STANDARD DESIGNS
ELECTRICAL DETAILS

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Sheet No.	**Date**	**File Name**	**DESCRIPTION**
ED-00	21-May-21	ED-00 Cover Sheet.dgn	ELECTRICAL DETAILS COVER SHEET
ED-01	21-May-21	ED-01 SIT (2021).dgn	SATIONARY INFANTRY TARGET
ED-01A	21-May-21	ED-01A WSIT (2021).dgn	WIDENED STATIONARY INFANTRY TARGET
ED-02	21-May-21	ED-02 MIT (2021).dgn	MOVING INFANTRY TARGET
ED-02A	21-Feb-23	ED-0A ARF+ 300M MIT (2023).dgn	ARF+ 300M MOVING INFANTRY TARGET
ED-03	21-May-21	ED-03 SAT (2021).dgn	STATIONARY ARMOR TARGET
ED-04	21-May-21	ED-04 MAT (2021).dgn	MOVING ARMOR TARGET
ED-05	21-May-21	ED-05 SIT CLUSTER (2021).dgn	SIT / MIT CLUSTER
ED-05A	21-May-21	ED-05A SIT CLUSTER (2021).dgn	3 MAN SIT CLUSTER
ED-06	21-May-21	ED-06 MTDP (2021).dgn	MASTER TARGET DATA PANEL - FIBER OPTIC CABLES
ED-06A	21-May-21	ED-06A MTDP (2021).dgn	MASTER TARGET DATA PANEL - 6 TWISTED PAIR CABLES
ED-06B	21-May-21	ED-06B MTDP (2021).dgn	MASTER TARGET DATA PANEL - TWISTED PAIR CABLES FOR LANE ISOLATION
ED-06C	21-Feb-23	ED-06C ARF+ 50M MTDP	MASTER TARGET DATA PANEL - 50M ARF+
ED-07	21-May-21	ED-07 TDP (2021).dgn	TARGET DATA PANEL - CAT5E AND CAT6 CABLES
ED-08	21-May-21	ED-08 CLUSTER MTDP (2020).dgn	FAÇADE / CLUSTER MASTER TARGET DATA PANEL - FIBER OPTIC CABLES
ED-08A	21-May-21	ED-08A CLUSTER MTDP (2021).dgn	FAÇADE / CLUSTER MASTER TARGET DATA PANEL - TWISTED PAIR CABLES
ED-08B	21-May-21	ED-08B ARF+ 300M MIT MTDP (2023)	ARF+ 300M MIT MASTER TARGET DATA PANEL - TWISTED PAIR CABLES
ED-09	21-May-21	ED-09 TJB (2021).dgn	TOWER JUNCTION BOX
ED-10	21-May-21	ED-10 DBB (2021).dgn	DATA CABLE BREAKOUT BOX WITH FIBER OPTIC CABLE ENCLOSURE
ED-11	21-May-21	ED-11 DETAILS (2021)	ELECTRICAL DETAILS
ED-12	21-May-21	ED-12 SIT FLAP (2021)	STATIONARY INFANTRY TARGET RUBBER FLAP
FAC-E-01	21-May-21	FAC-E01 FACADE.dgn	ELECTRICAL DETAILS FAÇADE
ADH-E-01	21-May-21	ADH-3-01 ASSAULT DEFEND HOUSE	ELECTRICAL DETAILS ASSAULT DEFEND HOUSE

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DRAWN BY:
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SIZE:

U. S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

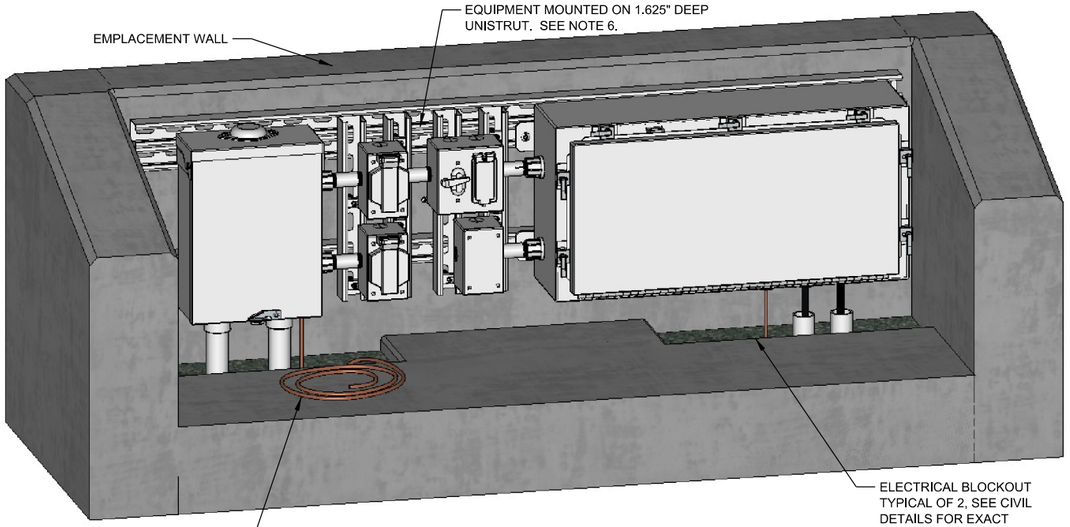
MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

COVER SHEET

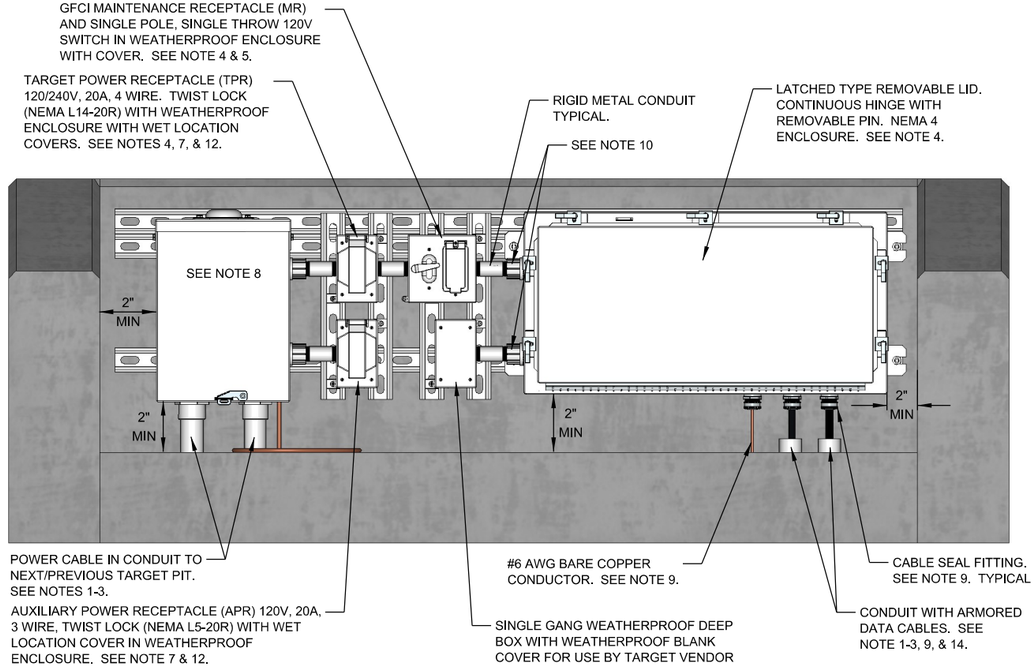
SHEET ID

ED-00



ISOMETRIC ELEVATION
STATIONARY INFANTRY TARGET

NOT TO SCALE



FRONT ELEVATION
STATIONARY INFANTRY TARGET

NOT TO SCALE

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO CONCRETE WALL.
7. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
8. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
9. PROVIDE SEAL FITTINGS AS SHOWN IN CABLE SEAL FITTING DETAIL ON SHEET ED-11 FOR ALL CABLE ENTRANCES INTO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
10. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS TO SIDE OF ENCLOSURE.
11. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
12. PROVIDE TARGET AND AUXILIARY OUTLETS WITH NEMA 3R WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL SHEET ED-11 FOR WET LOCATION COVER. IN USE COVERS WITH COVERS INTENDED TO CLOSE OVER THE INSERTED CORD ARE NOT ACCEPTABLE AS THESE COVERS WILL NOT CLOSE OVER TARGET OR AUXILIARY CORDS.
13. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING AND LAND PROGRAM HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
14. CONDUIT STUBBED UP AS CLOSE TO CABLE SEAL FITTING AS POSSIBLE.
15. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.
16. PROVIDE GROUNDING IN ACCORDANCE WITH EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11.

PANEL BOARD: **PB-xx** LOCATION: **SIT** MOUNTED: **SURFACE** FEED: **BOTTOM**

125 AMP MAIN MAIN LUGS ONLY ASYM A.I.C MIN.: **10,000**

VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	480		12	20	2	SIT (NEMA L14-20R, NEMA L5-20R)
					---				480				
SUB FEED THRU LUGS	2	----	---	---		5	6	50		12	20	1	TDP AND MR
					---		8		---	---	20	1	SPARE
				0	0			530	480				

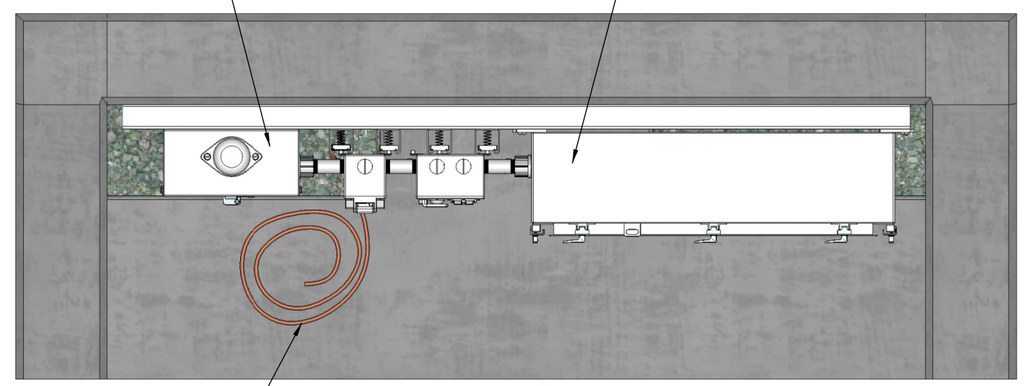
TOTAL VA PHASE A: **530**
TOTAL VA PHASE B: **480**

TOTAL CONNECTED WATTAGE: **1,010**
95% DEMAND WATTAGE: **960**
TOTAL DEMAND AMPS: **4**

SUPPLIED FROM: **TRSF-XX**

GENERAL NOTE:

THIS EMPLACEMENT DETAIL ALSO APPLIES FOR BATTLE EFFECTS SIMULATORS, MORTAR SIMULATION DEVICES, AND SOUND EFFECTS SIMULATORS.



TOP ELEVATION
STATIONARY INFANTRY TARGET

NOT TO SCALE

US Army Corps of Engineers®

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DESIGNED BY: | ISSUE DATE:
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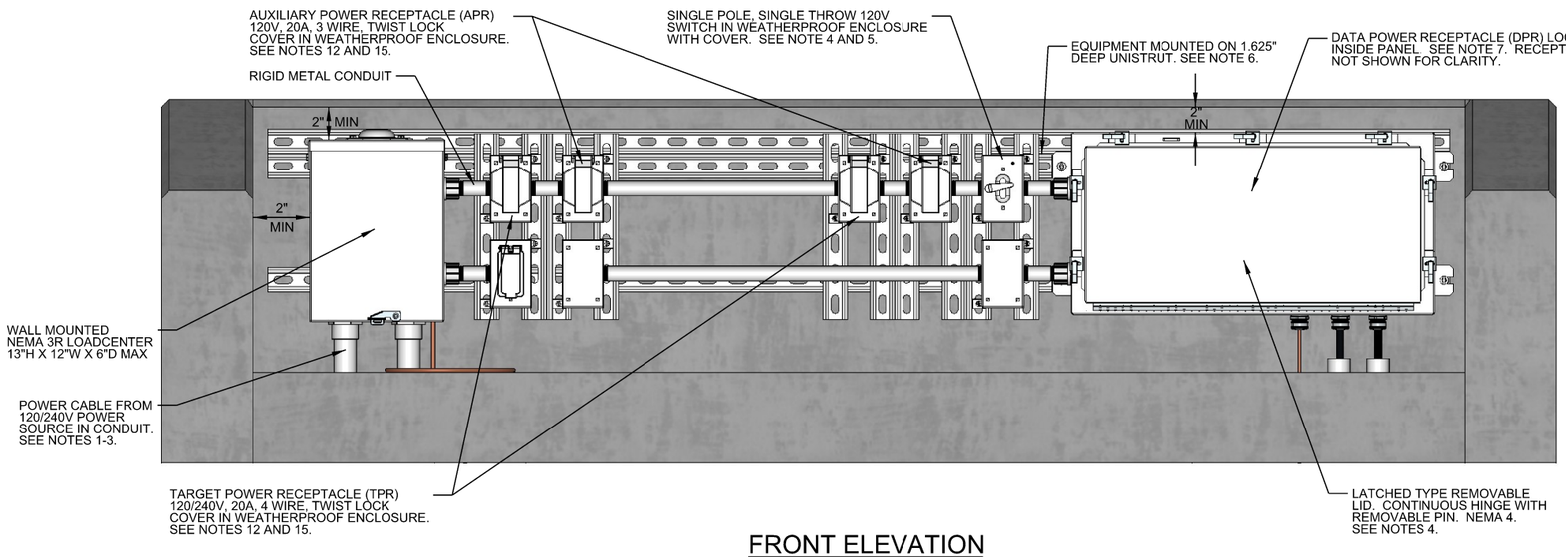
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

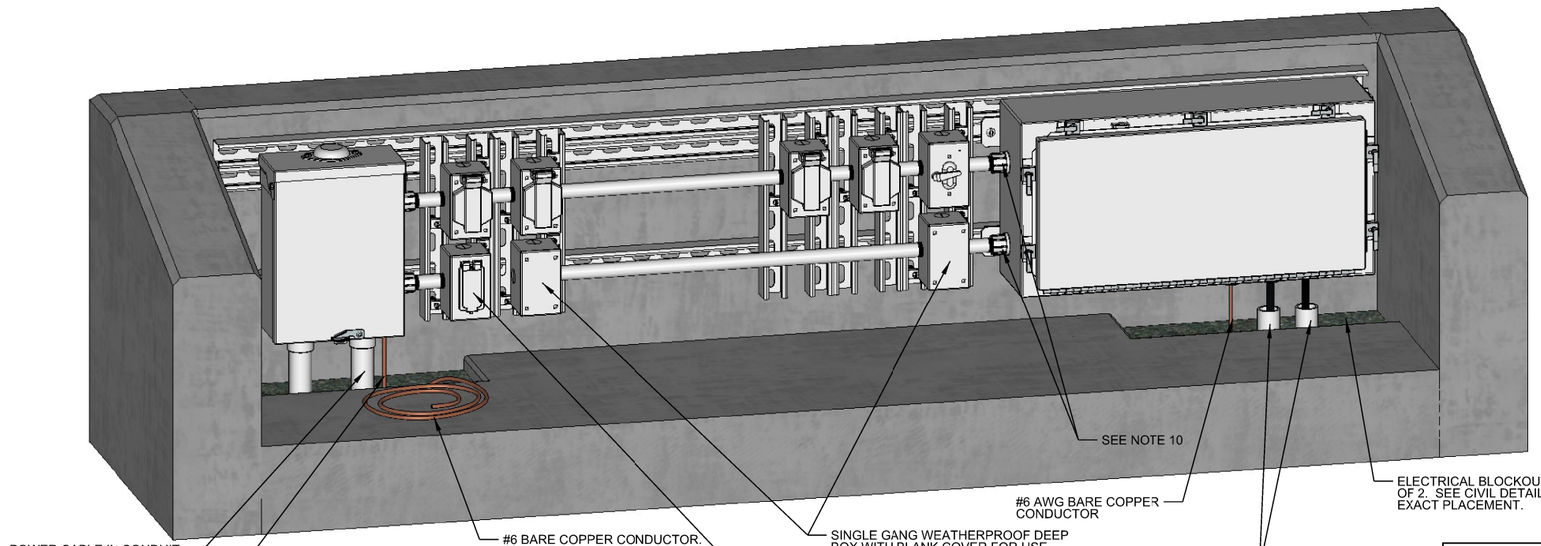
ELECTRICAL DETAILS
STATIONARY INFANTRY TARGET

SHEET ID
ED-01



FRONT ELEVATION
WIDENED STATIONARY INFANTRY TARGET

NOT TO SCALE



ISOMETRIC ELEVATION
WIDENED STATIONARY INFANTRY TARGET

NOT TO SCALE

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO CONCRETE WALL.
7. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
8. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
9. PROVIDE SEAL FITTINGS AS SHOWN IN CABLE SEAL FITTING DETAIL ON SHEET ED-11 FOR ALL CABLE ENTRANCES INTO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
10. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS TO SIDE OF ENCLOSURE.
11. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
12. PROVIDE TARGET AND AUXILIARY OUTLETS WITH NEMA 3R WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL SHEET ED-11 FOR WET LOCATION COVER. IN USE COVERS WITH COVERS INTENDED TO CLOSE OVER THE INSERTED CORD ARE NOT ACCEPTABLE AS THESE COVERS WILL NOT CLOSE OVER TARGET OR AUXILIARY CORDS.
13. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING AND LAND PROGRAM HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
14. CONDUIT STUBBED UP AS CLOSE TO CABLE SEAL FITTING AS POSSIBLE.
15. FOR DOUBLE SIT EMPLACEMENTS TWO TARGET LIFTING MECHANISMS MAY BE PROVIDED. DATA WILL BE PROVIDED FROM THE MTDP AND POWER WILL BE PROVIDED FROM ADDITIONAL EXTERIOR ENCLOSURES WITH A NEMA L14-20R AND A NEMA L5-20R RECEPTACLE FED FROM THE LOAD CENTER. MOUNT LOAD CENTER ON LEFT SIDE OF EMPLACEMENT AND MTDP ON THE RIGHT SIDE OF THE EMPLACEMENT. INSTALL ONE SET OF POWER OUTLETS NEXT TO THE LOAD CENTER AND ONE SET OF POWER OUTLETS NEXT TO THE MTDP.
16. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.
17. PROVIDE GROUNDING IN ACCORDANCE WITH EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11.

PANEL BOARD: **WSIT** LOCATION: **XXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**

125 AMP MAIN MAIN LUGS ONLY ASYM A.I.C MIN.: **10,000**

VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	960		12	20	2	SIT 2 X (NEMA L14-20R, 2-NEMA L5-20R)
					---				960				
SUB FEED THRU LUGS	2	----	---	---		5	6	50		12	20	1	TDP AND MR
					---		8		---	---	20	1	SPARE
				0	0			1010	960				

TOTAL VA PHASE A: **1010**
TOTAL VA PHASE B: **960**

TOTAL CONNECTED WATTAGE: **1,970**
95% DEMAND WATTAGE: **1,872**
TOTAL DEMAND AMPS: **8**

SUPPLIED FROM: **TRSF-XX**

US Army Corps of Engineers®

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SUBMITTED BY:
SIZE:

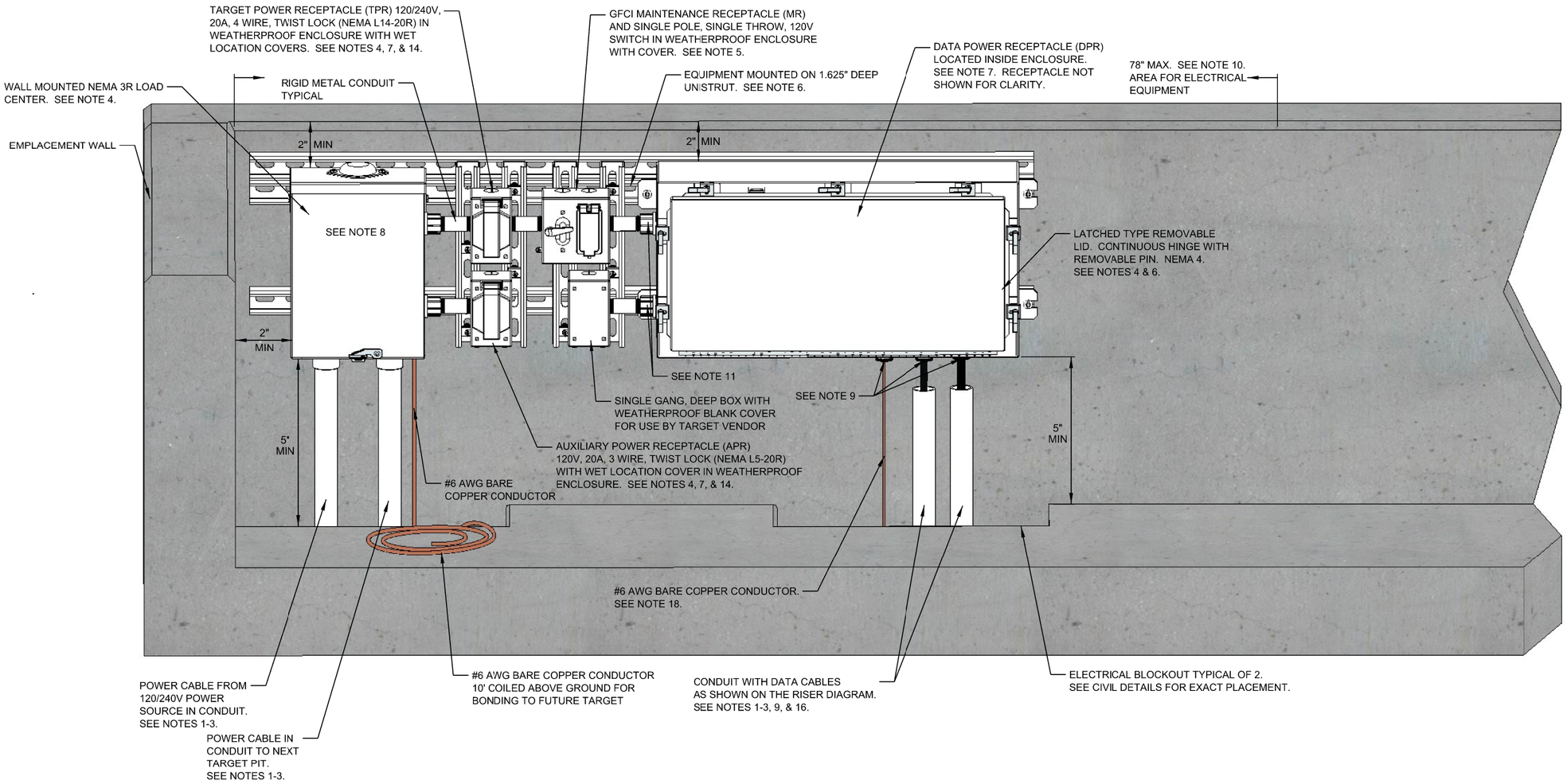
U. S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
WIDENED STATIONARY INFANTRY TARGET

SHEET ID
ED-01A



ELEVATION
MOVING INFANTRY TARGET

NOT TO SCALE

PANEL BOARD: **MIT** LOCATION: **XXXXXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**

125 MAIN MAIN LUGS OR FEED THRU LUGS ASYM A.I.C MIN.: **XXXXX**

VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

				VA/ PHASE				VA/ PHASE					
LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	A	B	CKT NO.	CKT NO.	A	B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	1000		12	20	2	MIT (NEMA L14-20R, NEMA L5-20R)
					---				1000				
SPARE	1	20	---	---		5	6	50		12	20	1	TDP AND MR
SPACE						7	8		---	---	20	1	SPARE
SPACE						9	10					1	SPACE
SPACE						11	12					1	SPACE
				0	0			1050	1000				

TOTAL VA PHASE A: **1050**
TOTAL VA PHASE B: **1000**

TOTAL CONNECTED WATTAGE: **2,050**
DEMAND WATTAGE: **2,000**
TOTAL DEMAND AMPS: **8**

SUPPLIED FROM: **TRSF-XX**

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO CONCRETE WALL.
7. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
8. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
9. PROVIDE SEAL FITTINGS AS SHOWN IN CABLE SEAL FITTING DETAIL ON SHEET ED-11 FOR ALL CABLE ENTRANCES INTO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
10. INSTALL POWER AND DATA ON THE FIRST 78" OF THE FRONT WALL CLOSEST TO THE DIRECTION OF FIRE.
11. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS INTO THE SIDE OF THE DATA ENCLOSURE.
12. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
13. PROVIDE GROUNDING IN ACCORDANCE WITH EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11.
14. PROVIDE TARGET AND AUXILIARY OUTLETS WITH NEMA 3R WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL SHEET ED-11 FOR WET LOCATION COVER. IN USE COVERS WITH COVERS INTENDED TO CLOSE OVER THE INSERTED CORD ARE NOT ACCEPTABLE AS THESE COVERS WILL NOT CLOSE OVER THE TARGET POWER OR AUXILIARY CORDS.
15. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING LAND PROGRAM, HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
16. STUB UP CONDUIT AS CLOSE AS PRACTICAL TO CABLE FITTING.
17. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.

US Army Corps of Engineers®

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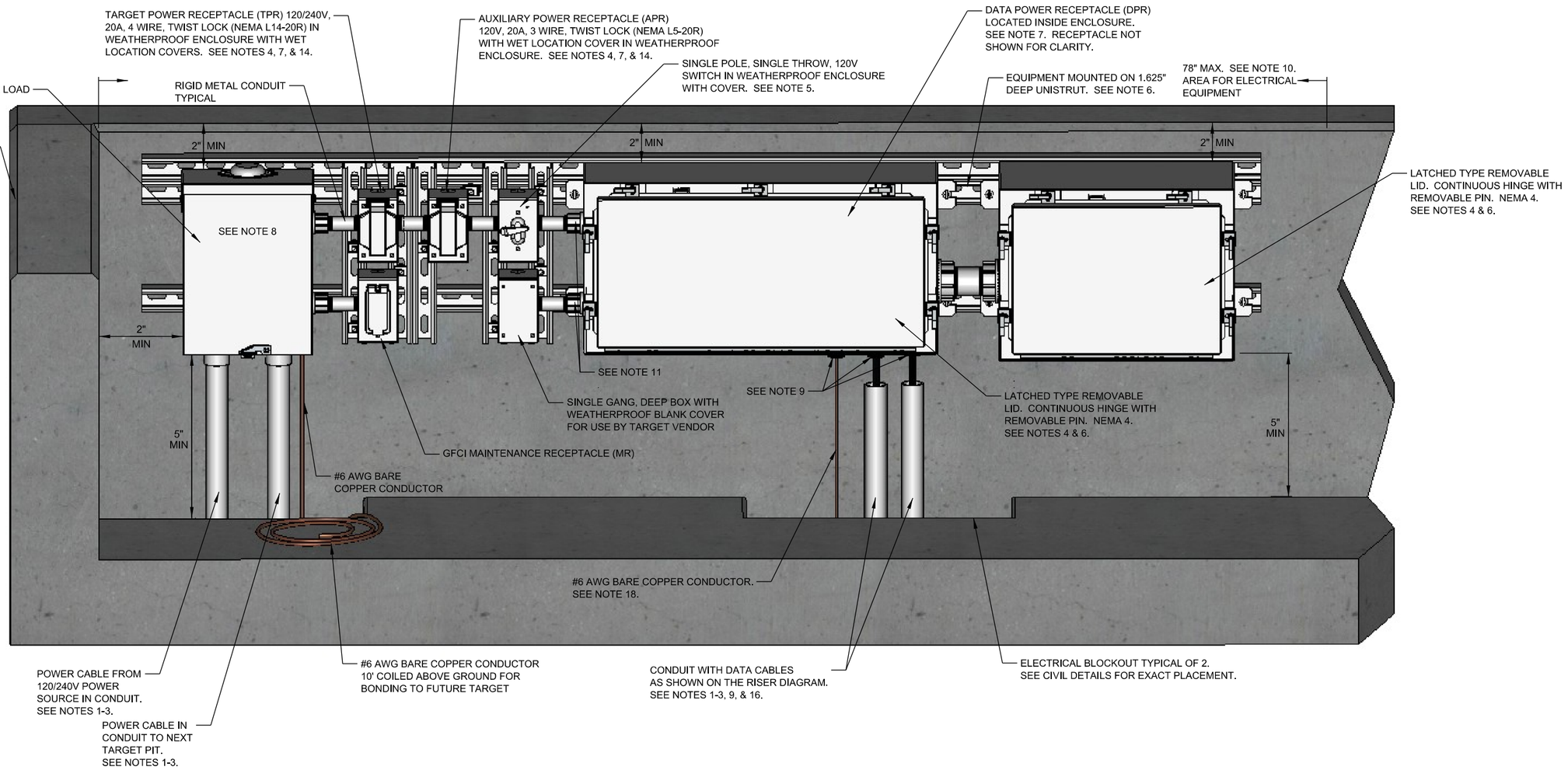
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

MOVING INFANTRY TARGET
ELECTRICAL DETAILS

SHEET ID
ED-02



ELEVATION
MOVING INFANTRY TARGET

NOT TO SCALE

PANEL BOARD: **MIT** LOCATION: **XXXXXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**

125 MAIN MAIN LUGS OR FEED THRU LUGS ASYM A.I.C MIN.: **XXXXX**

VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---	---	1	2	1000	1000	12	20	2	MIT (NEMA L14-20R, NEMA L5-20R)
SPARE	1	20	---	---		5	6	50		12	20	1	TDP AND MR
SPACE						7	8		---	---	20	1	SPARE
SPACE						9	10					1	SPACE
SPACE						11	12					1	SPACE
				0	0			1050	1000				

TOTAL VA PHASE A: **1050**
TOTAL VA PHASE B: **1000**

TOTAL CONNECTED WATTAGE: **2,050**
DEMAND WATTAGE: **2,000**
TOTAL DEMAND AMPS: **8**

SUPPLIED FROM: **TRSF-XX**

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO CONCRETE WALL.
7. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
8. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
9. PROVIDE SEAL FITTINGS AS SHOWN IN CABLE SEAL FITTING DETAIL ON SHEET ED-11 FOR ALL CABLE ENTRANCES INTO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
10. INSTALL POWER AND DATA ON THE FIRST 78" OF THE FRONT WALL CLOSEST TO THE DIRECTION OF FIRE.
11. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS INTO THE SIDE OF THE DATA ENCLOSURE.
12. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
13. PROVIDE GROUNDING IN ACCORDANCE WITH EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11.
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15. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING LAND PROGRAM, HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
16. STUB UP CONDUIT AS CLOSE AS PRACTICAL TO CABLE FITTING.
17. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.

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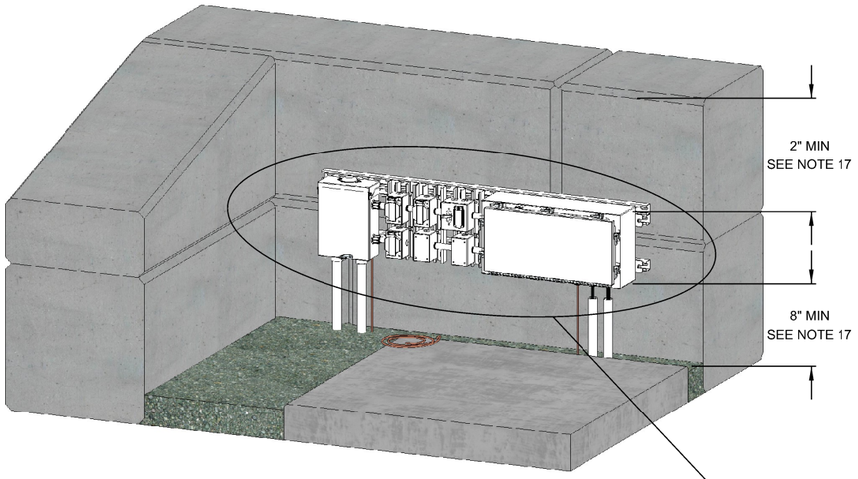
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ARF+ 300M MOVING INFANTRY TARGET
ELECTRICAL DETAILS

SHEET ID
ED-02A



PARTIAL SAT TARGET ELEVATION

NOT TO SCALE

PANEL BOARD: **SAT** LOCATION: **XXXXXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**

XXXX MAIN MAIN LUGS ONLY ASYM A.I.C MIN.: **XXXXX**

VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	1400		12	20	2	SAT (NEMA L14-20R, 2-NEMA L5-20R)
					---				1400				
SPARE	1	20	---	---		5	6	50		12	20	1	TDP AND MR
SPACE						7	8		---	---	20	1	SPARE
SPACE						9	10					1	SPACE
SPACE						11	12					1	SPACE
				0	0			1450	1400				

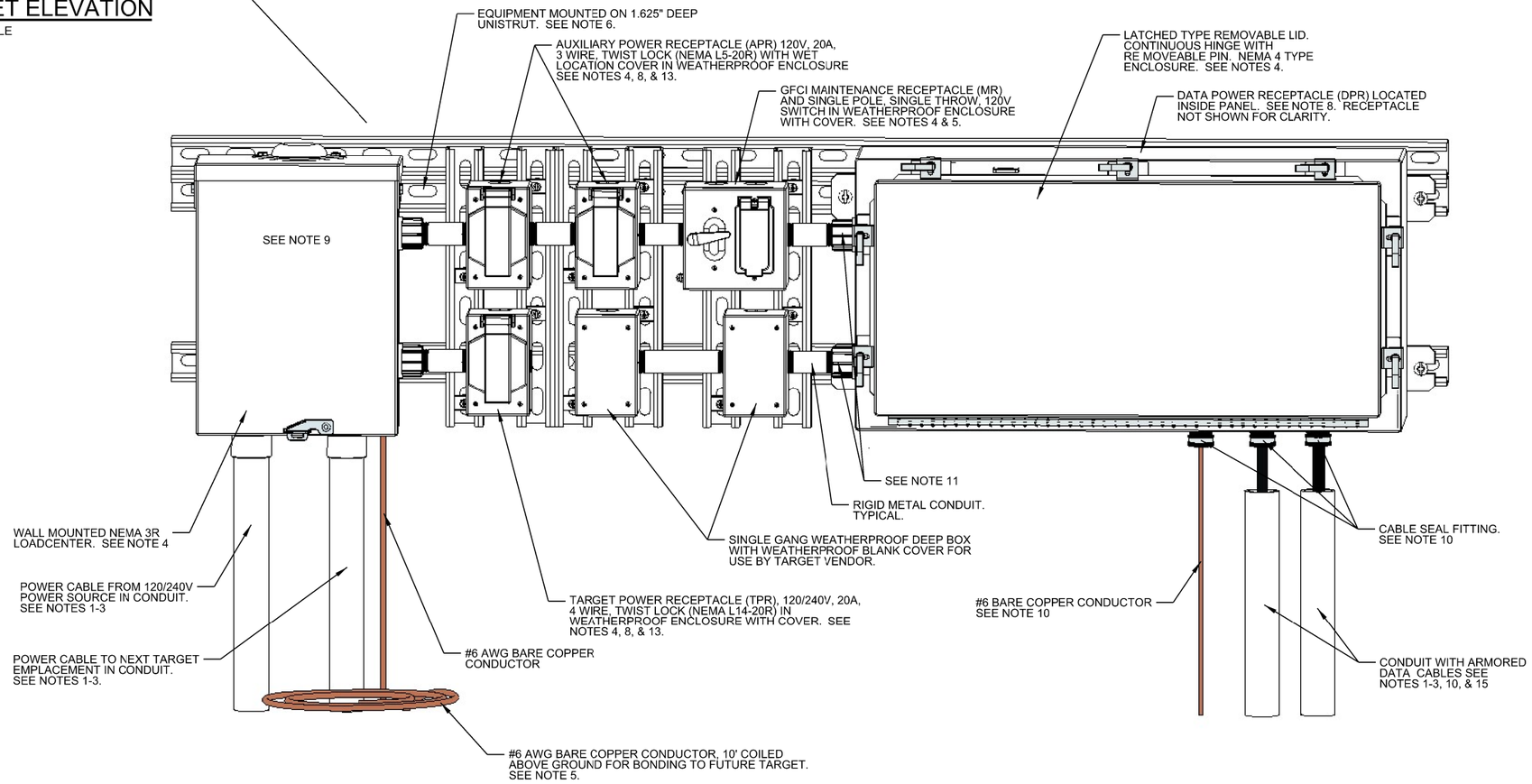
TOTAL VA PHASE A: **1450**
TOTAL VA PHASE B: **1400**

TOTAL CONNECTED WATTAGE: **2,850**
DEMAND WATTAGE: **2,800**
TOTAL DEMAND AMPS: **12**

SUPPLIED FROM: **TRSF-XX**

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE, SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO CONCRETE WALL.
7. FOR FLANK TYPE SAT TARGET INCREASE THE LENGTH OF GROUND CABLE TO 18 FT.
8. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
9. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
10. PROVIDE SEAL FITTINGS AS SHOWN IN DETAIL ON SHEET ED-11 FOR ALL CABLE PENETRATIONS TO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
11. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS TO SIDE OF ENCLOSURE.
12. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
13. PROVIDE TARGET AND AUXILIARY OUTLETS WITH NEMA 3R WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL SHEET ED-11 FOR WET LOCATION COVER. IN USE COVERS WITH COVERS INTENDED TO CLOSE OVER THE INSERTED CORD ARE NOT ACCEPTABLE AS THESE COVERS WILL NOT CLOSE OVER THE TARGET POWER OR AUXILIARY CORDS.
14. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING AND LAND PROGRAM HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
15. CONDUIT STUBBED UP AS CLOSE TO CABLE SEAL FITTING AS POSSIBLE.
16. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.
17. PREFERRED MOUNTING HEIGHT IS AT THE MINIMUM MOUNTING HEIGHT SHOWN FOR EQUIPMENT INSTALLED ABOVE FINISHED GRADE IN THE TARGET ELEVATION.
18. PROVIDE GROUNDING IN ACCORDANCE WITH EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11.



SAT TARGET ENLARGED ELECTRICAL EQUIPMENT ELEVATION

NOT TO SCALE

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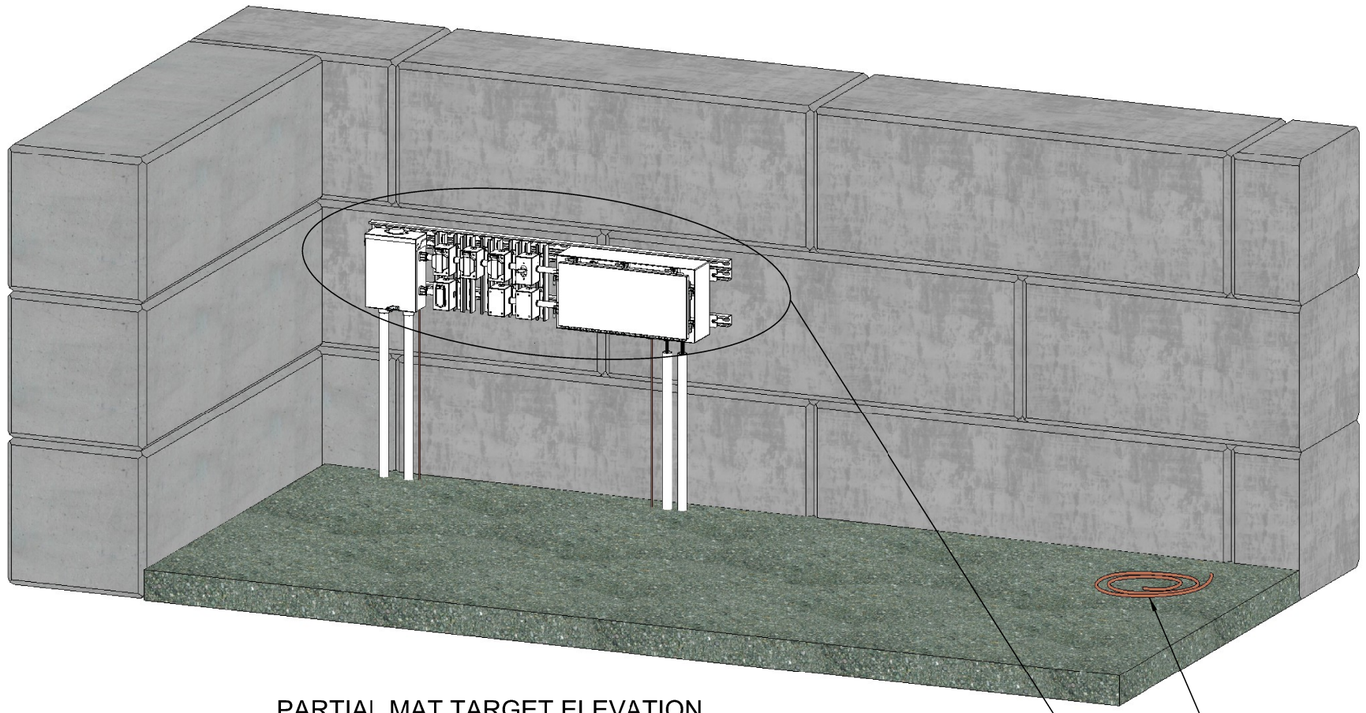
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
STATIONARY ARMOR TARGET

SHEET ID
ED-03



PARTIAL MAT TARGET ELEVATION

NOT TO SCALE

PANEL BOARD: **MAT** LOCATION: **XXXXXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**

XXXX MAIN MAIN LUGS ONLY ASYM A.I.C MIN.: **XXXXX**

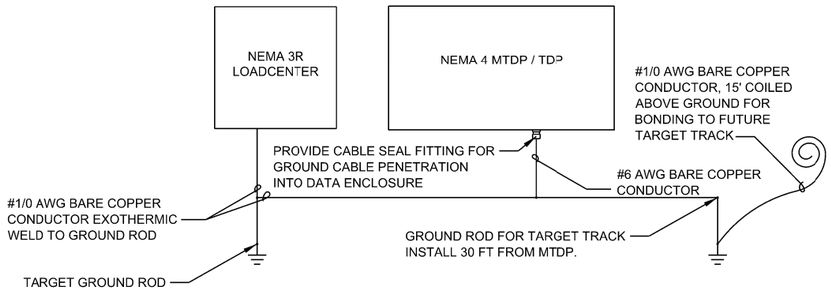
VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	1900		12	20	2	MAT (NEMA L14-20R, 2-NEMA L5-20R)
					---				1900				
SPARE	1	20	---	---		5	6	50		12	20	1	TDP AND MR
SPACE						7	8		---	---	20	1	SPARE
SPACE						9	10					1	SPACE
SPACE						11	12					1	SPACE
				0	0			1950	1900				

TOTAL VA PHASE A: **1950**
TOTAL VA PHASE B: **1900**

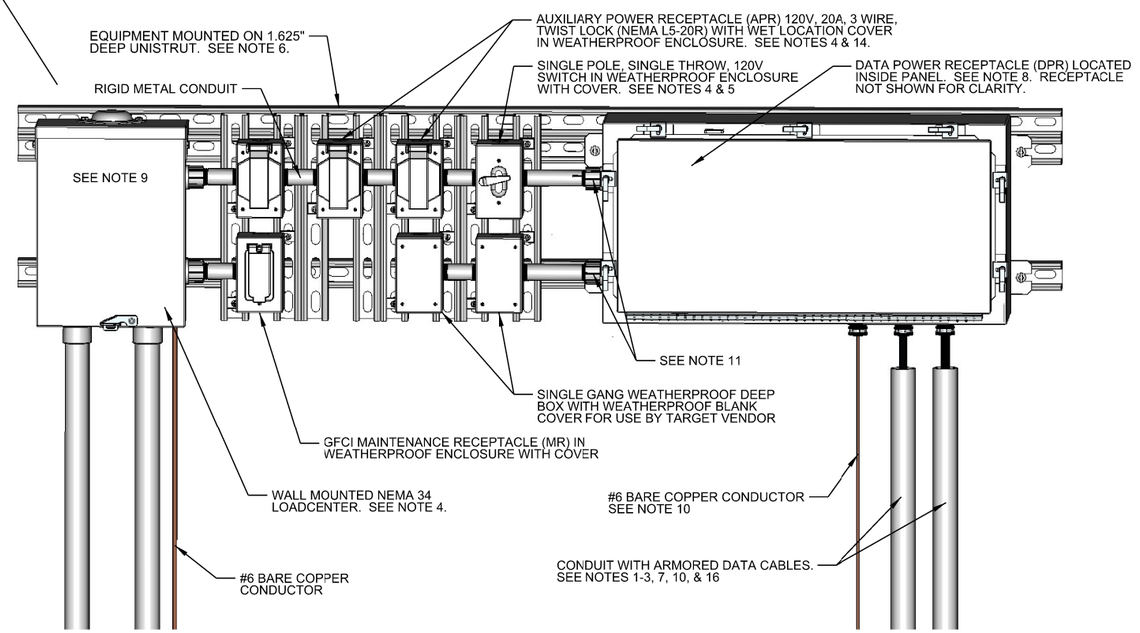
TOTAL CONNECTED WATTAGE: **3,850**
DEMAND WATTAGE: **3,800**
TOTAL DEMAND AMPS: **16**

SUPPLIED FROM: **TRSF-XX**



EMPLACEMENT GROUNDING DETAIL

NOT TO SCALE



MAT TARGET ENLARGED ELECTRICAL EQUIPMENT ELEVATION

NOT TO SCALE

NOTES:

1. CONDUIT TO EXTEND 5 FEET BEYOND EMPLACEMENT.
2. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
3. ROUTE UNDER SLAB. POWER AND DATA INSTALLED IN SAME TRENCH.
4. EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
5. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SIGN LE POLE, SINGLE THROW SWITCH.
6. ALL EQUIPMENT SHALL BE MOUNTED ON 1.625" DEEP UNISTRUT. NO EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED DIRECTLY TO THE CONCRETE WALL.
7. THE ENDS OF THE CAT6 CABLES SHALL BE TERMINATED WITH A DATA SURGE PROTECTOR.
8. TPR, APR AND DPR SHALL NOT BE GFCI PROTECTED.
9. PERMANENTLY LABEL THE EMPLACEMENT ACCORDING TO THE CIVIL AND ELECTRICAL DESIGNATIONS.
10. PROVIDE SEAL FITTINGS AS SHOWN IN DETAIL ON SHEET ED-11 FOR ALL CABLE PENETRATIONS TO NEMA 4, 4X, OR 6P RATED ENCLOSURES.
11. INSTALL MYERS TYPE HUBS ON ALL CONDUIT PENETRATIONS TO SIDE OF ENCLOSURE.
12. ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED.
13. IF TARGET IS BATTERY OPERATED WITH NO AC POWER PROVIDED, THE TARGET GROUND ROD SHALL BE INSTALLED WITH A 15' COILED #1/0 AWG BARE COPPER GROUND CABLE FOR FUTURE BONDING TO THE TARGET MECHANISM.
14. PROVIDE TARGET AND AUXILIARY OUTLETS WITH NEMA 3R WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL SHEET ED-11 FOR WET LOCATION COVER. IN USE COVERS WITH COVERS INTENDED TO CLOSE OVER THE INSERTED CORD ARE NOT ACCEPTABLE AS THESE COVERS WILL NOT CLOSE OVER THE TARGET POWER OR AUXILIARY CORDS.
15. DEVIATIONS TO THE EQUIPMENT SIZES, EQUIPMENT NUMBERS, RECEPTACLE COVERS, OR CABLE ENTRY METHODS INTO ENCLOSURES WILL REQUIRE RANGE TRAINING AND LAND PROGRAM HUNTSVILLE CENTER MANDATORY CENTER OF EXPERTISE APPROVAL.
16. CONDUIT STUBBED UP AS CLOSE TO CABLE SEAL FITTING AS POSSIBLE.
17. EQUIPMENT IS SHOWN AT THE PREFERRED MOUNTING HEIGHT. UNDER NO CIRCUMSTANCE SHOULD ANY EQUIPMENT BE INSTALLED SUCH THAT THE TOP OF THE EQUIPMENT IS LESS THAN 2" FROM THE TOP OF THE EMPLACEMENT WALL.
18. SEE SHEET ED-07 FOR ADDITIONAL INFORMATION ON TARGET DATA PANELS. SEE SHEET ED-06 FOR ADDITIONAL INFORMATION ON MASTER TARGET DATA PANELS.
19. LENGTH OF 157" IS FOR MAT WITH STANDARD EQUIPMENT SHOWN. INCREASE LENGTH TO 236" WHEN SECTIONALIZING ENCLOSURE IS REQUIRED IN DESIGN. COORDINATE WITH CIVIL DESIGN.

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U. S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

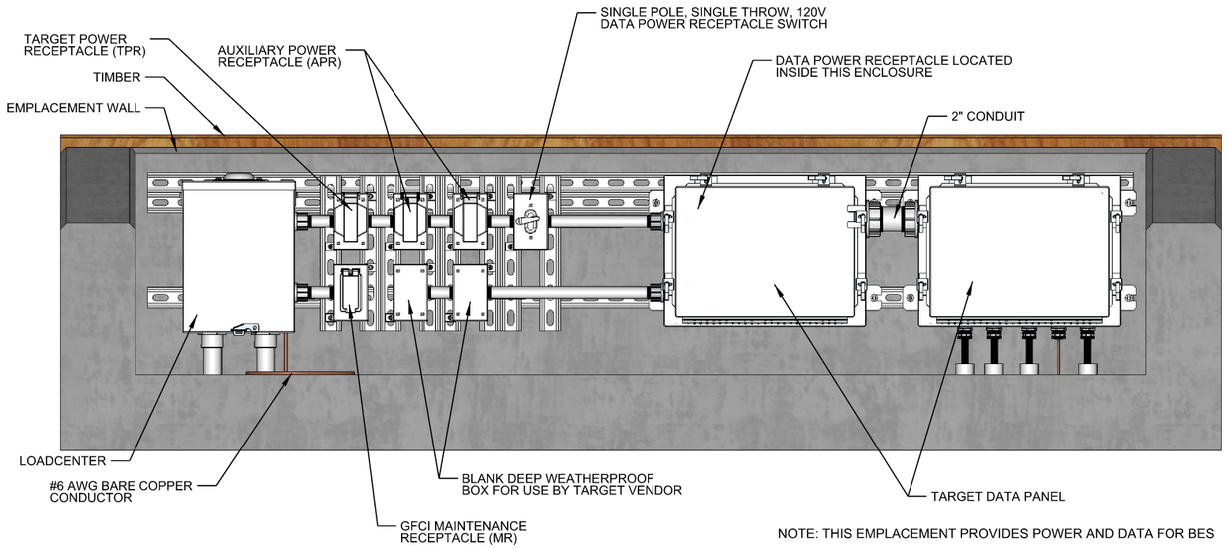
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS

MOVING ARMOR TARGET

SHEET ID

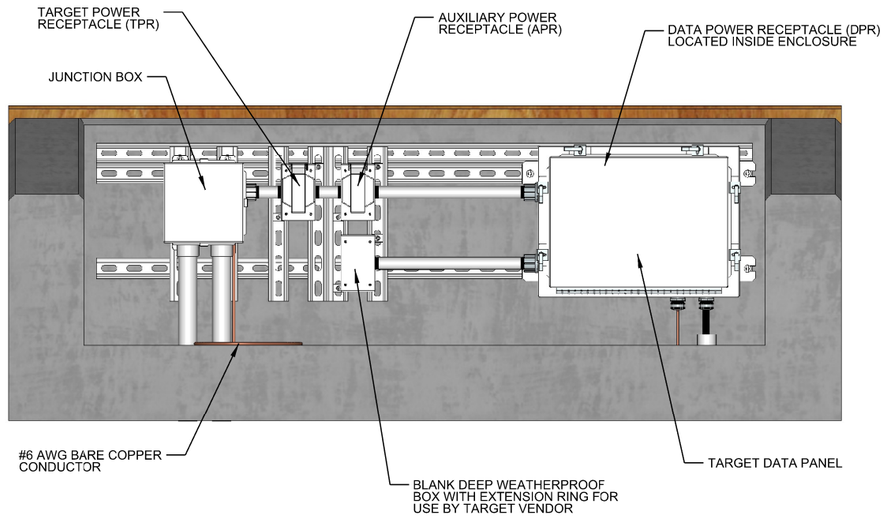
ED-04



NOTE: THIS EMPLACEMENT PROVIDES POWER AND DATA FOR BES

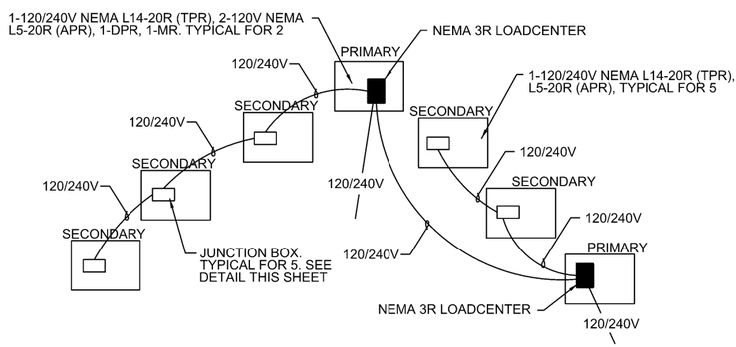
STATIONARY INFANTRY TARGET CLUSTER PRIMARY TARGET ELEVATION

NOT TO SCALE



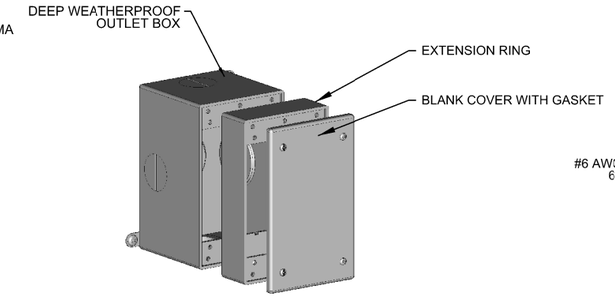
STATIONARY INFANTRY TARGET CLUSTER SECONDARY TARGET ELEVATION

NOT TO SCALE



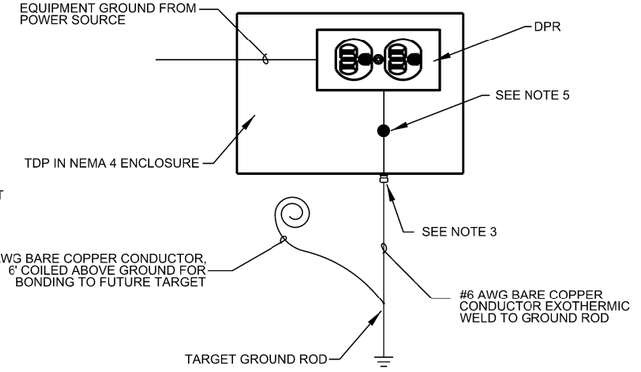
SIT CLUSTER POWER ONLY

NOT TO SCALE



DATA OUTLET BOX WITH EXTENSION RING

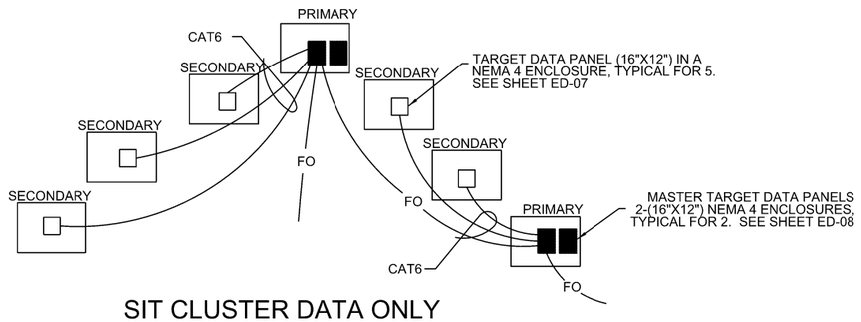
NOT TO SCALE



SECONDARY EMPLACEMENT GROUNDING DETAIL

NOT TO SCALE

NOTE: DETAIL APPLICABLE TO SECONDARY EMPLACEMENT ONLY. SEE DETAIL SHEET ED-11 FOR GROUNDING DETAIL FOR PRIMARY DETAIL EMPLACEMENT.



SIT CLUSTER DATA ONLY

NOT TO SCALE

NOTES:

1. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
2. ALL EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
3. PROVIDE SEAL FITTINGS AS SHOWN IN DETAIL ON SHEET ED-11 FOR ALL NEMA 4, 4X, OR 6P RATED ENCLOSURES.
4. PROVIDE TARGET AND AUXILIARY OUTLETS WITH WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL ON SHEET ED-11 FOR WE LOCATION COVER. STANDARD IN USE COVERS FOR REGULAR DUPLEX OUTLETS WILL NOT CLOSE OVER TARGET PLUG AND CORD.
5. BOND EQUIPMENT GROUND FROM POWER SOURCE TO TARGET DATA PANEL (TDP).

6 SEE SHEET ED-08 FOR CLUSTER TDP DESIGN.

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U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

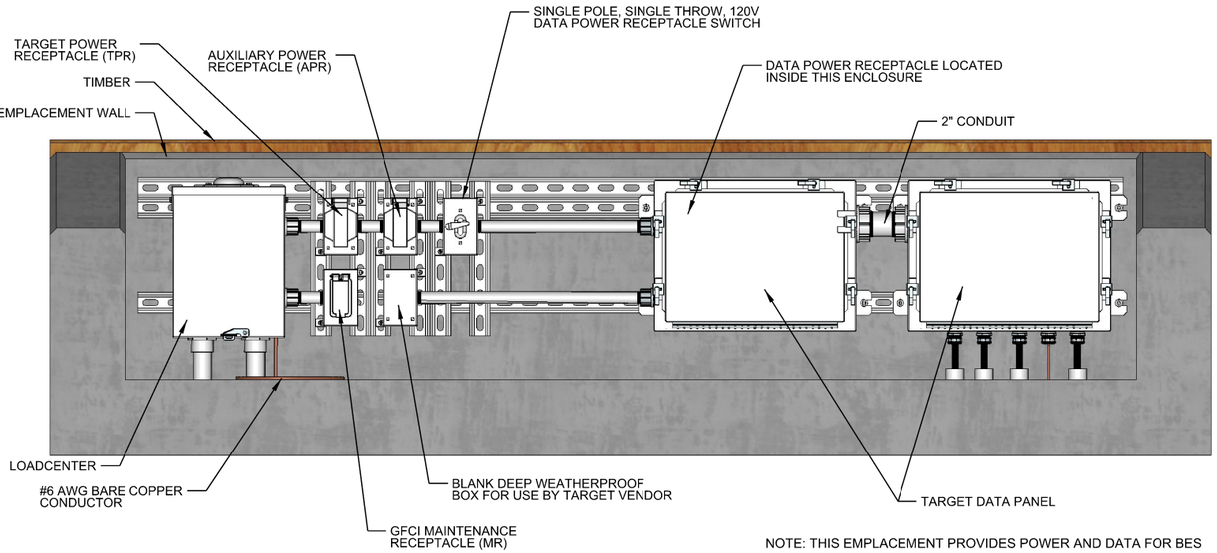
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS

SIT / MIT CLUSTERS

SHEET ID

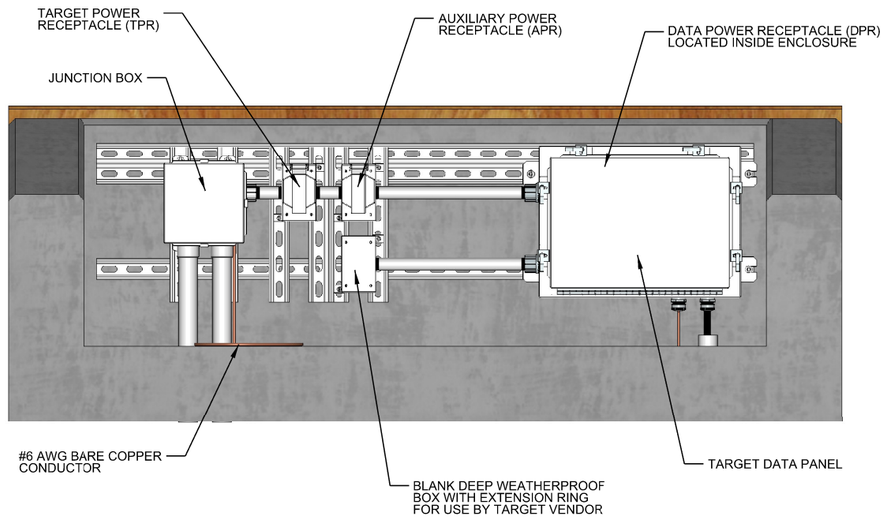
ED-05



NOTE: THIS EMPLACEMENT PROVIDES POWER AND DATA FOR BES

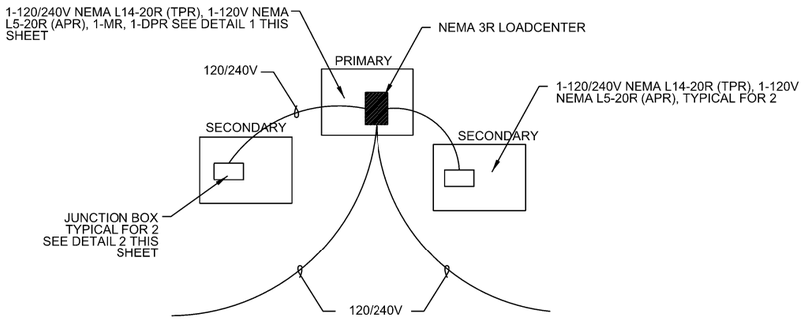
STATIONARY INFANTRY TARGET CLUSTER PRIMARY TARGET ELEVATION

NOT TO SCALE



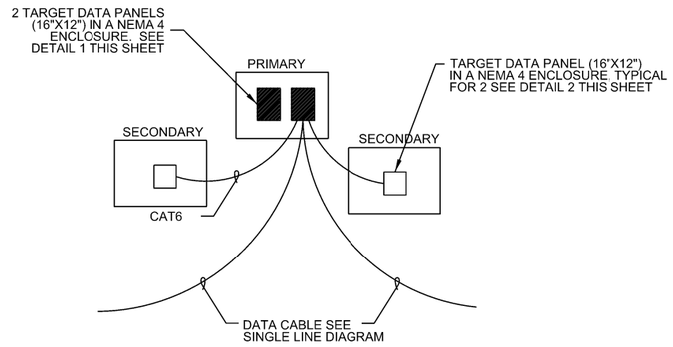
STATIONARY INFANTRY TARGET CLUSTER SECONDARY TARGET ELEVATION

NOT TO SCALE



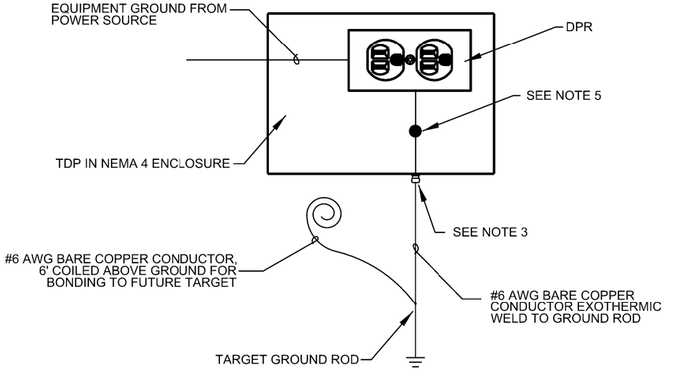
SIT CLUSTER POWER ONLY

NOT TO SCALE



SIT CLUSTER DATA ONLY

NOT TO SCALE



SECONDARY EMPLACEMENT GROUNDING DETAIL

NOT TO SCALE

NOTE: DETAIL APPLICABLE TO SECONDARY EMPLACEMENT ONLY. SEE DETAIL SHEET ED-11 FOR GROUNDING DETAIL FOR PRIMARY DETAIL EMPLACEMENT.

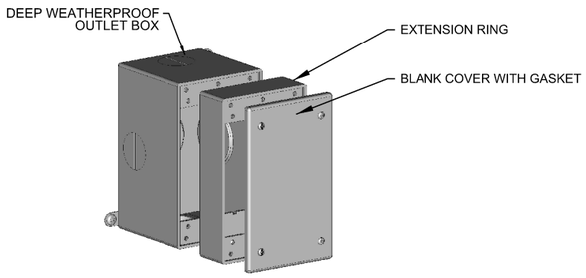
PANEL BOARD: **SIT** LOCATION: **XXXX** MOUNTED: **SURFACE** FEED: **BOTTOM**
125 AMP MAIN MAIN LUGS ONLY ASYM A.I.C MIN.: **10,000**
VOLTAGE: **240/120** PHASE: **1** WIRE: **3** RATING: **NEMA 3R**

				VA/ PHASE				VA/ PHASE					
LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	A	B	CKT NO.	CKT NO.	A	B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	----	---	---		1	2	1440		12	20	2	SIT (3-NEMA L14-20R, 3-NEMA L5-20R)
					---				1440				
SUB FEED THRU LUGS	2	----	---	---		5	6	50		12	20	1	TDP AND MR
					---		8		---	---	20	1	SPARE
				0	0			1490	1440				

TOTAL VA PHASE A: **1490**
TOTAL VA PHASE B: **1440**

TOTAL CONNECTED WATTAGE: **2,930**
95% DEMAND WATTAGE: **2,784**
TOTAL DEMAND AMPS: **12**

SUPPLIED FROM: **TRSF-XX**



DATA OUTLET BOX WITH EXTENSION RING

NOT TO SCALE

NOTES:

1. CABLES/CONDUITS ARE ROUTED FROM SIDE OF BERM TO PREVENT CABLE DAMAGE DURING MAINTENANCE OF BERM.
2. ALL EQUIPMENT SHALL NOT BE MOUNTED HIGHER THAN 2" FROM TOP OF EMPLACEMENT WALL.
3. PROVIDE SEAL FITTINGS AS SHOWN IN DETAIL ON SHEET ED-11 FOR ALL NEMA 4, 4X, OR 6P RATED ENCLOSURES.
4. PROVIDE TARGET AND AUXILIARY OUTLETS WITH WET LOCATION COVERS MAKING OUTLETS SUITABLE FOR USE IN WET LOCATIONS. SEE DETAIL ON SHEET ED-11 FOR WE LOCATION COVER. STANDARD IN USE COVERS FOR REGULAR DUPLEX OUTLETS WILL NOT CLOSE OVER TARGET PLUG AND CORD.
5. BOND EQUIPMENT GROUND FROM POWER SOURCE TO TARGET DATA PANEL (TDP).
6 SEE SHEET ED-08 FOR CLUSTER TDP DESIGN.

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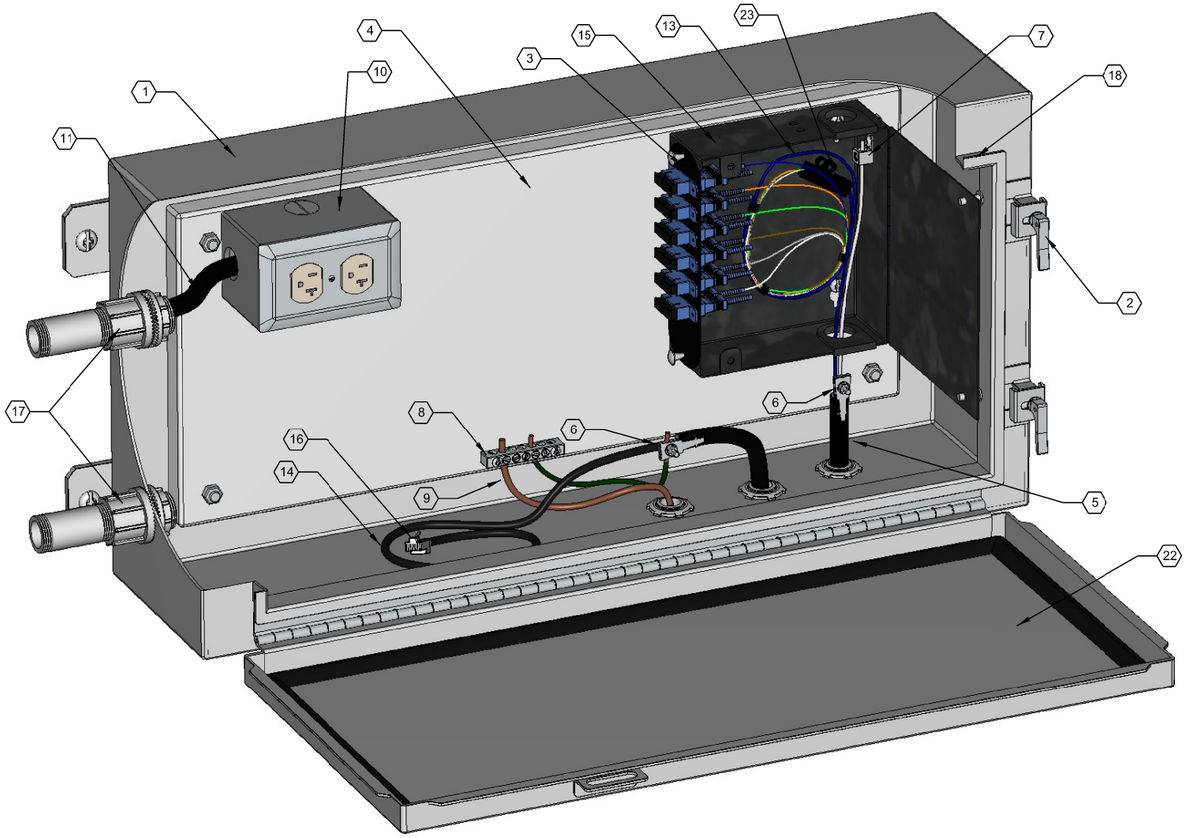
ENGINEERING & SUPPORT CENTER
HUNTSVILLE ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
3 MAN SIT CLUSTER

SHEET ID
ED-05A

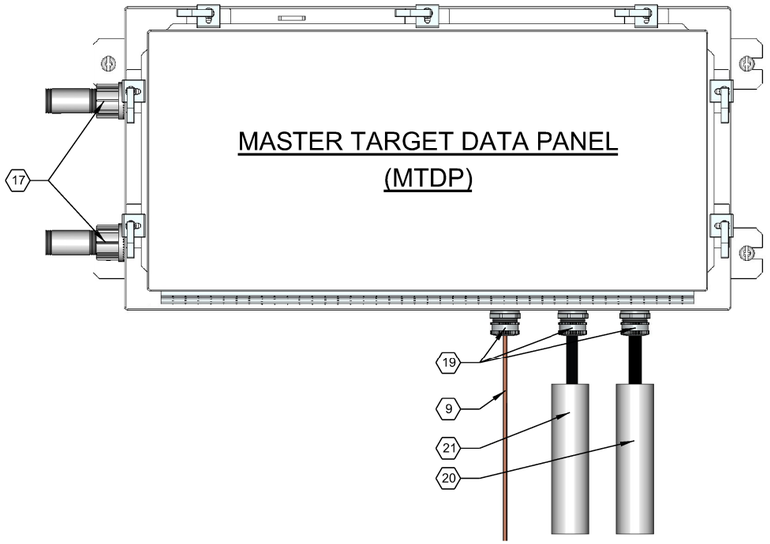


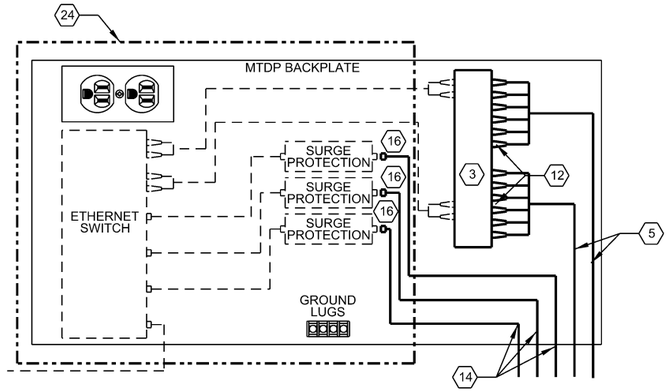
TYPICAL MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

KEYED NOTES REPRESENTED WITH (#):

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY.
2. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPE CLAMPS ARE NOT ACCEPTABLE.
3. INJECTION-MOLDED PLASTIC CONNECTOR 12 PORT PATCH PANEL.
4. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
5. 6-STRAND ARMORED TYPE FIBER OPTIC CABLE(S) WITH CENTRAL STRENGTH MEMBER. SECURE FIBER OPTIC CABLE CENTRAL MEMBER INSIDE MTDP ENCLOSURE.
6. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO MTDP BACK PLATE GROUNDING BAR. ALL GROUND CABLES NOT SHOWN FOR CLARITY.
7. CENTRAL MEMBER STRAIN-RELIEF BRACKET.
8. GROUND BAR - SECURE TO METAL BACK PLATE.
9. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
10. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. CONNECT DPR AHEAD OF GFCI MAINTENANCE RECEPTACLE TO AVOID NUISANCE TRIPPING.
11. 2/C #12 WITH GROUND CORD IN CONDUIT FROM CIRCUIT BREAKER LOADCENTER FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. RECEPTACLE SHALL NOT BE FED FROM ANY GROUND FAULT INTERRUPTING DEVICE.
12. FIELD INSTALLABLE "SC" CONNECTORS WITH BEND PROTECTOR. ALL CONNECTORS NOT SHOWN FOR CLARITY.
13. FIBER OPTIC CABLE BUFFER TUBES WITH 6-STRANDS OF FIBER, EACH. PROVIDE 2' SLACK EACH END.
14. DIRECT BURIAL GRADE CATEGORY 6 SHIELDED CABLES TO TARGET DATA PANEL (TDP). COIL 3' SLACK IN MTDP AT EACH END AND PROVIDE STRAIN RELIEF. BOND CABLE SHIELD TO MTDP BASE PLATE GROUNDING.
15. WALL MOUNTED SINGLE PANEL HOUSING FOR FIBER OPTIC CABLE TERMINATIONS. FIBER OPTIC BUFFER TUBE SLACK AND FAN OUT KIT SHALL BE CONTAINED WITHIN HOUSING. HOUSING SHALL BE COMPATIBLE WITH 12 PORT PATCH PANEL.
16. MALE RJ-45 SHIELDED CONNECTOR.
17. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
18. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
19. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE TYPICAL CABLE SEAL FITTING DETAIL ON SHEET ED-11.
20. CONDUIT FOR FIBER OPTIC CABLES. STUB UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
21. CONDUIT WITH DIRECT BURIAL GRADE CAT 6 CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
22. HINGED COVER WITH CORROSION - RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
23. FIBER OPTIC FAN-CUT KIT OR SPLICE KIT WITH PIGTAILS.
24. PROVIDE 14" X 10" SPACE FOR INSTALLATION OF TARGET COMMUNICATIONS EQUIPMENT. POWER OUTLET AND GROUND LUG ARE ONLY COMPONENTS INSTALLED IN THIS SPACE THAT IS NOT BY THE TARGET VENDOR. AREA MEASURED FROM SIDE OF ENCLOSURE NOT EDGE OF BACKPLATE.





MTDP DATA WIRING SCHEMATIC

PROVIDED BY MCA CONTRACTOR

PROVIDED BY OPA CONTRACTOR

GENERAL NOTES:

1. TERMINATE ALL FIBER OPTIC CABLES ENTERING OR LEAVING WITH "SC" CONNECTORS. ALL 6 STRANDS OF FIBER ARE REQUIRED TO BE TERMINATED AT EACH EMPLACEMENT.
2. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
3. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
4. MTDP SHALL BE 24"W X 12"H X 6"D.
5. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.
6. CAT 6 DATA CABLES PROVIDE THE MINIMUM PERFORMANCE REQUIREMENTS FOR COPPER DATA CABLES. DATA CABLES THAT EXCEED CAT 6 PERFORMANCE REQUIREMENTS MAY BE USED AS LONG AS ALL PHYSICAL REQUIREMENTS SPECIFIED HEREIN ARE MAINTAINED.

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U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE ALABAMA

MAY 2021

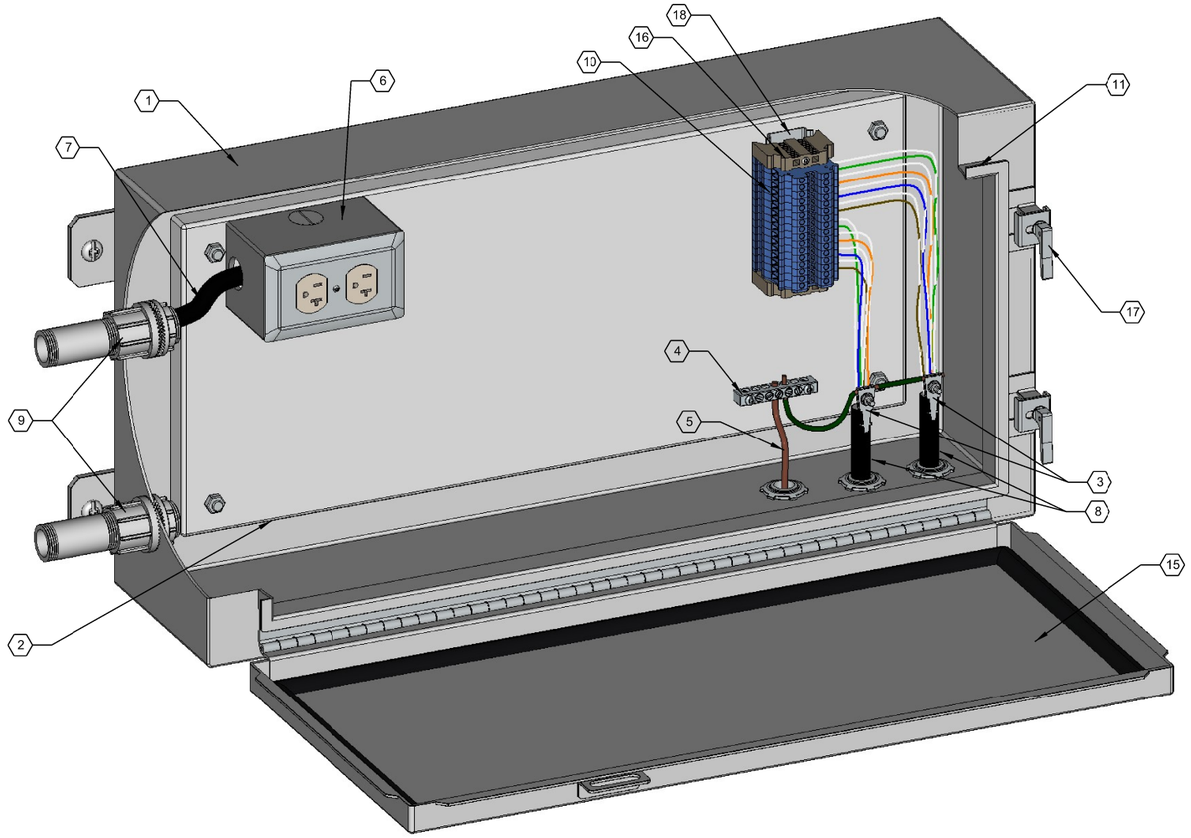
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

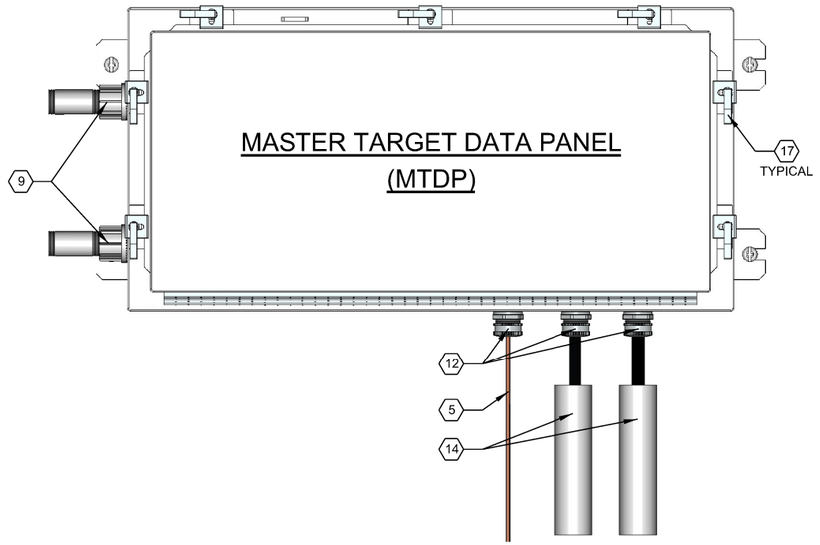
ELECTRICAL DETAILS

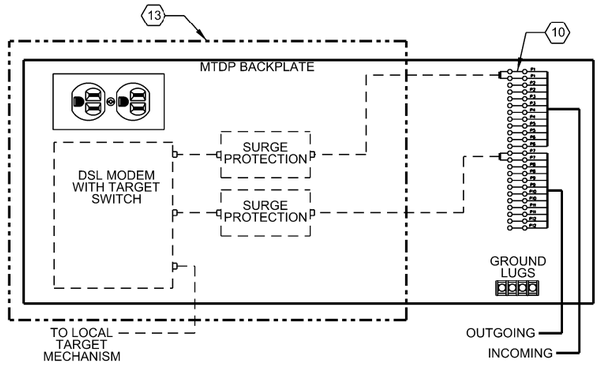
MASTER TARGET DATA PANEL - FIBER OPTIC CABLES

SHEET ID

ED-06







TYPICAL MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

KEYED NOTES REPRESENTED WITH ⟨#⟩:

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY. (SEE GENERAL NOTE 3.)
2. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
3. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO BACK PLATE GROUND BAR. ALL GROUND CABLES MAY NOT BE SHOWN IN THIS DETAIL FOR CLARITY.
4. GROUND BAR - SECURE TO METAL BACK PLATE.
5. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
6. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. DPR SHALL NOT BE GFCI PROTECTED.
7. 2/C #12 WITH GROUND CORD IN CONDUIT FROM SINGLE POLE SINGLE THROW SWITCH FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. SEE TARGET EMPLACEMENT ELECTRICAL DETAIL FOR SWITCH LOCATIONS
8. DIRECT BURIAL GRADE CAT 6, ARMORED CABLES. BOND CABLE SHIELD TO TDP BACK PLATE GROUNDING. ALL CABLES NOT SHOWN FOR CLARITY.
9. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
10. 12 FEED-THROUGH TERMINAL BLOCK SECTIONS WITH 2 SCREW TYPE CONNECTIONS. TERMINAL BLOCK SECTIONS SHALL ACCEPT WIRE SIZES UP TO #12 AWG.
11. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
12. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL." SHEET E-11.
13. 14" X 10" SPACE FOR INSTALLATION OF TARGET COMMUNICATIONS EQUIPMENT. POWER OUTLET AND GROUND LUG ARE ONLY COMPONENTS INSTALLED IN THIS SPACE THAT IS NOT BY THE TARGET VENDOR. AREA MEASURED FROM SIDE OF ENCLOSURE NOT EDGE OF BACKPLATE.
14. CONDUIT WITH DIRECT BURIAL CAT 6 ARMORED CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
15. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
16. SUPPORT BRACKET FOR BUSBAR TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
17. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPE CLAMPS ARE NOT ACCEPTABLE.
18. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.

WIRING SCHEMATIC

PROVIDED BY CONSTRUCTION CONTRACTOR

PROVIDED BY TARGET VENDOR

WIRING PAIRS

P1	PAIR ONE	WHITE/BLUE
P2	PAIR TWO	WHITE/ORANGE
P3	PAIR THREE	WHITE/GREEN
P4	PAIR FOUR	WHITE/BROWN
P5	PAIR FIVE	WHITE/SLATE
P6	PAIR SIX	WHITE/BLUE

UN-TERMINATED WIRE PAIRS SHALL BE CONNECTED TO GROUND

GENERAL NOTES:

1. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
2. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
3. MTDP SHALL BE 24"W X 12"H X 6"D.
4. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.

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SIZE:

U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

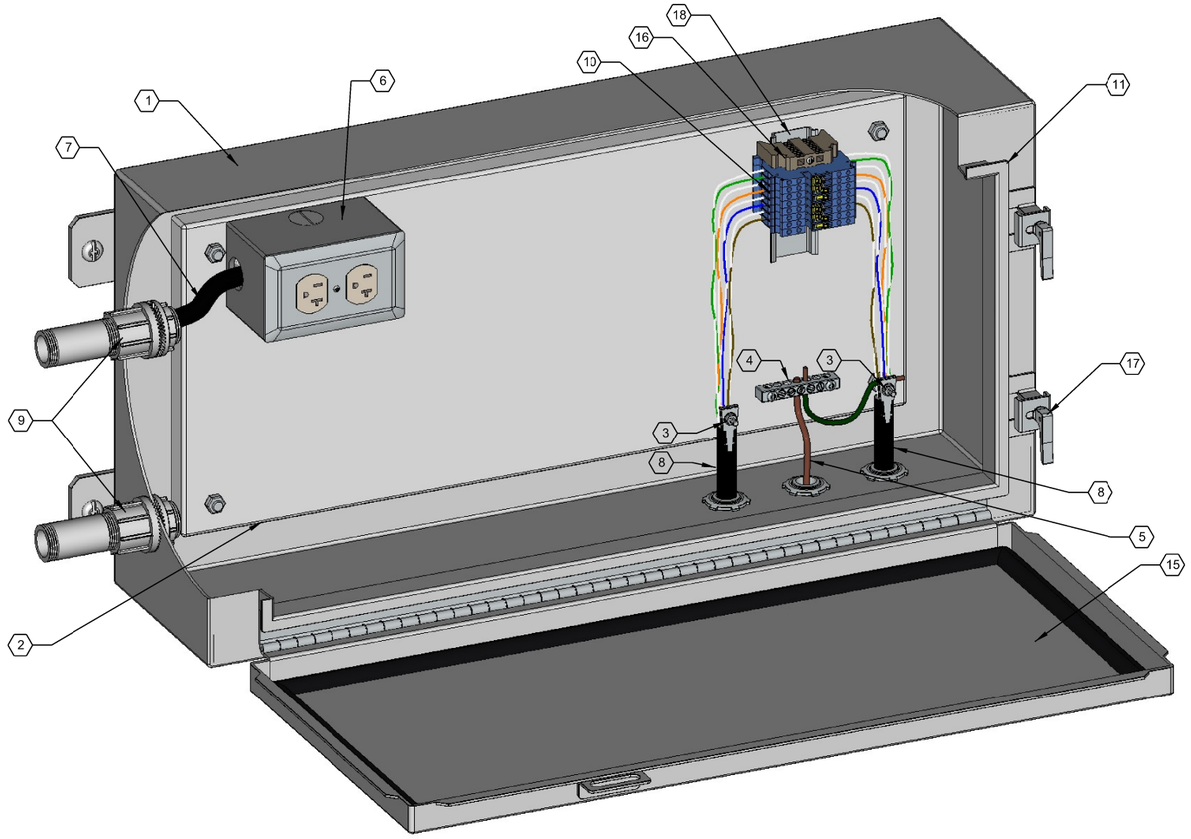
MAY 2021

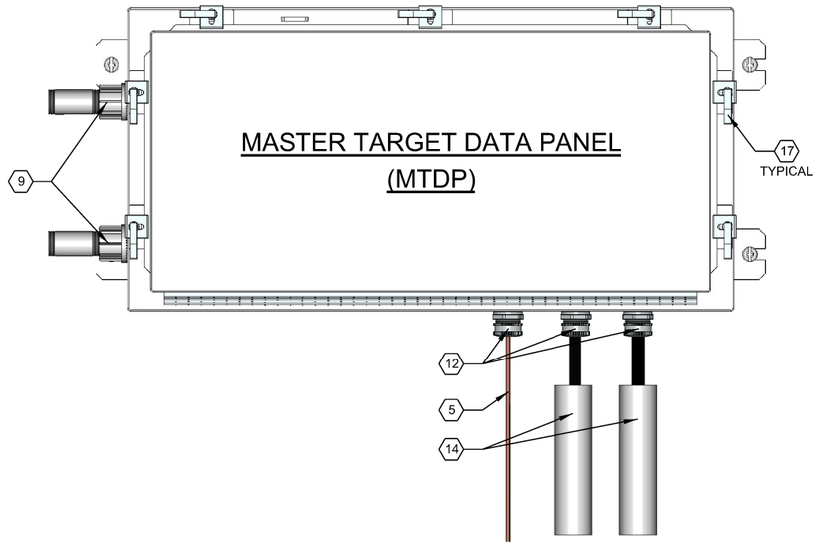
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

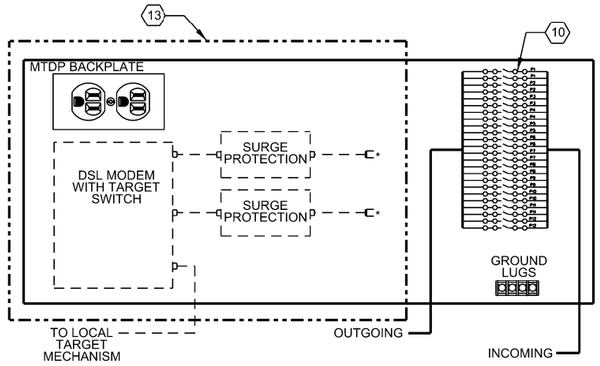
ELECTRICAL DETAILS
MASTER TARGET DATA PANEL -
6 TWISTED PAIR CABLES

SHEET ID

ED-06A







TYPICAL MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

KEYED NOTES REPRESENTED WITH (#):

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY. (SEE GENERAL NOTE 3.)
2. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
3. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO BACK PLATE GROUND BAR. ALL CABLES IN ENCLOSURE MUST BE BONDED TO GROUND. ALL CABLE GROUNDS MAY NOT BE SHOWN IN THIS DETAIL
4. GROUND BAR - SECURE TO METAL BACK PLATE.
5. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
6. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. DPR SHALL NOT BE GFCI PROTECTED.
7. 2/C #12 WITH GROUND CORD IN CONDUIT FROM SINGLE POLE SINGLE THROW SWITCH FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. SEE TARGET EMPLACEMENT ELECTRICAL DETAIL FOR SWITCH LOCATIONS
8. DIRECT BURIAL GRADE CATEGORY 6, ARMORED CABLES. BOND CABLE SHIELD TO TDP BACK PLATE GROUNDING. ALL CABLES NOT SHOWN FOR CLARITY.
9. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
10. KNIFE DISCONNECT TERMINAL BLOCK SECTIONS WITH 4 SCREW TYPE CONNECTIONS. NUMBER OF TERMINALS AS REQUIRED BY DATA CABLES, ONE TERMINAL BLOCK FOR EACH WIRE. SEE DETAIL SHEET ED-11.
11. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
12. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL." SHEET E-11.
13. 14" X 10" SPACE FOR INSTALLATION OF TARGET COMMUNICATIONS EQUIPMENT. POWER OUTLET AND GROUND LUG ARE ONLY COMPONENTS INSTALLED IN THIS SPACE THAT IS NOT BY THE TARGET VENDOR. AREA MEASURED FROM SIDE OF ENCLOSURE NOT EDGE OF BACKPLATE.
14. CONDUIT WITH DIRECT BURIAL CATEGORY 6 ARMORED CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
15. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
16. SUPPORT BRACKET FOR BUSBAR TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
17. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPE CLAMPS ARE NOT ACCEPTABLE.
18. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.

WIRING SCHEMATIC

———	PROVIDED BY CONSTRUCTION CONTRACTOR
- - - - - - - -	PROVIDED BY TARGET VENDOR
*	CONNECTION TO DATA CABLE BY TARGET VENDOR

WIRING PAIRS

P1	PAIR ONE	WHITE/BLUE
P2	PAIR TWO	WHITE/ORANGE
P3	PAIR THREE	WHITE/GREEN
P4	PAIR FOUR	WHITE/BROWN
P5	PAIR FIVE	WHITE/SLATE
P6	PAIR SIX	RED/BLUE
P7	PAIR SEVEN	RED/ORANGE
P8	PAIR EIGHT	RED/GREEN
P9	PAIR NINE	RED/BROWN
P10	PAIR TEN	RED/SLATE
P11	PAIR ELEVEN	BLACK/BLUE
P12	PAIR TWELVE	BLACK/ORANGE

UN-TERMINATED WIRE PAIRS SHALL BE CONNECTED TO GROUND

GENERAL NOTES:

1. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
2. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
3. MTDP SHALL BE 24"W X 12"H X 6"D.
4. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.

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U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

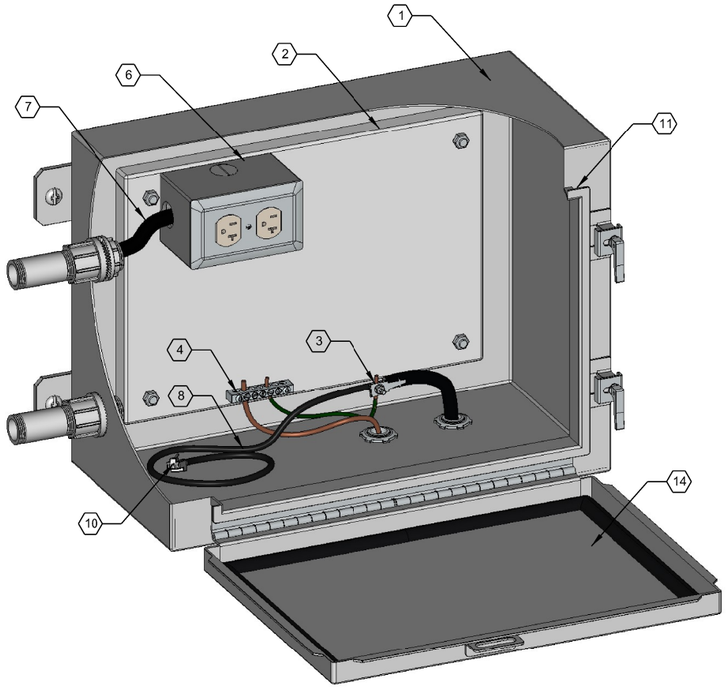
MAY 2021

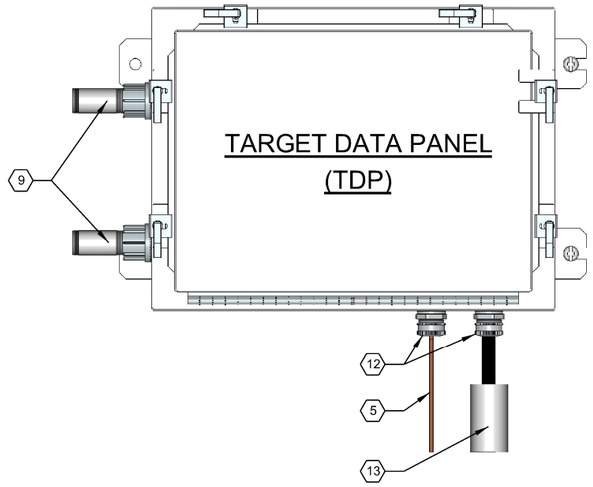
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
MASTER TARGET DATA PANEL -
TWISTED PAIR CABLES FOR LANE ISOLATION

SHEET ID

ED-06B



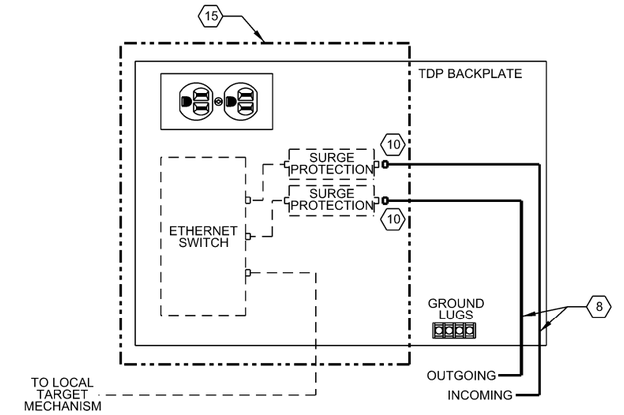


TYPICAL TARGET DATA PANEL (TDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

KEYED NOTES REPRESENTED WITH (#):

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPE CLAMPS ARE NOT ACCEPTABLE. (SEE GENERAL NOTE 3.)
2. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
3. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO TDP BACK PLATE GROUNDING BAR. ALL GROUND CABLES NOT SHOWN FOR CLARITY.
4. GROUND BAR - SECURE TO METAL BACK PLATE.
5. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
6. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. CONNECT DPR AHEAD OF GFCI MAINTENANCE RECEPTACLE TO AVOID NUISANCE TRIPPING.
7. 2/C #12 WITH GROUND CORD IN CONDUIT FROM CIRCUIT BREAKER LOADCENTER FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. RECEPTACLE SHALL NOT BE FED FROM ANY GROUND FAULT INTERRUPTING DEVICE.
8. DIRECT BURIAL GRADE CATEGORY 6 SHIELDED CABLES. COIL 3' SLACK IN TDP AT EACH END AND PROVIDE STRAIN RELIEF. BOND CABLE SHIELD TO TDP BACK PLATE GROUNDING. ALL CABLES NOT SHOWN FOR CLARITY.
9. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
10. MALE RJ-45 CONNECTOR.
11. TDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
12. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL." SHEET ED-11
13. CONDUIT WITH DIRECT BURIAL GRADE CAT 6 CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
14. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
15. 10" X 10" SPACE FOR INSTALLATION OF TARGET COMMUNICATIONS EQUIPMENT. POWER OUTLET AND GROUND LUG ARE ONLY COMPONENTS INSTALLED IN THIS SPACE THAT IS NOT BY THE TARGET VENDOR. AREA MEASURED FROM SIDE OF ENCLOSURE NOT EDGE OF BACKPLATE.



MTDP DATA WIRING SCHEMATIC

PROVIDED BY MCA CONTRACTOR

PROVIDED BY OPA CONTRACTOR

GENERAL NOTES:

1. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
2. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
3. TDP SHALL BE 16"W X 12"H X 6"D.
4. ALL COMPONENTS INSTALLED INSIDE TDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE TDP ENCLOSURES.
5. CAT 6 DATA CALBES PROVIDE THE MINIMUM PERFORMANCE REQUIREMENTS FOR COPPER DATA CABLES. DATA CABLES THAT EXCEED CAT 6 PERFORMANCE REQUIREMENTS MAY BE USED AS LONG AS ALL PHYSICAL REQUIREMENTS SPECIFIED HEREIN ARE MAINTAINED.

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U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

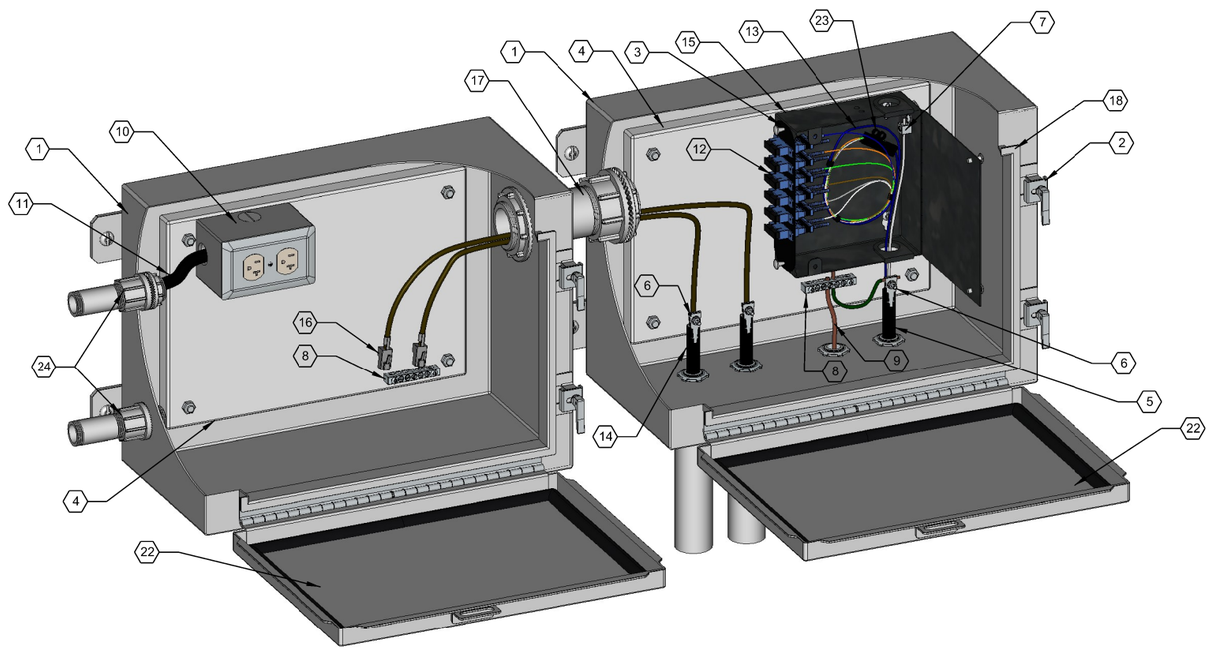
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS

TARGET DATA PANEL - CAT 5E AND CAT6 CABLES

SHEET ID

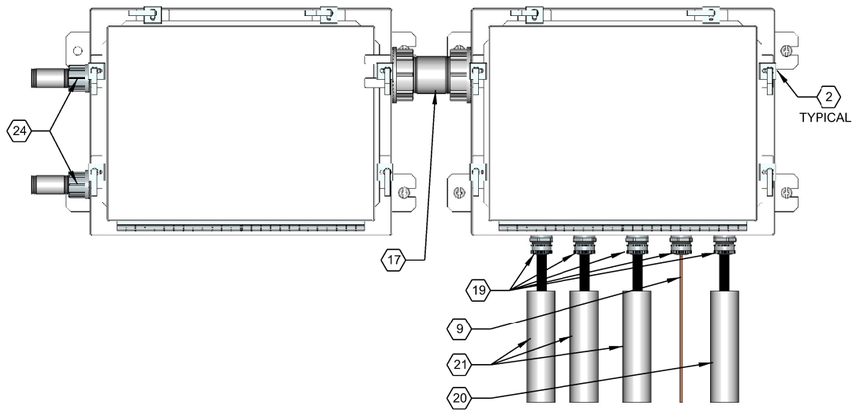
ED-07



(MASTER) TARGET DATA PANEL

SEE GENERAL NOTE 4

TARGET DATA PANEL

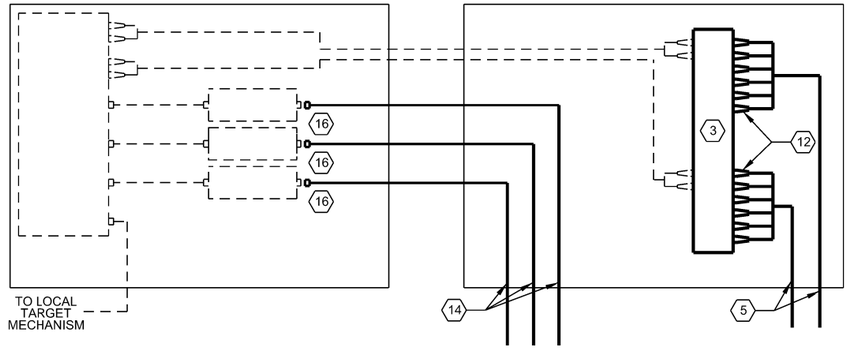


TYPICAL FACADE/CLUSTER MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

KEYED NOTES REPRESENTED WITH (#):

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY.
2. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPECLAMPS ARE NOT ACCEPTABLE. TYPICAL FOR BOTH ENCLOSURES.
3. INJECTION-MOLDED PLASTIC CONNECTOR 12 PORT PATCH PANEL WITH SUPPORT BRACKETS FOR FIELD INSTALLABLE SC CONNECTORS.
4. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
5. 6-STRAND ARMORED TYPE FIBER OPTIC CABLE(S) WITH CENTRAL STRENGTH MEMBER. SECURE FIBER OPTIC CABLE CENTRAL MEMBER INSIDE MTDP ENCLOSURE.
6. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO MTDP BACK PLATE GROUNDING BAR. ALL GROUND CABLES NOT SHOWN FOR CLARITY.
7. CENTRAL MEMBER STRAIN-RELIEF BRACKET.
8. GROUND BAR - SECURE TO METAL BACK PLATE. BOND ALL GROUND BARSTOGETHER WITH A #6 AWG COPPER GROUND CONDCUTOR. GROUND CONDUCTOR NOT SHOW IN THIS DETAIL.
9. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
10. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. CONNECT DPR AHEAD OF GFCI MAINTENANCE RECEPTACLE TO AVOID NUISANCE TRIPPING.
11. 2/C #12 WITH GROUND CORD IN CONDUIT FROM SINGLE POLE SINGLE THROW SWITCH FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. SEE TARGET EMPLACEMENT ELECTRICAL DETAIL FOR SWITCH LOCATIONS.
12. FIELD INSTALLABLE "SC" CONNECTORS WITH BEND PROTECTOR. ALL CONNECTORS NOT SHOWN FOR CLARITY.
13. FIBER OPTIC CABLE BUFFER TUBES WITH 6-STRANDS OF FIBER, EACH. PROVIDE 2' SLACK EACH END, COIL AROUND RADIUS CONTROL GUIDES.
14. DIRECT BURIAL GRADE CATEGORY 6 SHIELDED CABLES TO TARGET DATA PANEL (TDP). COIL 3' SLACK IN MTDP AT EACH END AND PROVIDE STRAIN RELIEF. BOND CABLE SHIELD TO MTDP BASE PLATE GROUNDING. SIT CLUSTER EMPLACEMENTS MAY HAVE AS MANY AS 3 CAT 6 DATA CABLES SERVING OTHER EMPLACEMENTS. ONLY ONE CABLE SHOWN ON THIS DETAIL FOR CLARITY. SEE RISER DIAGRAM FOR NUMBER OF CABLES REQUIRED.
15. WALL MOUNTED SINGLE PANEL HOUSING FOR FIBER OPTIC CABLE TERMINATIONS. FIBER OPTIC BUFFER TUBE SLACK AND FAN OUT KIT SHALL BE CONTAINED WITHIN HOUSING. HOUSING SHALL BE COMPATIBLE WITH 12 PORT PATCH PANEL.
16. SHIELDED RJ-45 CONNECTOR.
17. 2" CONDUIT WITH MYERS HUBS WHERE CONDUIT PENETRATES EACH ENCLOSURE. CONDUIT USE BY TARGET INSTALLER.
18. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
19. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL," SHEET ED-11.
20. CONDUIT FOR FIBER OPTIC CABLES. STUB UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
21. CONDUIT WITH DIRECT BURIAL GRADE CAT 6 CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
22. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
23. FIBER OPTIC FAN-CUT KIT OR SPLICE KIT WITH PIGTAILS.
24. PROVIDE MYERS HUB FITTING AT CONDUIT PENETRATION.



MTDP DATA WIRING SCHEMATIC

PROVIDED BY MCA CONTRACTOR

PROVIDED BY OPA CONTRACTOR

GENERAL NOTES:

1. TERMINATE ALL FIBER OPTIC CABLES ENTERING OR LEAVING WITH "SC" CONNECTORS. ALL 6 STRANDS OF FIBER ARE REQUIRED TO BE TERMINATED AT EACH EMPLACEMENT.
2. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
3. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
4. ENCLOSURES SHALL BOTH BE 16"W X 12"H X 6"D FOR SIT CLUSTER CONFIGURATION. FOR FACADE EMPLACEMENT ENCLOSURES SHALL BE 24"W X 12"H X 6"D AND 16"W X 12"H X 6"D RESPECTIVELY.
5. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.
6. CAT 6 DATA CABLES PROVIDE THE MINIMUM PERFORMANCE REQUIREMENTS FOR COPPER DATA CABLES. DATA CABLES THAT EXCEED CAT 6 PERFORMANCE REQUIREMENTS MAY BE USED AS LONG AS ALL PHYSICAL REQUIREMENTS SPECIFIED HEREIN ARE MAINTAINED.

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U. S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

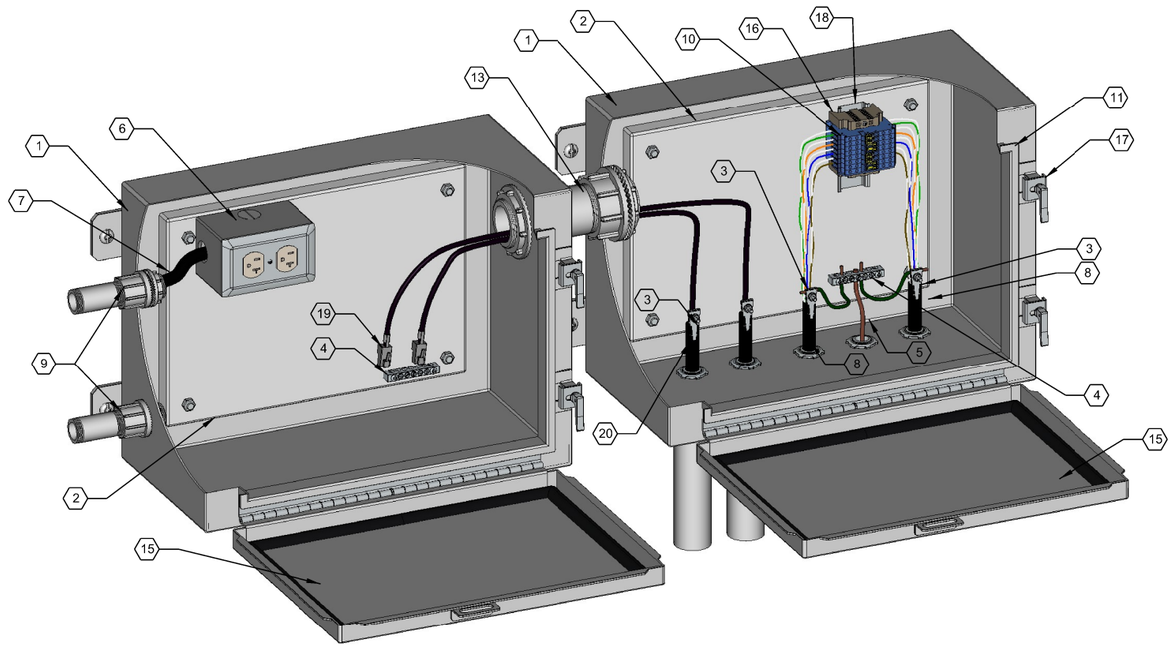
MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
FACADE/CLUSTER MASTER TARGET DATA PANEL
FIBER OPTIC CABLES

SHEET ID

ED-08



TYPICAL FACADE/CLUSTER MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

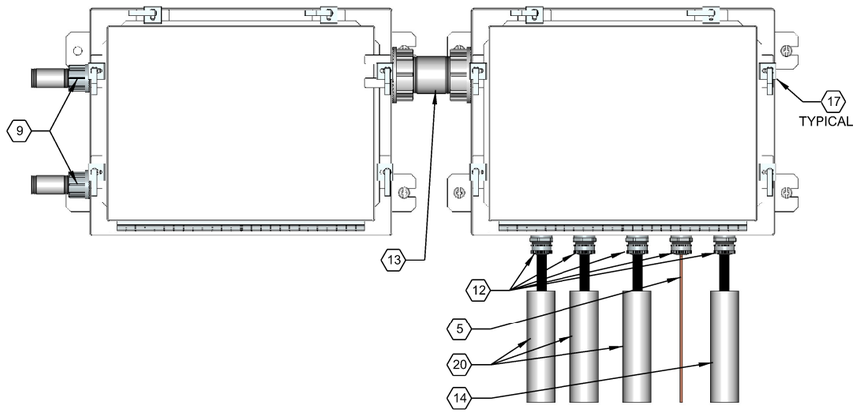
KEYED NOTES REPRESENTED WITH (#):

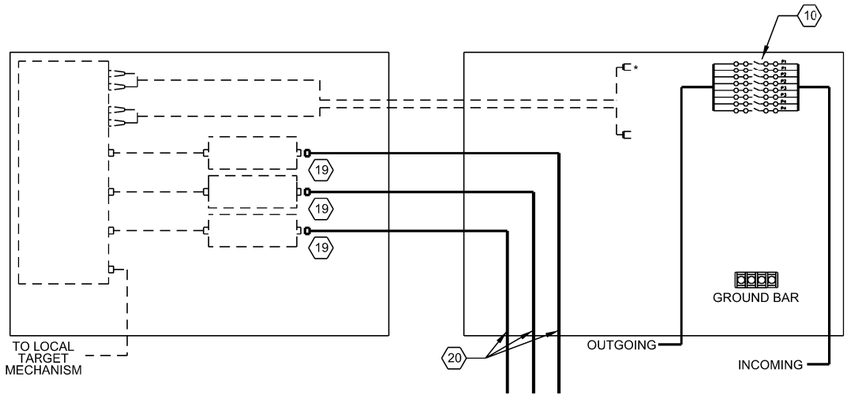
1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY. (SEE GENERAL NOTE 3.)
2. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
3. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO BACK PLATE GROUND BAR. ALL CABLES IN ENCLOSURE MUST BE BONDED TO GROUND. ALL CABLE GROUNDS MAY NOT BE SHOWN IN THIS DETAIL
4. GROUND BAR - SECURE TO METAL BACK PLATE. BOND ALL GROUND BARSTOGHETER WITH A #6 AWG GROUND CONDUCTOR. GROUND CABLE NOT SHOWN ON THIS DETAIL.
5. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
6. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. DPR SHALL NOT BE GFCI PROTECTED.
7. 2/C #12 WITH GROUND CORD IN CONDUIT FROM SINGLE POLE SINGLE THROW SWITCH FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. SEE TARGET EMPLACEMENT ELECTRICAL DETAIL FOR SWITCH LOCATIONS
8. DIRECT BURIAL GRADE CATEGORY 6 ARMORED CABLES. BOND CABLE SHIELD TO TDP BACK PLATE GROUNDING. ALL CABLES NOT SHOWN FOR CLARITY.
9. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
10. KNIFE DISCONNECT TERMINAL BLOCK SECTIONS WITH 4 SCREW TYPE CONNECTIONS. NUMBER OF TERMINALS AS REQUIRED BY DATA CABLES, ONE TERMINAL BLOCK FOR EACH WIRE. SEE DETAIL SHEET ED-11.
11. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
12. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL." SHEET E-11.
13. 2" CONDUIT WITH MYERS TYPE HUBS WHERE CONDUIT PENETRATES EACH ENCLOSURE. CONDUIT USE BY TARGET INSTALLER.
14. CONDUIT WITH DIRECT BURIAL CATEGORY 6 ARMORED CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
15. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
16. SUPPORT BRACKET FOR BUSBAR TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
17. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPECLAMPS ARE NOT ACCEPTABLE.
18. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.
19. SHIELDED RJ-45 MALE CONNECTOR.
20. DIRECT BURIAL GRADE CATEGORY 6 SHIELDED CABLES. COIL 3' SLACK AND PROVIDE STRAIN RELIEF. BOND CABLE SHIELD TO BACK PLATE GROUNDING LUGS.

(MASTER) TARGET DATA PANEL

SEE GENERAL NOTE 4

TARGET DATA PANEL





MTDP DATA WIRING SCHEMATIC

——— PROVIDED BY MCA CONTRACTOR

- - - - - - - PROVIDED BY OPA CONTRACTOR

* CONNECTION TO DATA CABLE PAIRS BY OPA CONTRACTOR

GENERAL NOTES:

1. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
2. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
3. ENCLOSURES SHALL BOTH BE 16"W X 12"H X 6"D FOR SIT CLUSTER CONFIGURATION. FOR FACADE EMPLACEMENT ENCLOSURES SHALL BE 24"W X 12"H X 6"D AND 16"W X 12"H X 6"D RESPECTIVELY.
4. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.
5. CAT 6 DATA CABLES PROVIDE THE MINIMUM PERFORMANCE REQUIREMENTS FOR COPPER DATA CABLES. DATA CABLES THAT EXCEED CAT 6 PERFORMANCE REQUIREMENTS MAY BE USED AS LONG AS ALL PHYSICAL REQUIREMENTS SPECIFIED HEREIN ARE MAINTAINED.

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U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

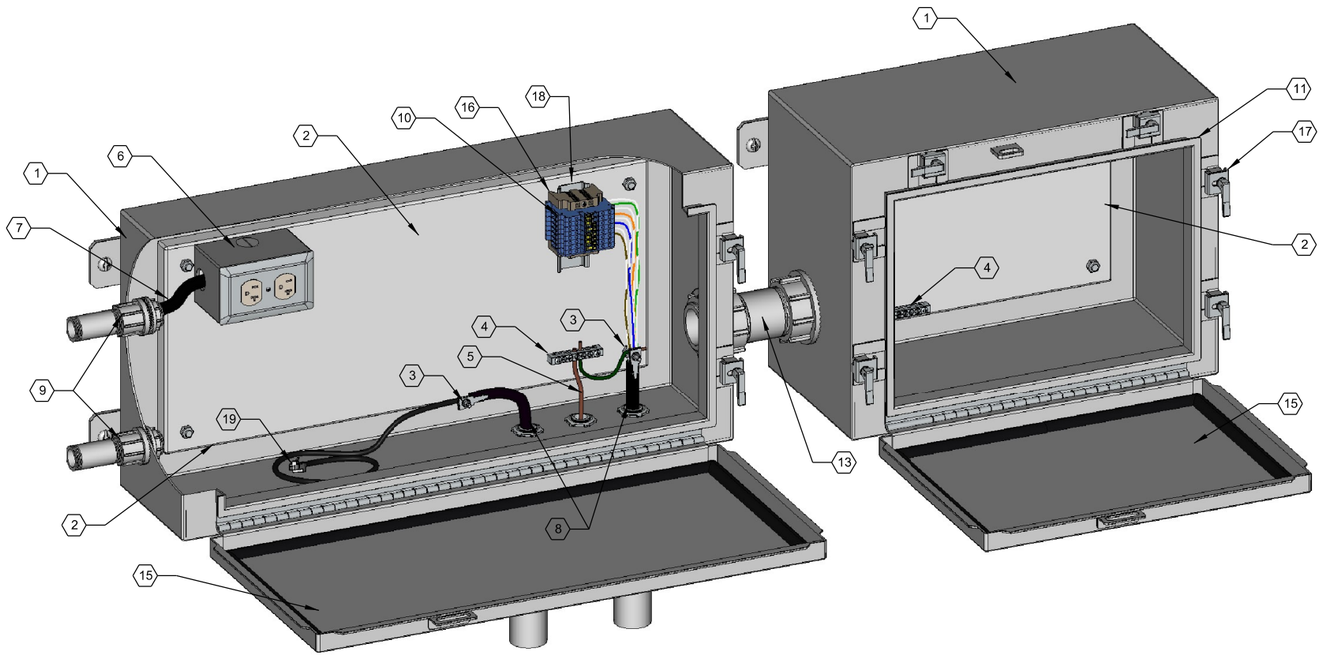
MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
FACADE/CLUSTER MASTER TARGET DATA PANEL
TWISTED PAIR CABLES

SHEET ID

ED-08A



ARF+ 300M MIT MASTER TARGET DATA PANEL (MTDP) DETAIL AT TARGET EMPLACEMENT

NOT TO SCALE

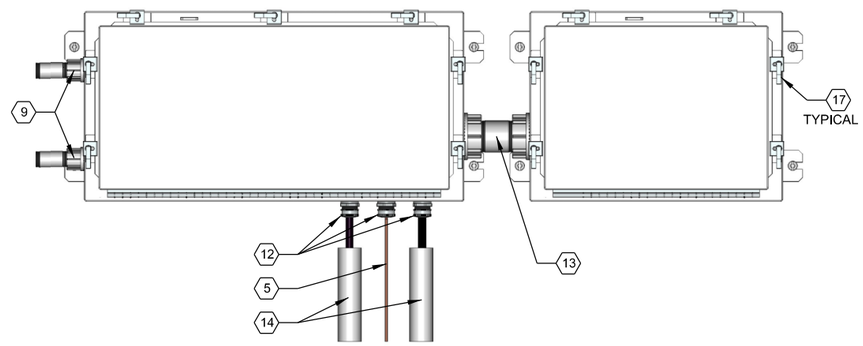
KEYED NOTES REPRESENTED WITH (#):

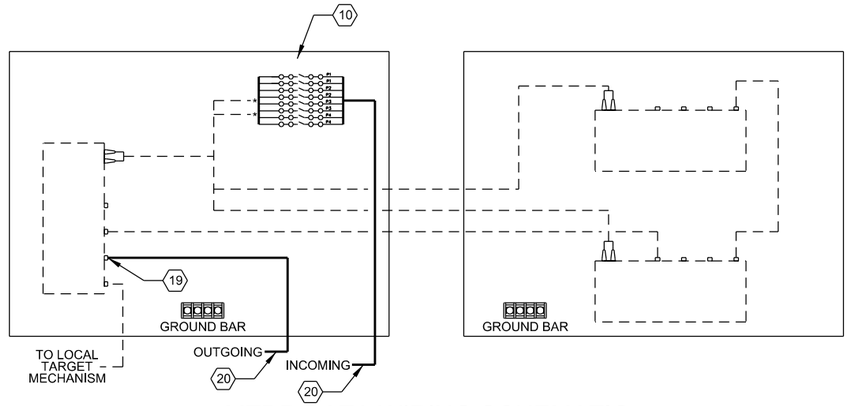
1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY. (SEE GENERAL NOTE 3.)
2. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
3. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO BACK PLATE GROUND BAR. ALL CABLES IN ENCLOSURE MUST BE BONDED TO GROUND. ALL CABLE GROUNDS MAY NOT BE SHOWN IN THIS DETAIL
4. GROUND BAR - SECURE TO METAL BACK PLATE. BOND ALL GROUND BARSTOGHETER WITH A #6 AWG GROUND CONDUCTOR. GROUND CABLE NOT SHOWN ON THIS DETAIL.
5. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
6. DATA PANEL RECEPTACLE (DPR) - 20 AMP, 125 VOLT, 2 POLE, 3 WIRE GROUNDING TYPE IN A STANDARD SINGLE-GANG METAL BOX AND GALVANIZED STEEL DEVICE PLATE. DPR SHALL NOT BE GFCI PROTECTED.
7. 2/C #12 WITH GROUND CORD IN CONDUIT FROM SINGLE POLE SINGLE THROW SWITCH FOR 120 VOLT, 1-PHASE SERVICE TO DUPLEX RECEPTACLE. SEE TARGET EMPLACEMENT ELECTRICAL DETAIL FOR SWITCH LOCATIONS
8. DIRECT BURIAL GRADE CATEGORY 6 ARMORED CABLES. BOND CABLE SHIELD TO TDP BACK PLATE GROUNDING. ALL CABLES NOT SHOWN FOR CLARITY.
9. PROVIDE MYERS HUB TYPE FITTING AT CONDUIT PENETRATION.
10. KNIFE DISCONNECT TERMINAL BLOCK SECTIONS WITH 4 SCREW TYPE CONNECTIONS. NUMBER OF TERMINALS AS REQUIRED BY DATA CABLES, ONE TERMINAL BLOCK FOR EACH WIRE. SEE DETAIL SHEET ED-11.
11. MTDP SHALL HAVE A ROLLED FLANGE AROUND PERIMETER OF OPENING.
12. PROVIDE ONE CABLE SEAL FITTING FOR EACH CABLE. SEE "TYPICAL CABLE SEAL FITTING DETAIL." SHEET E-11.
13. 2" CONDUIT WITH MYERS TYPE HUBS WHERE CONDUIT PENETRATES EACH ENCLOSURE. CONDUIT USE BY TARGET INSTALLER.
14. CONDUIT WITH DIRECT BURIAL CATEGORY 6 ARMORED CABLES, SEE TARGET EMPLACEMENT PLAN AND ELEVATION. STUB CONDUIT UP ABOVE SLAB AND SEAL WATERTIGHT WITH DUCT SEALANT - FOAM IS NOT ACCEPTABLE.
15. HINGED COVER WITH CORROSION-RESISTANT STAINLESS STEEL CAPTIVE CLAMPS. HINGE MUST HAVE REMOVABLE PIN. PROVIDE A SEAMLESS FOAM-IN-PLACE GASKET FOR A WATERTIGHT AND DUST TIGHT SEAL.
16. SUPPORT BRACKET FOR BUSBAR TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
17. PROVIDE ENCLOSURE WITH FAST OPERATING CLAMP ASSEMBLY. BOLT TYPECLAMPS ARE NOT ACCEPTABLE.
18. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.
19. SHIELDED RJ-45 MALE CONNECTOR.

(MASTER) TARGET DATA PANEL

SEE GENERAL NOTE 4

TARGET DATA PANEL





MTDP DATA WIRING SCHEMATIC

PROVIDED BY MCA CONTRACTOR

PROVIDED BY OPA CONTRACTOR

* CONNECTION TO DATA CABLE PAIRS BY OPA CONTRACTOR

GENERAL NOTES:

1. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
2. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
3. ENCLOSURES SHALL BE 24"W X 12"H X 6"D AND 16"W X 12"H X 8"D FOR ARF+ 300 METER MIT.
4. ALL COMPONENTS INSTALLED INSIDE MTDP ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE MTDP ENCLOSURES.
5. CAT 6 DATA CABLES PROVIDE THE MINIMUM PERFORMANCE REQUIREMENTS FORCOPPER DATA CABLES. DATA CABLES THAT EXCEED CATEGORY 6 PERFORMANCE REQUIREMENTS MAY BE USED AS LONG AS ALL PHYSICAL REQUIREMENTS SPECIFIED HEREIN ARE MAINTAINED.

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HUNTSVILLE, ALABAMA

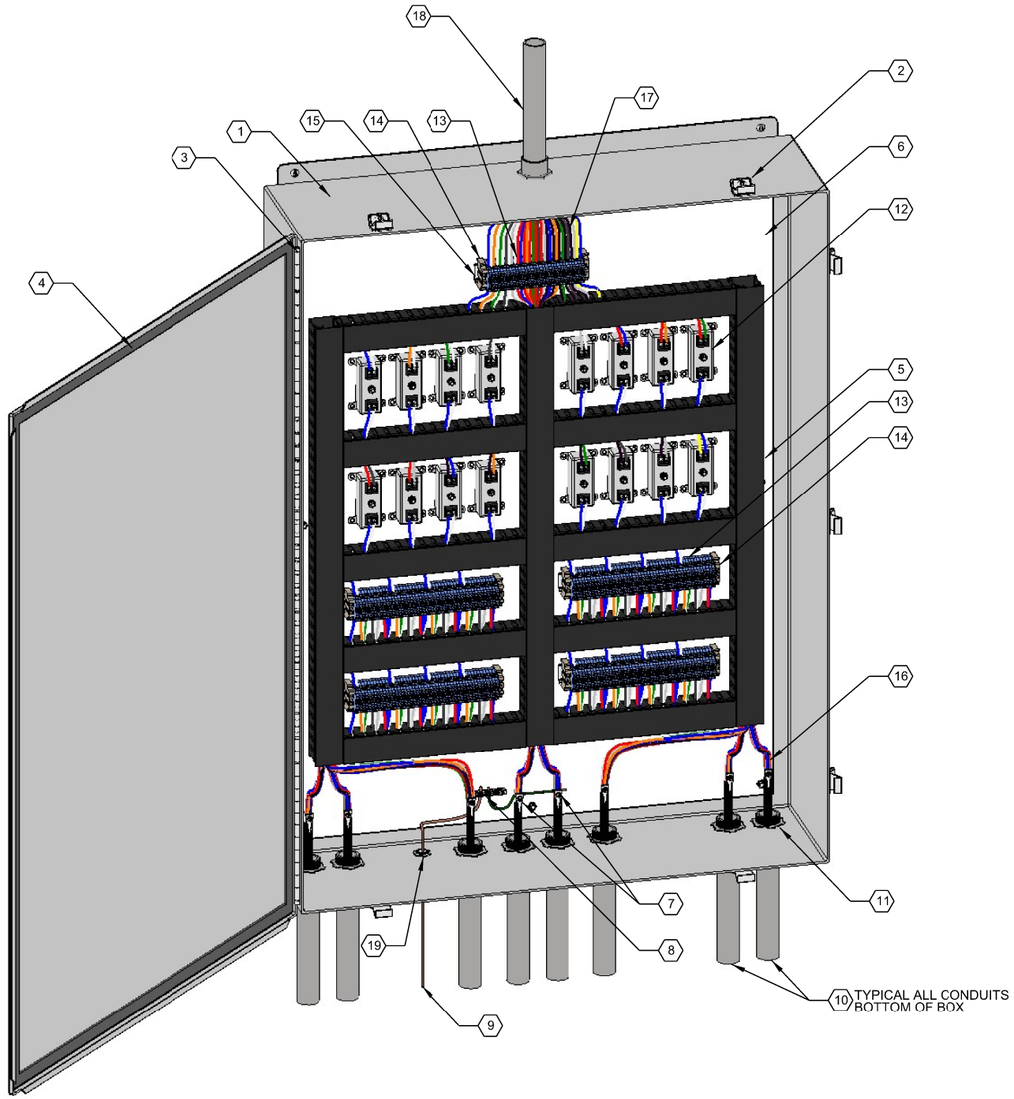
MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
ARF+ 300M MIT MASTER TARGET DATA PANEL
TWISTED PAIR CABLES

SHEET ID

ED-08B

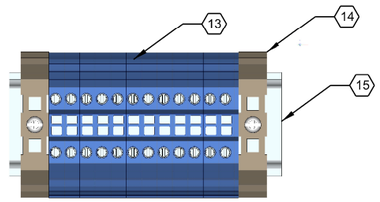


TOWER JUNCTION BOX (TJB) DETAIL

NOT TO SCALE

KEYED NOTES REPRESENTED WITH (#)

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY.
2. PROVIDE ENCLOSURE WITH SCREW-DOWN CLAMPS ON THREE SIDES OF THE DOOR.
3. PROVIDE ENCLOSURE WITH REMOVABLE HEAVY GAUGE STAINLESS STEEL CONTINUOUS HINGE PIN. HINGES SHALL ALLOW THE DOOR TO BE REMOVED FROM THE ENCLOSURE.
4. PROVIDE ENCLOSURE DOOR WITH A SEAMLESS FOAM-IN-PLACE GASKET. ADHESIVE BACK FOAM STYLE GASKETS ARE NOT ACCEPTABLE.
5. CABLE MANAGEMENT WIRE WAY FOR TWISTED PAIRS.
6. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
7. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO TJB BACK PLATE GROUNDING BAR. ALL GROUND CABLES NOT SHOWN FOR CLARITY.
8. GROUND BAR - SECURE TO METAL BACK PLATE.
9. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
10. CONDUITS WITH DIRECT BURIAL CATEGORY 6 ARMORED DATA CABLE. NOT ALL WIRES AND CONDUIT ARE SHOWN. PROVIDE NUMBER AND SIZE OF CONDUITS AS DEFINED IN THE DOWNRANGE DATA 1-LINE DIAGRAM.
11. PROVIDE A WEATHER PROOF CONDUIT CONNECTION TO TJB. CONNECTOR TO BE A MYERS HUB TYPE FITTING OR EQUIVALENT.
12. 3-STAGE LIGHTNING ARRESTOR MODULES RATED FOR DSL LINES. NUMBER SHOWN IS TYPICAL. GROUNDING OF LIGHTNING ARRESTOR NOT SHOWN IN DETAIL. GROUND LIGHTING ARRESTOR AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS. PRCVIDE ONE LIGHTNING ARRESTOR FOR EACH GROUP OF TARGETS SERVED ON A DSL DATA LINE. SEE 1-LINE DIAGRAM FOR NUMBER OF SURGE ARRESTORS.
13. DIN RAIL MOUNTED FEED-THROUGH TERMINAL BLOCK SECTIONS WITH 2 SCREW TYPE CONNECTIONS. LENGTH OF DIN RAIL SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS. TERMINAL BLOCK SECTION SHALL ACCEPT WIRE SIZES OF #24 AWG. PROVIDE NUMBER OF SECTIONS TO ACCOMMODATE ALL TWISTED WIRE PAIRS. SEE DOWNRANGE DATA 1-LINE DIAGRAM FOR NUMBER OF TWISTED PAIRS.
14. SUPPORT BRACKET FOR DATA CABLE TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
15. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.
16. #19 AWG TWISTED WIRE PAIRS FROM DOWNRANGE CATEGORY 6 ARMORED DATA CABLE. NUMBER OF WIRES SHOWN IS TYPICAL. SEE DOWNRANGE DATA 1-LINE DIAGRAM FOR NUMBER OF WIRE PAIRS REQUIRED IN TJB.
17. #24 AWG TWISTED WIRE PAIRS FOR CONNECTION OF DOWNRANGE DATA CABLES TO THE DATA TERMINATION RACK. NUMBER OF WIRE PAIRS SHOWN IS TYPICAL. SEE DOWNRANGE DATA 1-LINE DIAGRAM FOR NUMBER OF WIRE PAIRS REQUIRED BETWEEN THE TJB AND THE DATA TERMINATION RACK.
18. 3" RIGID CONDUIT THAT CONNECTS THE TJB TO THE CONTROL ROOM OF THE CONTROL TOWER. THIS CONDUIT SHALL CONTAIN THE TWISTED PAIR CABLE THAT CONNECTS THE TJB TO THE DATA TERMINATION RACK.
19. PROVIDE A CABLE SEAL FITTING FOR GROUND CONDUCTOR PENETRATION INTO THE TJB. SEE "TYPICAL CABLE SEAL FITTING DETAIL". SHEET ED-11.



TYPICAL TERMINAL BLOCK SECTION DETAIL

NOT TO SCALE

GENERAL NOTES:

1. TJB SHALL BE 48"H X 36"W X 12"D.
2. NOT ALL WIRE AND CABLE CONTAINED IN THE TJB ARE SHOWN IN THIS DETAIL. SEE THE DOWNRANGE 1-LINE DIAGRAM FOR THE NUMBER OF DATA CABLES RUNNING FROM THE TJB DOWNRANGE, THE NUMBER OF WIRE PAIRS REQUIRED INSIDE THE TJB, THE NUMBER OF LIGHTING ARRESTORS REQUIRED IN THE TJB, AND THE NUMBER OF WIRE PAIRS REQUIRED BETWEEN THE TJB AND THE DATA TERMINATION RACK.
3. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
4. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
5. ALL COMPONENTS INSTALLED INSIDE TJB ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE TJB ENCLOSURES.

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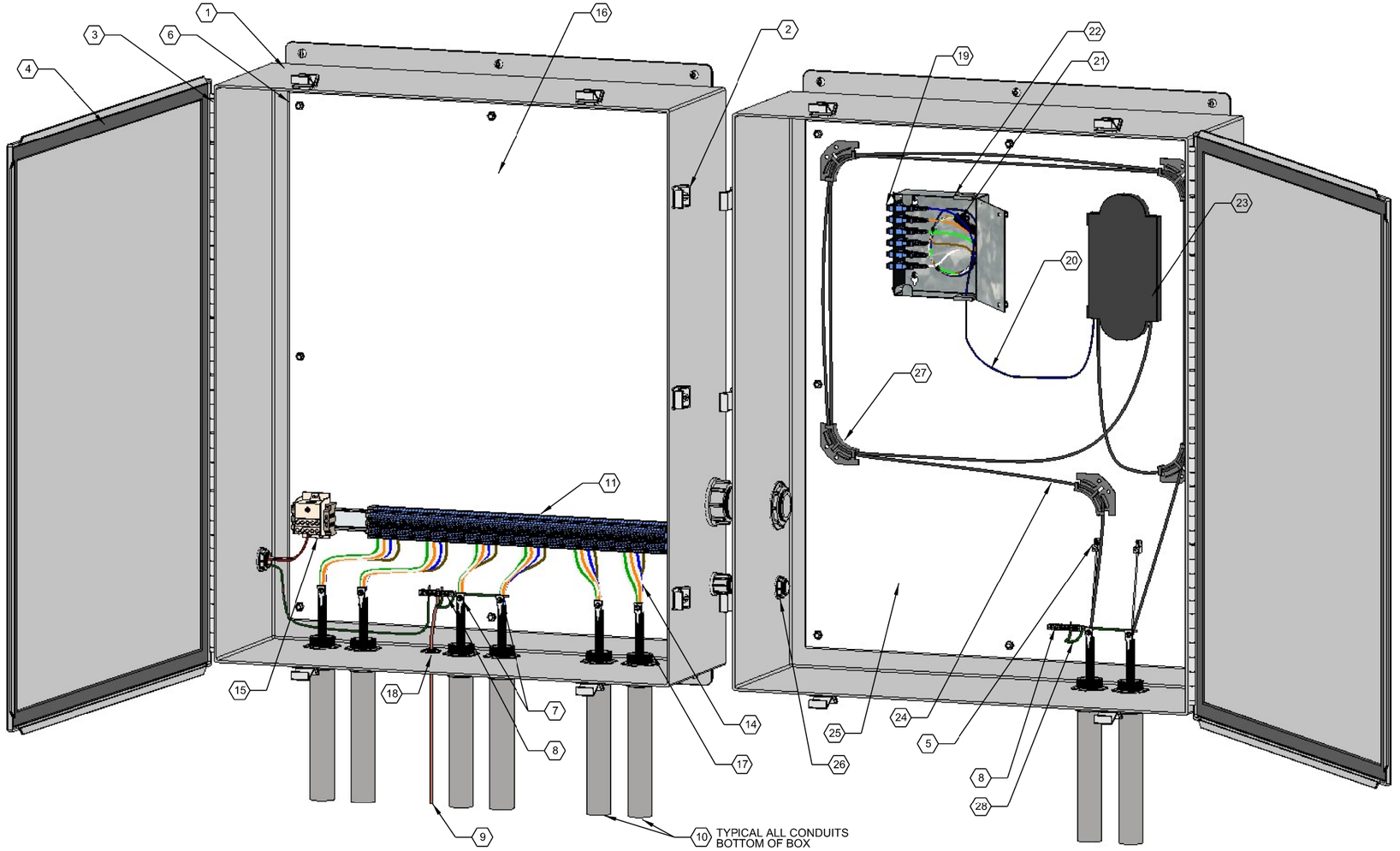
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
TOWER JUNCTION BOX

SHEET ID
ED-09

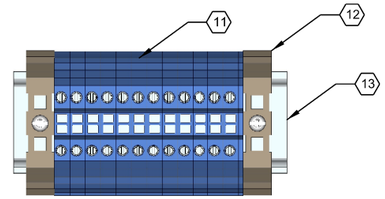


DATA CABLE BREAKOUT BOX (DBB) DETAIL

NOT TO SCALE

GENERAL NOTES:

1. DBB SHALL BE 36"H X 30"H X 8"D MINIMUM.
2. NOT ALL WIRE AND CABLE CONTAINED IN THE DBB ARE SHOWN IN THIS DETAIL. SEE THE DOWNRANGE 1-LINE DIAGRAM, E-430, FOR THE NUMBER OF DATA CABLES RUNNING FROM THE DBB TO DOWNRANGE TARGETS.
3. PROVIDE CABLE IDENTIFICATION DIRECTORY ON INSIDE OF COVER.
4. LABEL ALL CABLES WITH ADHESIVE POLYETHYLENE WRAP AROUND LASER PRINTED LABELS INDICATING CABLE DESTINATION AND CABLE TYPE.
5. ALL COMPONENTS INSTALLED INSIDE DBB ENCLOSURES SHALL BE SECURED BY MECHANICAL MEANS. ADHESIVES ARE NOT ALLOWED FOR SECURING COMPONENTS INSIDE DBB ENCLOSURES.



TYPICAL TERMINAL BLOCK SECTION DETAIL

NOT TO SCALE

KEYED NOTES REPRESENTED WITH :

1. ENCLOSURE SHALL BE 16 GAUGE MINIMUM GALVANIZED STEEL SHEET METAL WITH WALL MOUNT BRACKETS. ENCLOSURE SHALL CARRY A NEMA 4 RATING AND BE TESTED BY UL OR OTHER APPROVED TESTING AGENCY.
2. PROVIDE ENCLOSURE WITH CLAMPS ON THREE SIDES OF THE DOOR. NUMBER OF CLAMPS AS REQUIRED BY MANUFACTURER TO MEET NEMA 4 REQUIREMENTS.
3. PROVIDE ENCLOSURE WITH REMOVABLE HEAVY GAUGE STAINLESS STEEL CONTINUOUS HINGE PIN. HINGES SHALL ALLOW THE DOOR TO BE REMOVED FROM THE ENCLOSURE.
4. PROVIDE ENCLOSURE DOOR WITH A SEAMLESS FOAM-IN-PLACE GASKET. ADHESIVE BACK FOAM STYLE GASKETS ARE NOT ACCEPTABLE.
5. CENTRAL MEMBER STRAIN RELIEF BRACKET.
6. METAL BACK PLATE TO SECURE COMPONENTS INSIDE ENCLOSURE.
7. METALLIC CABLE SHEATH GROUNDING CLAMP AND GROUNDING CONNECTOR, BOND CABLE ARMOR/SHIELD TO DBB BACK PLATE GROUNDING BAR. ALL GROUND CABLES NOT SHOWN FOR CLARITY.
8. GROUND BAR - SECURE TO METAL BACK PLATE.
9. #6 AWG BARE COPPER GROUNDING CONDUCTOR.
10. CONDUITS WITH DIRECT BURIAL TWISTED PAIR COPPER ARMORED DATA CABLE. NOT ALL WIRES AND CONDUIT ARE SHOWN. PROVIDE NUMBER AND SIZE OF CONDUITS AS DEFINED IN THE DOWNRANGE DATA 1-LINE DIAGRAM.
11. DIN RAIL MOUNTED FEED-THROUGH TERMINAL BLOCK SECTIONS WITH 2 SCREW TYPE CONNECTIONS. LENGTH OF DIN RAIL SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS. TERMINAL BLOCK SECTION SHALL ACCEPT WIRE SIZES OF #24 AWG. PROVIDE NUMBER OF SECTIONS TO ACCOMMODATE ALL TWISTED WIRE PAIRS. SEE DOWNRANGE DATA 1-LINE DIAGRAM FOR NUMBER OF TWISTED PAIRS.
12. SUPPORT BRACKET FOR DATA CABLE TERMINAL BLOCK. PROVIDE ONE SUPPORT BRACKET ON EACH END OF TERMINAL BLOCKS.
13. STANDARD PROFILE DIN RAIL. LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE TERMINAL BLOCK SECTIONS AND SUPPORT BRACKETS.
14. TWISTED WIRE PAIRS FROM DOWNRANGE ARMORED DATA CABLE. NOT ALL WIRES ARE SHOWN. SEE DOWNRANGE DATA 1-LINE DIAGRAM FOR NUMBER OF WIRE PAIRS REQUIRED IN DBB.
15. 20 AMP, 600 VOLT, DIN RAIL MOUNT TERMINAL BLOCK FOR 120 VOLT POWER TO DBB COMPONENTS.
16. MAXIMIZE AVAILABLE SPACE AT THE TOP OF THE DBB BACK PLATE FOR THE MOUNTING OF DBB COMPONENTS BY THE TARGET VENDOR.
17. PROVIDE WEATHERPROOF CONDUIT CONNECTIONS FOR ALL CONDUIT PENETRATIONS INTO THE DBB. CONNECTOR TO BE A MYERS HUB TYPE OR EQUIVALENT.
18. PROVIDE A CABLE SEAL FITTING FOR GROUND CONDUCTOR PENETRATION INTO THE DBB. SEE "TYPICAL CABLE SEAL FITTING DETAIL". SHEET ED-11.
19. INJECTION-MOLDED PLASTIC CONNECTOR 12 PORT PATCH PANEL.
20. FIBER OPTIC CABLE BUFFER TUBES WITH 6-STRANDS OF FIBER, EACH. PROVIDE 2' SLACK EACH END.
21. FIBER OPTIC FAN-OUT KIT OR SPLICE KIT WITH PIGTAILS.
22. WALL MOUNTED SINGLE PANEL HOUSING FOR FIBER OPTIC CABLE TERMINATIONS. FIBER OPTIC BUFFER TUBE SLACK AND FAN OUT KIT SHALL BE CONTAINED WITHIN HOUSING. HOUSING SHALL BE COMPATIBLE WITH 12 PORT PATCH PANEL.
23. FIBER OPTIC SPLICE ENCLOSURE.
24. FIBER OPTIC CABLE BUFFER TUBES. PROVIDE 2' SLACK EACH END.
25. PROVIDE 14" X 10" SPACE FOR INSTALLATION OF TARGET COMMUNICATIONS EQUIPMENT.
26. PROVIDE CONDUIT CHASES FOR POWER AND DATA BETWEEN THE ENCLOSURES TO BE USED BY TARGET VENDOR. PROVIDE 1 1/2" CONDUIT CHASE FOR DATA AND 3/4" CHASE FOR POWER. PROVIDE MYERS TYPE HUBS ON CONDUIT PENETRATIONS.
27. RADIUS CABLE GUIDES. TYPICAL.
28. BOND GROUND BARS IN BOTH ENCLOSURES WITH A #6 AWG COPPER WIRE. CABLE NOT SHOWN ON DETAIL.

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U.S ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

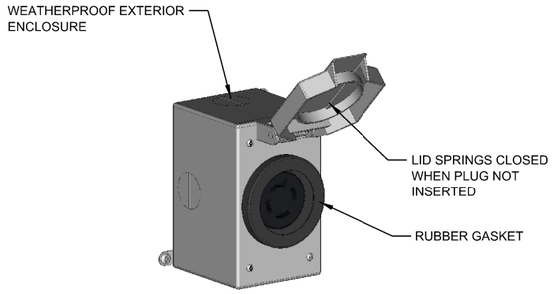
MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS
DATA CABLE BREAKOUT BOX
WITH FIBER OPTIC CABLE ENCLOSURE

SHEET ID

ED-10

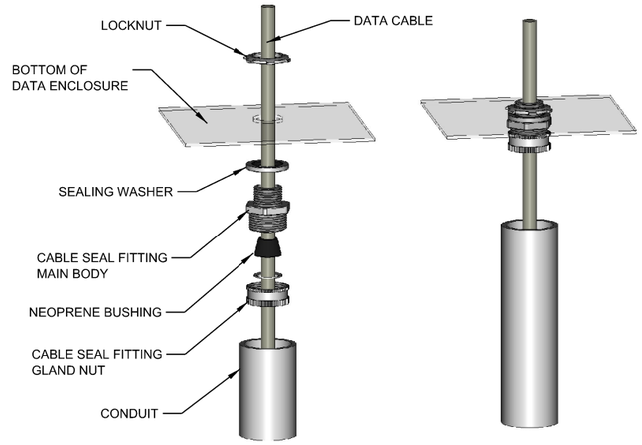


NOTE:

WEATHERPROOF, IN-USE WET LOCATION COVERS SHALL BE PROVIDED WITH ETHYLENE PROPYLENE RUBBER GASKETS AROUND THE FACE OF THE RECEPTACLE TO PREVENT THE ENTRANCE OF MOISTURE AND DIRT WITH COVER OPEN AND PLUG INSERTED. COVER SHALL ACCEPT MALE PLUG WITH DIAMETER OF 1.8" - 1.95".

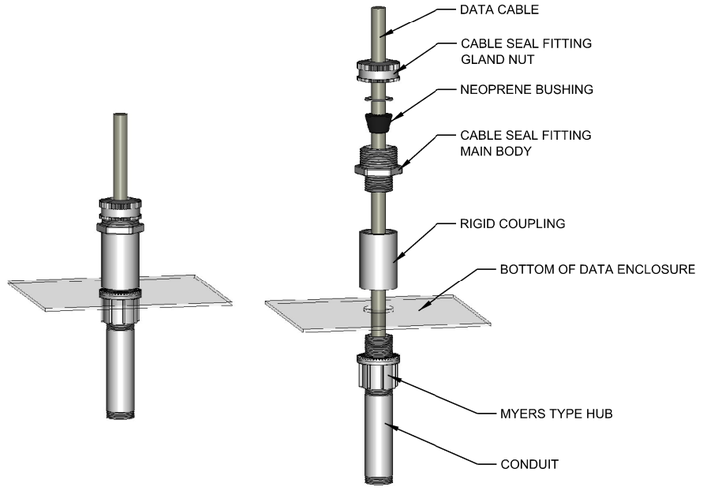
WET LOCATION RECEPTACLE COVER

NOT TO SCALE



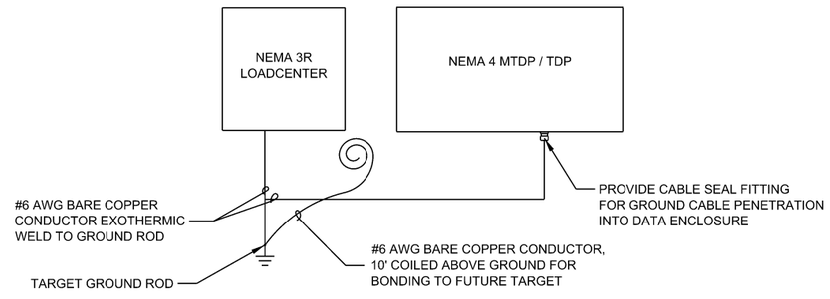
CABLE SEAL FITTING DETAIL

NOT TO SCALE



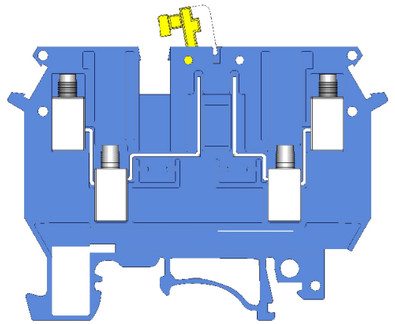
CONDUIT / CABLE SEAL FITTING DETAIL

NOT TO SCALE



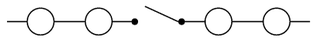
EMPLACEMENT GROUNDING DETAIL

NOT TO SCALE



FRONT VIEW

TOP VIEW



WIRING DIAGRAM
SCREW CONNECTIONS, 4 TERMINALS, CENTER DISCONNECT

KNIFE DISCONNECT TERMINAL BLOCK

NOT TO SCALE

FRONT VIEW

TOP VIEW

WIRING DIAGRAM
SCREW CONNECTIONS, 2 TERMINALS, FEED-THROUGH TYPE

FEED-THROUGH TERMINAL BLOCK

NOT TO SCALE

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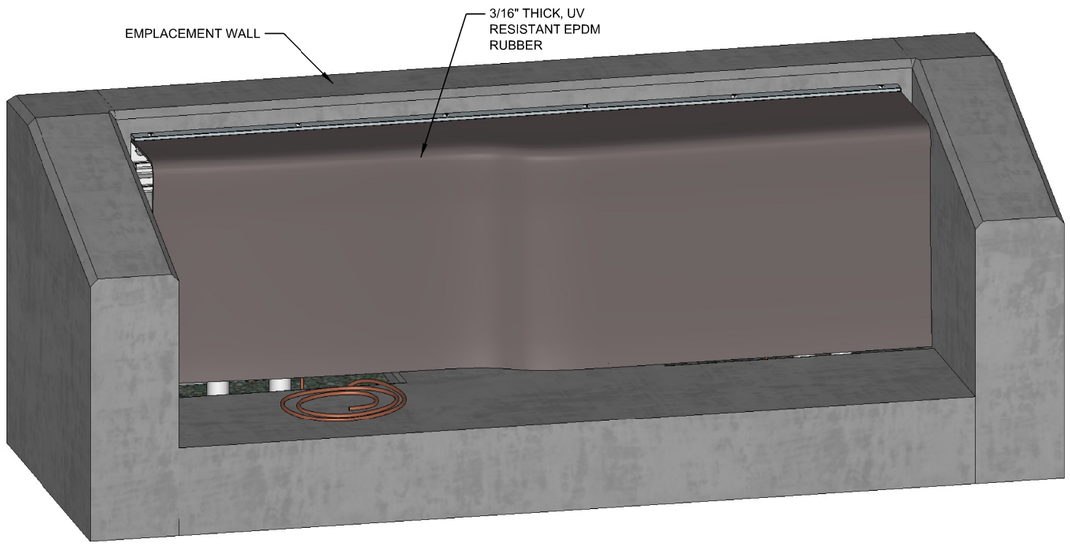
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

TYPICAL TARGET EMPLACEMENT
ELECTRICAL DETAILS

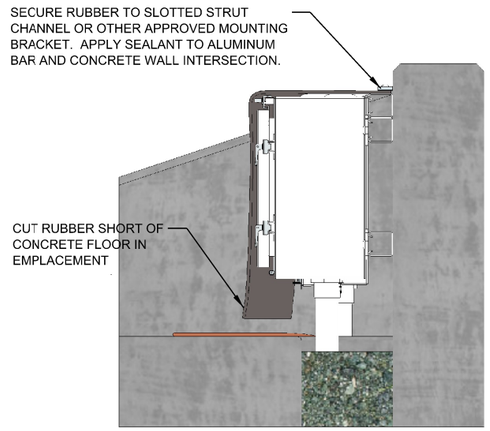
SHEET ID

ED-11



SIT EMPLACEMENT WITH RUBBER FLAP

NOT TO SCALE



RUBBER FLAP SIDE VIEW

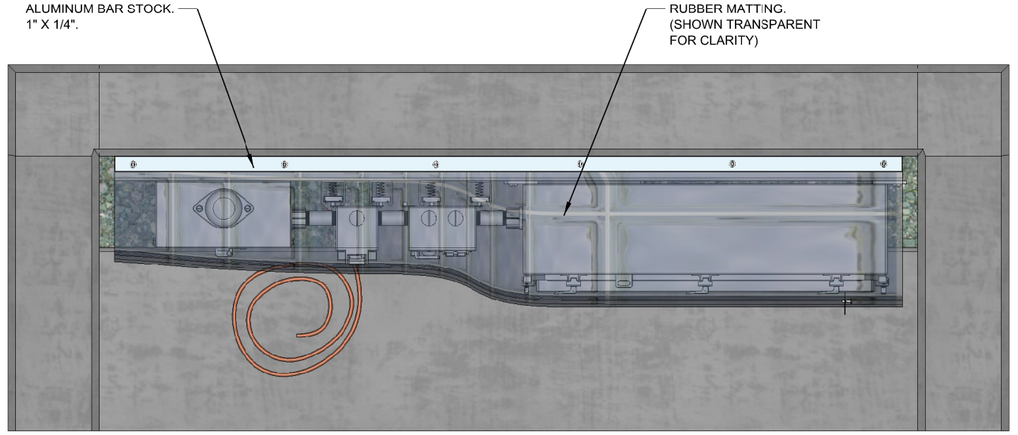
NOT TO SCALE

INSTALLATION NOTES:

1. INSTALL RUBBER MATTING OVER THE ENTIRE EMPLACEMENT TO BLOCK MOISTURE AND DIRECT SUNLIGHT TO ALL COMMUNICATIONS AND ELECTRICAL EQUIPMENT. MOUNT RUBBER MAT TO CONCRETE EMPLACEMENT ABOVE DATA ENCLOSURE WITH ALUMINUM BAR STOCK AND APPROVED CONCRETE FASTENERS. RUBBER MAT SHALL DRAPE OVER DATA ENCLOSURE AND BE CUT TO A HEIGHT JUST ABOVE THE CONCRETE EMPLACEMENT FLOOR. A CONTINUOUS BEAD OF APPROVED SEALANT SHALL BE APPLIED TO ALUMINUM FLASHING (BAR STOCK) AT CONCRETE WALL TO PREVENT WATER SEEPAGE BETWEEN MATTING AND WALL.
2. THE DETAILS PRESENTED ON THIS PLAN ARE REPRESENTATIONAL ONLY. DETAILS DO NOT REFLECT ALL OF THE OUTLETS AND BOXES THAT ARE REQUIRED. EMPLACEMENTS SHALL BE INSTALLED AS PRESENTED ON THE EMPLACEMENT DETAIL PLANS. RUBBER MATS MUST COVER ALL OF THE INSTALLED EQUIPMENT.

MATERIALS:

1. RUBBER MATTING SHALL BE ONE PIECE, 54" WIDE X 30" HIGH 3/16" THICK, UV RESISTANT EPDM RUBBER. (HTTP://WWW.RUBBERCAL.COM.HTML OR FUNCTIONALLY APPROVED EQUAL).
2. BAR STOCK SHALL BE SOLID ALUMINUM 54" WIDE X 1" HIGH X 1/4" THICK, INSTALLED USING APPROVED CONCRETE FASTENERS.
3. SEALANT SHALL BE A FLEXIBLE BUTYL RUBBER PRODUCT TO PROVIDE A 100%WATERTIGHT SEAL.



RUBBER FLAP TOP VIEW

NOT TO SCALE

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MARK	DESCRIPTION	DATE

DESIGNED BY:
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SIZE:
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
PROJECT NUMBER:

U. S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

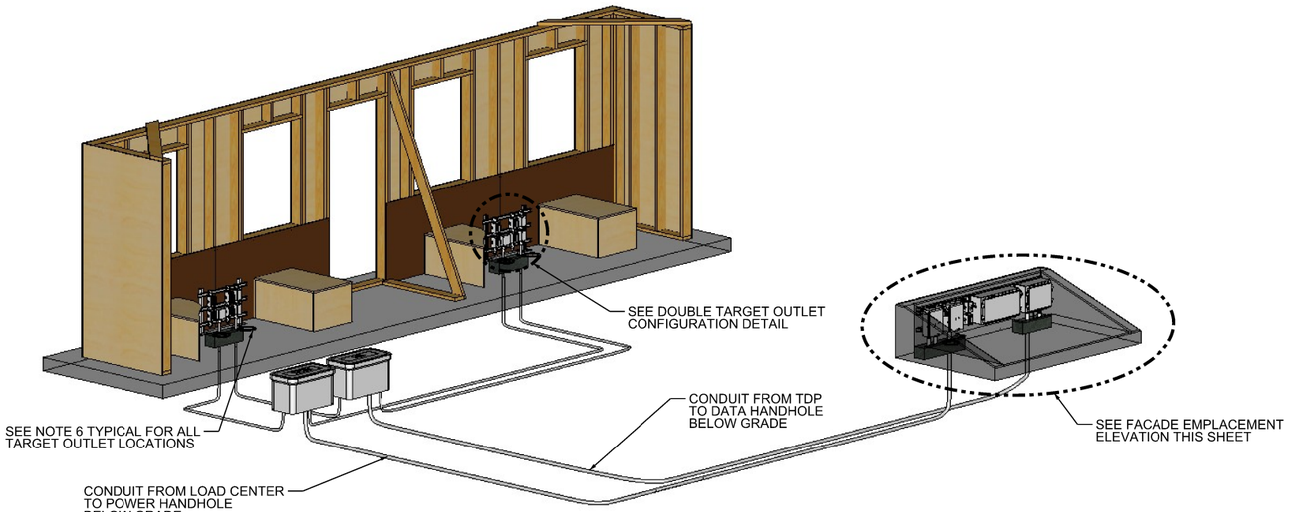
RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

ELECTRICAL DETAILS

STATIONARY INFANTRY TARGET RUBBER FLAP

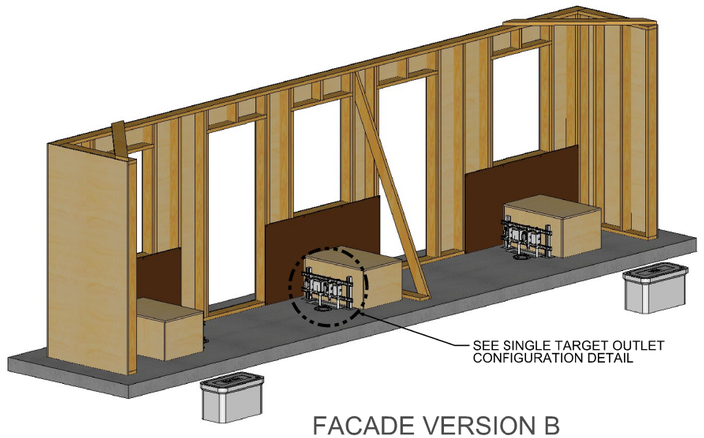
SHEET ID

ED-12



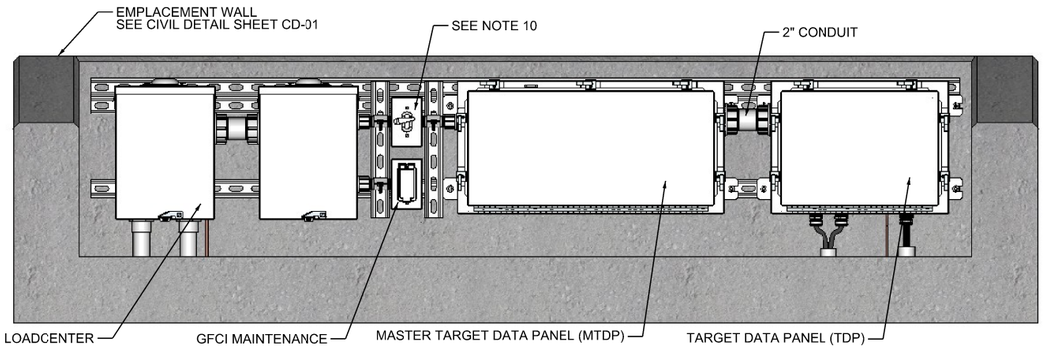
FACADE VERSIONS A, C AND V

NOT TO SCALE



FACADE VERSION B

NOT TO SCALE



FACADE EMPLACEMENT ELEVATION

NOT TO SCALE

NOTES:

1. SEE FAC-1-02 FOR FACADE VERSION CONFIGURATIONS.
2. PROVIDE FACADE VERSIONS A, C, AND V WITH TWO SETS OF POWER AND DATA OUTLETS IN THE DOUBLE TARGET OUTLET CONFIGURATION. PROVIDE FACADE VERSION B WITH THREE SETS POWER AND DATA OUTLETS IN THE SINGLE TARGET OUTLET CONFIGURATION.
3. CONNECT SIT, HAND HOLES AND POWER AND DATA OUTLETS WITH UNDERGROUND CONDUIT AS SHOWN.
4. ALL DATA CABLES ROUTED TO THE FACADE AND OTHER EMPLACEMENTS SHALL BE TERMINATED INSIDE THE TDP IN THE FACADE EMPLACEMENT. EACH CAT 6 OR BETTER CABLE SHALL BE PROVIDED WITH SURGE PROTECTION INSIDE THE TDP. THE MTDP SHALL BE DEDICATED FOR TARGET NETWORKING EQUIPMENT. PROVIDE MTDP WITH DATA POWER RECEPTACLE AND GROUND LUGS ON BACK PLATE, LOCATED TO ALLOW MAXIMUM SPACE FOR TARGET NETWORKING EQUIPMENT.
5. SEE SHEET ED-08B FOR MTDP AND TDP REQUIREMENTS.
6. LEAVE A 6 FOOT #6 AWG BARE COPPER COIL AT EACH TARGET LOCATION FOR FUTURE CONNECTION TO TARGET MECHANISM. COPPER COIL MUST BE ELECTRICALLY CONTINUOUS TO GROUNDING ELECTRODE IN FACADE EMPLACEMENT BEHIND FACADE. GROUNDING PATHWAY MUST BE VIA #6 AWG COPPER GROUND CABLE.
7. ALL L14-20R AND L5-20R TARGET OUTLETS SHALL BE PROVIDED IN WET LOCATION COVERS AS SHOWN IN RECEPTACLE WET LOCATION COVER DETAIL ON SHEET ED-11.
8. PROVIDE A MALE RJ45 CONNECTOR ON THE END OF EACH CAT 6 OR BETTER DATA CABLE INSTALLED IN OUTLET BOXES. PROVIDE BOXES WITH BLANK FACE PLATE. (GOVERNMENT WILL PROVIDE AND INSTALL DATA CONNECTOR IN OUTLET FACEPLATE). PROVIDE 6" TO 12" OF CABLE BEHIND FACE PLATE TO ALLOW FOR CONNECTION OF DATA CABLE TO FUTURE DATA CONNECTOR.
9. PROVIDE GROUNDING FOR FACADE EMPLACEMENT DETAIL AS SHOWN IN EMPLACEMENT GROUNDING DETAIL ON SHEET ED-11. PROVIDE A #6 AWG COPPER GROUND CONNECTION BETWEEN MTDP AND TDP.
10. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.
11. INSTALL TWO, EIGHT-CIRCUIT LOAD CENTERS; ONE 12"X24" MTDP; AND ONE 12"X16" TDP IN THE WSIT AS SHOWN.

PANEL BOARD: PB-F1xx LOCATION: XXXXXXX MOUNTED: SURFACE FEED: BOTTOM
100 MINIMUM MAIN LUGS ONLY ASYM A.I.C. MIN.:10,000
VOLTAGE: 240/120 PHASE: 1 WIRE:3 RATING: NEMA 3R

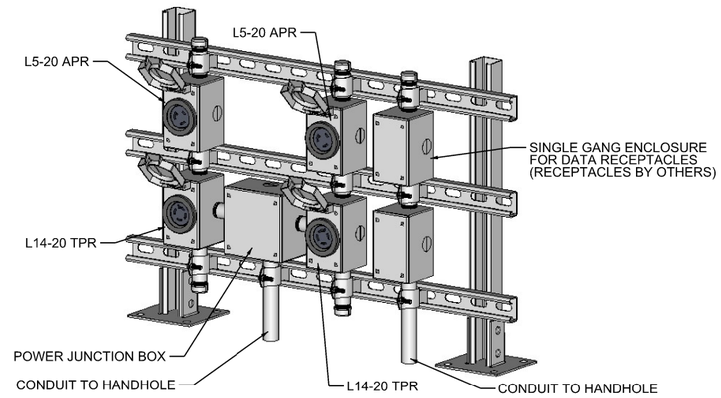
LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT. NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	---	---	---	---	1	2	1920		12	20	2	PANEL BOARD PB-F2XX
				---	---				1920				
FEED THRU PROVISIONS	2	---	---	---	---	5	6	50		12	20	1	DPR AND MR
				---	---		8		---	---	20	1	SPARE
				0	0			1970	1920				

TOTAL VA PHASE: A: 1970
TOTAL VA PHASE: B: 1920
TOTAL CONNECTED WATTAGE: 3890
95% DEMAND WATTAGE: xxx
SUPPLIED FROM: TRSF-XX
TOTAL DEMAND AMPS: xx

PANEL BOARD: PB-F2xx LOCATION: XXXXXXX MOUNTED: SURFACE FEED: BOTTOM
100 MINIMUM MAIN LUGS ONLY ASYM A.I.C. MIN.:10,000
VOLTAGE: 240/120 PHASE: 1 WIRE:3 RATING: NEMA 3R

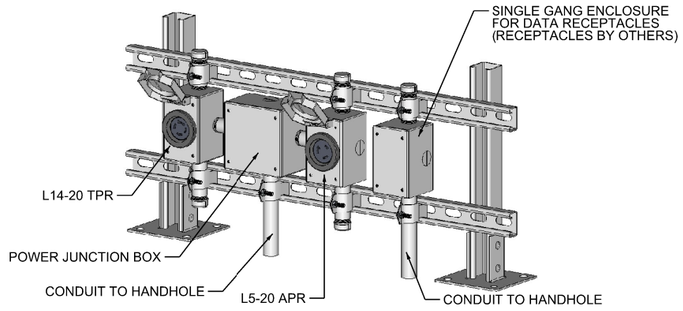
LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT. NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SIT (NEMA L14-20R, NEMA L5-20R)	2	20	12	480		1	2	480		12	20	2	SIT (NEMA L14-20R, NEMA L5-20R)
					480				480				
SIT (NEMA L14-20R, NEMA L5-20R)	2	20	12	480		5	6	480		12	20	2	SIT (NEMA L14-20R, NEMA L5-20R)
					480		8		480				
				960	960			960	960				

TOTAL VA PHASE: A: 1920
TOTAL VA PHASE: B: 1920
TOTAL CONNECTED WATTAGE: 3840
95% DEMAND WATTAGE: xx
SUPPLIED FROM: PB-F1xx
TOTAL DEMAND AMPS: xx



DOUBLE TARGET OUTLET CONFIGURATION

NOT TO SCALE



SINGLE TARGET OUTLET CONFIGURATION

NOT TO SCALE

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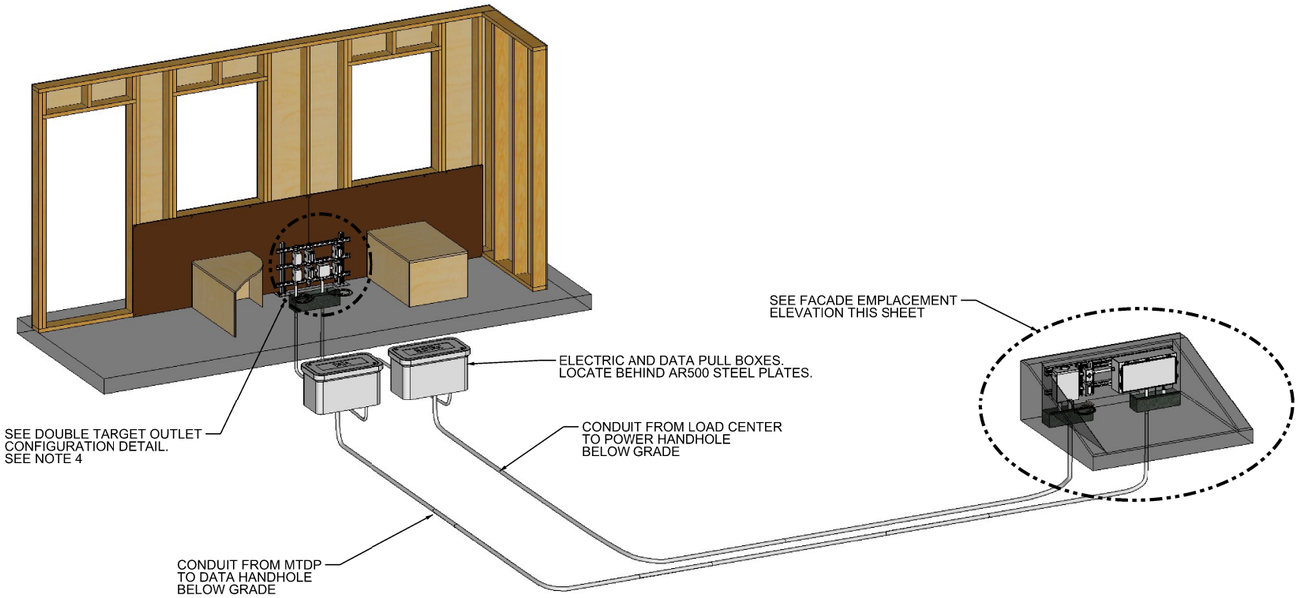
U.S. ARMY CORPS OF ENGINEERS
ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

MAY 2021

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

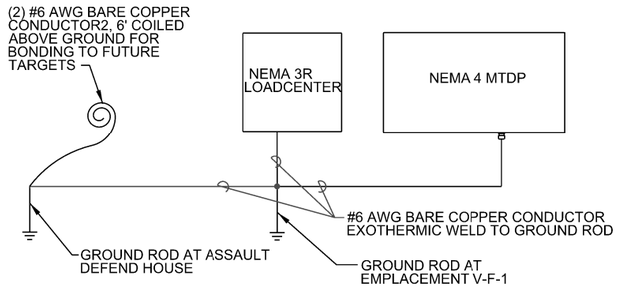
ELECTRICAL DETAILS
FACADE

SHEET ID
FAC-E01



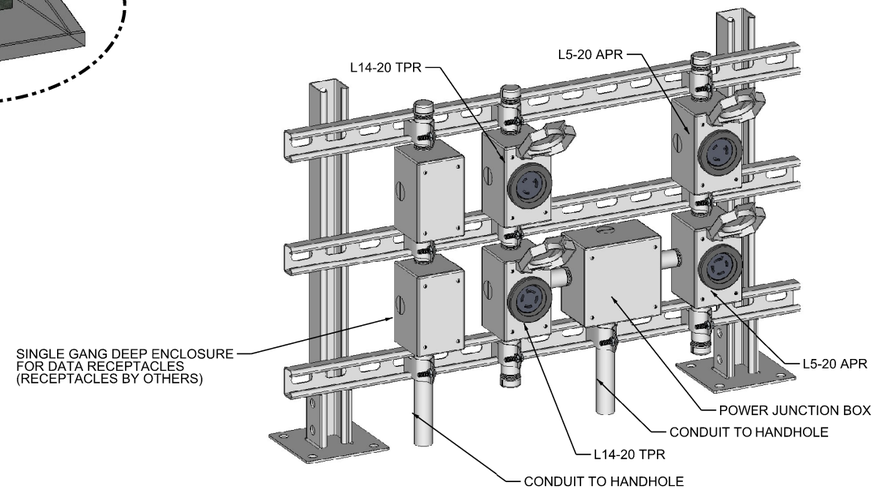
ASSAULT DEFEND HOUSE ELECTRICAL PLAN

NOT TO SCALE



ASSAULT DEFEND HOUSE GROUNDING PLAN

NOT TO SCALE



DOUBLE TARGET OUTLET CONFIGURATION

NOT TO SCALE

NOTES:

1. CONNECT EMPLACEMENT, HAND HOLES AND POWER AND DATA OUTLETS WITH UNDERGROUND CONDUIT AS SHOWN. INSTALL EIGHT-CIRCUIT LOAD CENTER; ONE 12"X24" MTDP IN THE EMPLACEMENT AS SHOWN.
2. ALL DATA CABLES ROUTED TO THE ASSAULT DEFEND HOUSE AND OTHER EMPLACEMENTS SHALL BE TERMINATED INSIDE THE MTDP IN THE EMPLACEMENT. EACH CAT 6 OR BETTER CABLE SHALL BE PROVIDED WITH SURGE PROTECTION INSIDE THE MTDP.
3. SEE SHEET ED-06 FOR MTDP REQUIREMENTS.
4. LEAVE A 6 FOOT #6 AWG BARE COPPER COIL AT EACH TARGET LOCATION FOR FUTURE CONNECTION TO TARGET MECHANISM. COPPER COIL MUST BE ELECTRICALLY CONTINUOUS TO GROUNDING ELECTRODE IN WSIT EMPLACEMENT BEHIND ASSAULT DEFEND HOUSE. GROUNDING PATHWAY MUST BE VIA #6 AWG COPPER GROUND CABLE.
5. ALL L14-20R AND L5-20R TARGET OUTLETS SHALL BE PROVIDED IN WET LOCATION COVERS AS SHOWN IN RECEPTACLE WET LOCATION COVER DETAIL ON SHEET ED-11.
6. PROVIDE A MALE RJ45 CONNECTOR ON THE END OF EACH CAT 6 OR BETTER DATA CABLE INSTALLED IN OUTLET BOXES. PROVIDE BOXES WITH BLANK FACE PLATE. (GCVERNMENT WILL PROVIDE AND INSTALL DATA CONNECTOR IN OUTLET FACEPLATE). PROVIDE 6" TO 12" OF CABLE BEHIND FACE PLATE TO ALLOW FOR CONNECTION OF DATA CABLE TO FUTURE DATA CONNECTOR.
7. PROVIDE GROUNDING FOR FACADE EMPLACEMENT DETAIL AS SHOWN IN EMPLACEMENT GROUNDING DETAIL.
8. POWER TO DATA PANEL RECEPTACLE IN MTDP SHALL BE ROUTED THROUGH SINGLE POLE SINGLE THROW SWITCH.

PANEL BOARD: ADH — LOCATION: XXXXXXX — MOUNTED: SURFACE — FEED: BOTTOM

100 MINIMUM — MAIN LUGS ONLY — ASYM A.I.C. MIN.:10,000

VOLTAGE: 240/120 — PHASE: 1 — WIRE: 3 — RATING: NEMA 3R

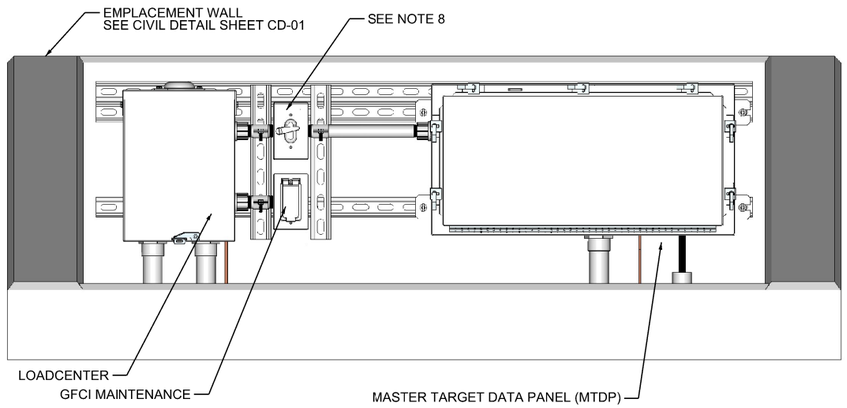
LOAD SERVED	NO. POLES	TRIP AMPS	WIRE SIZE	VA/ PHASE A	VA/ PHASE B	CKT NO.	CKT. NO.	VA/ PHASE A	VA/ PHASE B	WIRE SIZE	TRIP AMPS	NO. POLES	LOAD SERVED
SURGE ARRESTOR	2	---	---	---	---	1	2	960		12	20	2	SIT (2 NEMA L14-20R, 2 NEMA L5-20R)
									960				
FEED THRU PROVISIONS	2	---	---	---	---	5	6	50	---	12	20	1	DPR AND MR
							8		---	---	20	1	SPARE
				0	0			1010	960				

TOTAL VA PHASE: A: 1010
TOTAL VA PHASE: B: 960

TOTAL CONNECTED WATTAGE: 1970
95% DEMAND WATTAGE: xxx

SUPPLIED FROM: TRSF-XX

TOTAL DEMAND AMPS: xx



ASSAULT DEFEND HOUSE EMPLACEMENT ELEVATION

NOT TO SCALE

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