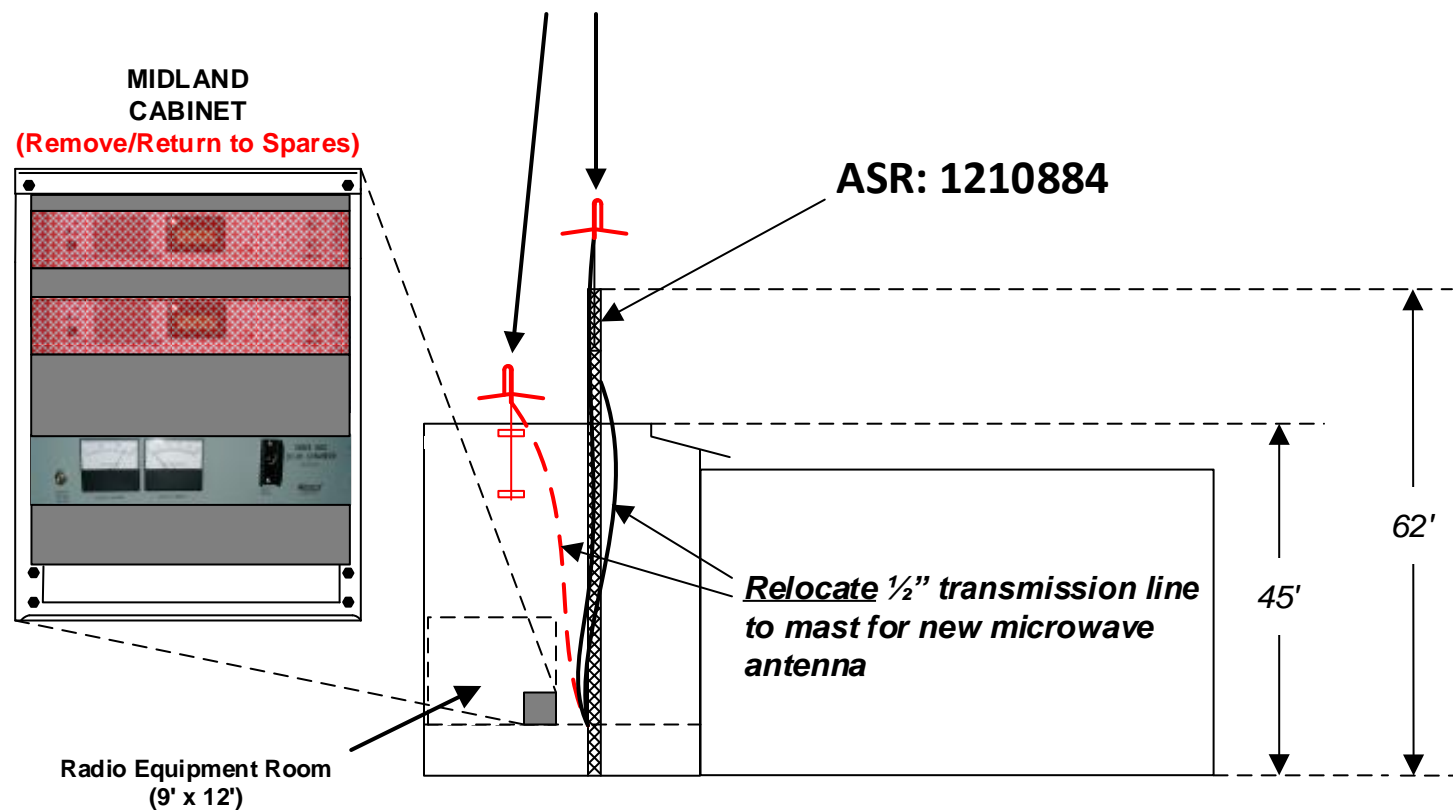
WAREHOUSE BUILDING AT BROWARD OPS

5548 NW 9TH AVENUE FT. LAUDERDALE, FL 33309-2804

Removals and Additions



(2) DB-201s (remove and return to spares inventory)



CONTRACT PLANS RECORD

DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
07/07/16	1.0	DISTRICT 4 HIGH BAND TO VOTED NETWORK			
8/24/16	2.1				



FLORIDA DEPARTMENT OF TRANSPORTATION
605 SUWANNEE STREET, MS 90
TALLAHASSEE, FL 32399-0450
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FAX. (850)-410-5501

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

SITENAME	COUNTY	FINANCIAL PROJECT ID
BROWARD OPS	BROWARD	

BROWARD OPS CENTER
EQUIPMENT ROOM AND
ROOFTOP ANTENNAS

SHEET NO.

IT-9


MAJOR EQUIPMENT LIST:

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Quantity</u>
4 RF	960 MHz Microwave Radio w/4-port E&M, Ethernet Ports, & E1/T1 Ports	APXE-N900-200-G2-12-FC00	4
Bird/TX-RX	Duplexer	28-37-06C	1
Midland	VHF High Band Base Station (Rack Mount)	71-3200	2*
Polyphaser	Lightning Arrestor	TSX-DFM-P2-BF	2
Polyphaser	Lightning Arrestor	IS-B50HN-C2-ME	4
Kathrein-Scala	900 MHz Grid Antenna	MF-950	4
Comprod	VHF High Band Antenna	BS150XL3-B	1

* The FDOT will provide the Midland base station radios

OTHER MATERIALS:

- 400 FEET TOTAL OF 7/8" TRANSMISSION LINE – SEE SHEETS IT-2 & 3 (GENERAL NOTES AND INSTALLATION) AND SHEET IT-4 (DISTRICT 4 HIGH BAND TO VOTER NETWORK) FOR ACCEPTABLE MANUFACTURERS AND SPECIFIC CUT LENGTHS FOR EACH SITE.
- SURGE PROTECTION DEVICES - THE FDOT WILL PROVIDE AUDIO (VOICE-FREQUENCY) SURGE PROTECTIVE DEVICES FOR THE VENDOR TO INSTALL. ETHERNET SPDS SHALL BE FURNISHED AND INSTALLED BY THE VENDOR, AND ARE SPECIFIED ON SHEET IT-3 (DISTRICT 4 HIGH BAND INSTALLATION NOTES) AND SHEET IT-8 (MCARTHUR COMMUNICATIONS BUILDING DETAIL).
- ½" 'SUPERFLEX' JUMPERS – QUANTITY AS NEEDED TO INTERFACE SELECT ANTENNAS TO NEW (7/8") OR EXISTING (½") TRANSMISSION LINE(S) TO OVERCOME BEND-RADIUS LIMITATIONS.
- WEATHERPROOFING MATERIALS (3-3 TAPE, SEALING COMPOUND) TO ENSURE A WATER TIGHT SEAL WHERE TRANSMISSION LINE(S) ARE JOINED TOGETHER AND EXPOSED TO THE ATMOSPHERE.
- TWO (2) LENGTHS OF CAT 6 OR CAT 5E ETHERNET CABLE WITH RJ-45 CONNECTIONS, SUFFICIENTLY LONG ENOUGH TO CONNECT THE APRISA XE MICROWAVE TRANSCEIVERS IN THE VOTER RACK TO THE BPS2000 IN THE PASSPORT 15K RACK, THROUGH THE ETHERNET SPDS IN THE VOTER RACK, IN THE MCARTHUR INTERCHANGE TOWER SITE SHELTER.

CONTRACT PLANS RECORD						 FLORIDA DEPARTMENT OF TRANSPORTATION 605 SUWANNEE STREET, MS 90 TALLAHASSEE, FL 32399-0450 PH. (850)-410-5600 FAX. (850)-410-5501	STATE OF FLORIDA			<i>MAJOR EQUIPMENT LIST</i>	SHEET NO.
<u>DATE</u>	<u>REV.</u>	<u>DESCRIPTION</u>	<u>DATE</u>	<u>REV.</u>	<u>DESCRIPTION</u>		DEPARTMENT OF TRANSPORTATION				
08/10/16	2.0	DISTRICT 4 HIGH BAND TO VOTED NETWORK					SITE NAME	COUNTY	FINANCIAL PROJECT ID		
8/24/16	2.1	MAJOR EQUIPMENT LIST					DISTRICT 4	BROWARD			IT-10