Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Common Items				
A. Targets				
1	Quantities meet DD1391, applicable TC 25-8, and CEHNC Design Guide 1110-1-23			
2	Oriented to face firing line or firing positions/points			
B. Roads-Service, Lanes				
1	Number of lanes meets DD 1391, applicable TC 25-8, and CEHNC Design Guide 1110-1-23. Note: Two tank trails per lane for armor ranges			
2	Trails and service roads provide adequate access to targets for maintenance			
C. Line of Sight				
1	Targets can be adequately seen from pertinent firing positions to allow 90% of target to be viewed			
2	Vegetation does not obscure target positions			
3	Left and right limit markers are outside greatest angle of fire from firing positions/points			
D. Testing Results provided to the local govetnment constuction representative				
1	Secondary power cabling tests			
2	Data cabling tests including fiber optic and/or copper network (ie. Cat5e)			
3	Target berm compaction tests.			
4	Grounding tests results. Control building (ie. ROC) has 25 Ohms or less earth resistance			
E. Drawings				
1	Contract drawings are available on-site			
2	"As-builts" will be made available to government representative after completed construction			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Control Tower				
A.	**Power**			
1	Minimum 120V is provided via incoming service power.			
2	SPD is provided for the DTR and Range Control System (RCS) panelboard.			
3	Receptacles (120V, 20A) are provided for RCS and printer along front wall of control room under work table.			
4	Two dedicated circuits (120V, 20A) to two duplex or a quadplex receptacle are provided near DTR.			
B.	**Data Termination Rack (DTR)**			
1	DTR is an enclosed 36"Dx22"Wx84"H free standing rack with 19" rack frame.			
2	36" space is available to front and rear and one side. DTR is located a minimum of 6" from the wall on the remaining side			
4	DTR rack is properly grounded to TMGB or a single point ground via a minimum #6 AWG insulated ground cable.			
5	4"x4" wireway is provided under the floor or along the side wall from the DTR location to the RCS workstation located along the front wall.			
6	Data cabling from downrange is only a single type entering DTR (ie. fiber or Cat5e).			
7	Data cabling armor or shield is properly grounded as close as practical to the point of entrance.			
8	Data cabling is properly terminated (ie. fiber-SC connectors, Cat5e-female RJ45 connectors). Copper cabling from downrange also has data network surge protection with 16V clipping voltage installed.			
9	Data cabling in DTR is neat and orderly and adequately anchored.			
10	3 meter minimum service loop of data cabling is provided in DTR.			
11	Data cables are be permanently tagged identifying destination (ie. SIT X or lane X).			
12	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure.			
13	Patch panels have labeling identifying each cable's destination.			
15	Buffer tube fanout kits and furcation units are installed and adequately anchored in DTR.			
16	Conduits entering DTR are sealed to ensure moisture and rodents are kept out.			
17	Innerduct in conduits or spare conduits are provided from the DTR to downrange.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Control Tower				
C.	**Department of Information Management (DOIM)**			
1	DOIM cabling is not terminated or entering the DTR.			
2	RJ45 jacks for DOIM cabling are properly labeled and identified as "Common User".			
D.	**Miscellaneous**			
1	Back wall of control room is windowless.			
2	Work table surface is 36" deep, the width of the tower and has a minimum of one slot for cable access.			
3	HVAC is provided in an appropriate location.			
4	Pull wires are provided in all empty conduits.			
5	Lightning protection is provided and is properly installed.			
6	Red lights are provided on separate switching from other lighting. (Applicable if range is used for night firing).			
7	Limit marker switch is provided and labeled properly. Note: Only provide limit marker switch on non-maneuverable ranges.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Stationary Infantry Target (SIT)				
A.	**Miscellaneous**			
1	Emplacement size: Front wall height is 18". Front wall length is 54". Floor width is 54".			
2	A minimum of 29" of clearance is provided to the rear of the emplacement allowing space for the target in the down position.			
3	Adequate space is available in emplacement for target mechanism.			
4	Berm fill is level with the top of the protective timber at the front of the emplacement and free of holes.			
5	Emplacements are sloped to the rear for drainage.			
6	All emplacements and enclosures are clean of dirt and debris.			
7	All power and data enclosures are mounted no higher than 2 inches from top of wall.			
8	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
9	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
10	All boxes and enclosures have weatherproof covers installed			
11	A 6-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
12	Emplacement is permanently labeled (ie. SIT X) and power center panel schedule agrees with label.			
13	All data and power conduits are routed to the rear or side of emplacement.			
B.	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit.			
2	Size of LC is maximum 13"Hx12"Wx6"D.			
4	LC has SPD installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet.			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable to SIT ground rod.			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. SIT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Stationary Infantry Target (SIT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP.			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP.			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors.			
11	Fiber is permanently tagged and labeled (ie. To SIT X or From SIT X).			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate.			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP.			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure.			
16	Fiber terminations allow adequate space for target installer to jumper to target installer equipment.			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 15V-20V clamping voltage. Each surge protector shall not be larger than 5"x5".			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	MTDP/TDP is grounded to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Moving Infantry Target (MIT)				
A.	**Miscellaneous**			
1	Emplacement size. Front wall is 26". Front length is 709" (59') for 15 meter MIT and 1693" (141') for 40 meter MIT. Floor width is 54".			
2	A minimum of 24" of clearance is provided to the rear of the emplacement allowing space for the target in the down position.			
3	Adequate space is available in emplacement for target mechanism.			
4	Berm fill is level with the top of the protective timber at the front of the emplacement and free of holes.			
5	Emplacements are sloped to the rear for drainage.			
6	All emplacements and enclosures are clean of dirt and debris.			
7	All power and data enclosures are mounted no higher than 2 inches from top of wall.			
8	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
9	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
10	All boxes and enclosures have weatherproof covers installed			
11	A 10-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
12	Emplacement is permanently labeled (ie. MIT X) and power center panel schedule agrees with label.			
13	All power and data enclosures are located at the end of the MIT nearest the direction of fire.			
14	All enclosures do not exceed 79" from end of MIT			
15	All data and power conduits are routed to the rear or side of emplacement.			
B.	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has SPD installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable to MIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. MIT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Moving Infantry Target (MIT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

	Date: Location:	YES	NO	NOTES
	Heavy Sniper Range - HSR			
	Stationary Armor Target (SAT)			
A	**Miscellaneous**			
1	Emplacement size: Front wall height is 41" (53" aerial). Front wall length is 168" (336" flank).			
2	Adequate space is available in emplacement for target mechanism.			
3	Berm fill is sloped 3" above wall level and tapers to level with protective timber at the front of the emplacement and free of holes.			
4	Emplacements are sloped to the rear for drainage.			
5	All emplacements and enclosures are clean of dirt and debris.			
6	All power and data enclosures are mounted no higher than 12 inches from top of wall.			
7	Target power outlet is (1) NEMA L14-20R and (4) NEMA L5-20R with wet location covers.			
8	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
9	All boxes and enclosures have weatherproof covers installed			
10	A 10-foot free length coil of #6 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
11	Emplacement is permanently labeled (ie. SAT X) and power center panel schedule agrees with label.			
12	All data and power conduits are routed to the rear or side of emplacement.			
B	**Loadcenter (LC)**			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has TVSS installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable exothermic welded to SIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. SAT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Stationary Armor Target (SAT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Moving Armor Target (MAT)				
A.	Miscellaneous			
1	Emplacement size: Front wall height is 60" (72" aerial).			
2	Adequate space is available in emplacement for target mechanism.			
3	Berm fill is sloped 3" above wall level and tapers to level with protective timber at the front of the emplacement and free of holes.			
4	Emplacements are sloped to the rear for drainage.			
5	All emplacements and enclosures are clean of dirt and debris.			
6	All power and data enclosures are mounted no higher than 12 inches from top of wall.			
7	Target power outlet is (1) NEMA L14-20R and (2) NEMA L5-20R with wet location covers.			
8	GFCI maintenance receptacle (20A, 120V) is provided with an in-use weatherproof cover.			
9	All boxes and enclosures have weatherproof covers installed			
10	A 15-foot free length coil of #1/0 AWG bare copper ground cable is provided above ground from the grounding rod for future bonding to target mechanism.			
11	Emplacement is permanently labeled (ie. MAT X) and power center panel schedule agrees with label.			
12	All data and power conduits are routed to the rear or side of emplacement.			
13	Track bed/service road width is a minimum of 8.25 meters (27').			
14	MAT track bed/service road grade does not exceed 5.7 degrees (10 percent).			
15	The first 40 meters (131 feet) of MAT roadbed (at its power source end) and the last 40 meters (131 feet) of track has a grade of 0 degrees ±1 percent.			
16	The minimum turning radius of curved track is 152.4 meter (500 feet).			
B.	Loadcenter (LC)			
1	120/240V is provided via feeder circuit			
2	LC is minimum 6"-8" from emplacement floor			
4	LC has TVSS installed properly			
5	A 2 pole 20A circuit breaker is provided for the target power outlet			
6	LC is properly grounded via a minimum #6 AWG bare copper ground cable exothermic welded to MIT ground rod			
7	Location of LC is adequate to allow lid to be opened.			
8	Panel schedule is provided which indicates circuit designations and where feeder circuit originates (ie. MAT X and panelboard PB-X)			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Moving Armor Target (MAT)				
C.	**Master Target Data Panel (MTDP) and Target Data Panel (TDP)**			
1	Size of MTDP is 24"x12"x6" - TDP is minimum 12"x12"x6"			
2	Type of MTDP/TDP enclosure is galvanized steel NEMA 4. NEMA rating is maintained after installation (ie. screws do not penetrate the enclosure).			
3	The gasket is one piece and seamless in the enclosure cover.			
4	Cable seal fittings are properly installed on cables entering MTDP/TDP from underground.			
5	Location of MTDP/TDP is adequate to allow lid to be opened.			
6	A back plate is installed that covers the entire back of the MTDP/TDP			
7	A 10"x10" space is available for target installer equipment in MTDP. 6"x6" space required in TDP.			
8	Data cabling is installed neatly and orderly and properly anchored or fastened in the MTDP/TDP			
9	Fiber cabling is armored and properly grounded.			
10	Fiber is terminated with SC connectors			
11	Fiber is permanently tagged and labeled (ie. To MIT X or From SIT X)			
12	Fiber SC connectors are terminated on a patch panel with number of ports to support total number of fiber strands terminated.			
13	Fiber patch panel is mounted to the back plate			
14	Minimum 1 meter service loop of fiber cabling is provided and properly secured inside MTDP			
15	Fiber cabling has no visible microbending, pinching, or other marking to indicate fiber failure			
16	Fiber terminations allow for adequate space for target installer to jumper to target installer equipment			
17	Buffer tube fanout kit and furcation unit for the fiber cabling is anchored or securely fastened.			
18	A standard duplex receptacle (20A, 120V) is mounted to the back plate and properly grounded.			
19	The duplex receptacle is not GFCI protected.			
20	Cat5e or better cabling is shielded and properly grounded.			
21	Each end of Cat5e shall be terminated on a data network surge protector with a 16V clipping voltage. Each surge protector shall not be larger than 5"x5". Multiple surge protectors may need to be mounted to an angle bracket to minimize space used in MTDP/TDP			
22	Cat5e cable is terminated on a 110-block style modular outlet. RJ-45 connertor patch cable connects modular outlet to surge protector.			
23	Ground the MTDP/TDP to the target ground rod via #6 AWG bare copper ground cable.			

Target Interface / Construction Compliance Inspection Checklist

Date: Location:		YES	NO	NOTES
Heavy Sniper Range - HSR				
Limit Markers				
A.	**Miscellaneous**			
1	Limit marker locations are visible from pertinent firing positions.			
2	Lighted or heated for night firing. Red lighting is used on the face of the limit marker or limit marker face is illuminated with white lighting shining upon it.			
3	120V, 20A, duplex GFCI receptacle is provided near the base of the limit marker.			
4	Controls are provided. In the ROC for non-maneuverable range and locally at the LM or nearby location for maneuverable.			
5	Any ground light, receptacle, and control switch are located or protected to avoid direct fire.			