**DEPARTMENT OF DEFENSE**
**US ARMY CORPS OF ENGINEERS**
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# DoD Anti-Ram Vehicle Barrier List

List Date: July 2013

The Department of Defense's physical security concept is to create a layered or "tiered" defensive system which consists of both active and passive perimeter barriers to delay intruders. The Department employs an ASTM International performance standard and testing procedure for both active entrance barriers and passive perimeter barriers designated as "vehicle-impact rated barriers," or "anti-ram barriers." The current standard is ASTM F2656-07, Standard Test Method for Vehicle Crash Testing of Perimeter Barriers.

The ASTM F2656-07 test standard rates barriers in twelve impact categories, with three predetermined impact velocities for each category and four potential penetration ratings for each impact rating. These penetration ratings are: P1 - < 3.3 ft; P2 - 3.31 to 23.0 ft; P3 - 23.1 to 98.4 ft; and P4 - > 98 ft. Of the four penetration ratings, barriers with a penetration rating of P4 will not be included in the DoD Anti-Ram Vehicle Barriers list.

The following list of barriers includes active barriers for use at entrances, and passive or fixed barriers for other perimeter applications. This list will be updated quarterly in January, April, July and October. A request must be received one month prior to the list being published to be included on the next quarterly list.

Note: This list supersedes all previous copies. Please refer to the date above to ensure you have the most up to date list. This list does not represent an overall endorsement of any product or design or address its operational suitability or maintainability. The list merely verifies that particular vehicle barriers have been certified in accordance with the performance standards in ASTM F2656-07, or previously tested to the U.S. Department of State SD-STD-02.01 standard, and that the appropriate test reports have been submitted to, and validated by, the Protective Design Center. Each vehicle barrier system has its own distinct characteristics that must be considered and weighed against the needs and conditions of the individual installation. Some barrier characteristics are associated with vulnerabilities. These vulnerabilities may not be readily apparent to the end users. Careful consideration should be given to clearances and geometric characteristics when utilizing barrier systems of varying widths. The PDC is available to discuss barrier characteristics, and any other barrier issues or questions. A few characteristics to consider are listed below:

- Impact speed at barrier (low speed impact): The use of some vehicle barriers presented in this list exhibit vulnerabilities when impacted at speeds other than those associated with the ASTM and DOS test impact velocities.
- Design Basis Threat (DBT) vehicle, other vehicle weights and speeds: The barriers presented in this list have been subjected to impacts under the specific conditions prescribed by the test designation. If the Installation's DBT includes vehicles significantly different than the test vehicle, performance of the system may differ from what may be expected.
- Deployment mechanisms: The mechanisms used to deploy vehicle barriers vary (pneumatic, hydraulic, electro-mechanical, manual). The various mechanisms should be investigated and the choice should be based on the best fit for the Installation.
- Environmental condition at barrier: Environmental conditions can vary greatly from location to location. Conditions such as rain, snow, ice, sand, gravel, hot, and cold need to be considered when selecting a barrier for a specific location.
- Operations and Maintenance (O&M) requirements: Each barrier comes with its own operational and maintenance requirements. The O&M requirements vary in the amount and intensity from barrier to barrier. O&M needs to be figured into the overall life cycle cost of the barrier.
- After impact barrier gaps: Post impact gaps may be an inherent characteristic of the barrier system. The barrier system's post-impact condition should be carefully evaluated for its capabilities in relation to defeat of the Installation's Design Basis Threat (DBT).

Questions regarding the certification standard, barrier characteristics or this list can be sent to the Protective Design Center or email at: pdcmail@usace.army.mil.

***Barrier Type*: Active Bollard**

| Barrier Rating | Penetration Rating | Barrier Model/Description | Manufacturer/Designer/Distributor | Remarks |
|---|---|---|---|---|
| K4 | L3 | RB80 Bollard | American Anti-Ram Corporation http://www.americanpsg.com/ | 48" OC |
| K4 | L2 | SP Defender | ATG Access, Inc. http://www.atgaccessinc.com/ | 3-bollard array |
| K4 | L2 | DSC 800 Bollard Type Barricade | Delta Scientific Corporation http://deltascientific.com/ | 3-bollard array |
| M30 | P1 | K4 Shallow Mount Bollard | FAAC International, Inc. http://www.faacusa.com/ | Single bollard |
| M30 | P1 | Elkosta M30 (K4) | Perimeter Protection Germany GmbH http://www.perimeterprotection.net/ | Single bollard |
| K8 | L3 | XT-1208-RB, Xact Series Retractable Bollards - (fka-Eagle Series Bollards, K8) | Ross Security Systems LLC http://www.rosssecuritysolutions.com/ | 3-bollard array, hydraulic bollards |
| K8 | L1 | ARMR B-30 Bollard Assembly | B&B ARMR http://www.bb-armr.com/ | 3-bollard array, hydraulic bollards |
| M50 | P1 | SP1000 Rising Bollard | ATG Access, Inc. http://www.atgaccessinc.com/ | single hydraulic bollard |
| K12 | L3 | Gunnebo Bollard | Gunnebo Competence Centre Outdoor Perimeter Security http://www.perimeterprotection.net/ | single hydraulic bollard |
| K12 | L3 | SP Titan | ATG Access, Inc. http://www.atgaccessinc.com/ | 3-bollard array |
| K12 | L2 | XT-1200-RB, Xact Series Retractable Bollards - (fka-Eagle Series Bollards, K12) | Ross Security Systems LLC http://www.rosssecuritysolutions.com/ | 3-bollard array, hydraulic bollards |
| K12 | L2 | NBI Hydraulic Bollard Barrier | Nasatka Barrier, Inc. http://www.nasatka.com/ | 3-bollard array |
| M50 | P1 | HT1 Raptor | Heald Ltd http://www.heald.uk.com/ | Single bollard |
| M50 | P2 | RSS4003 | RSSI http://www.rssi.com/ | 3-bollard array |

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|---|---|---|---|---|
| M50 | P1 | Viper RBSM 1000 | Heald Ltd.<br>http://www.heald.uk.com/ | Single wedge-shaped bollard |
| M50 | P2 | TITAN MKII Hydraulic Bollard | ATG Access, Inc.<br>http://www.atgaccessinc.com/ | 3-bollard array, hydraulic bollards |
| M50 | P2 | Retractable Bollard M50 | Gunnebo Competence Centre Outdoor Perimeter Security<br>http://www.perimeterprotection.net/ | Single Hydraulic Bollard |
| M50 | P2 | BLG-05 Foundations Protection System | EL-GO TEAM Parking and Security Systems<br>http://www.elgoteam.com/ | Single Pneumatic/ Hydraulic/ Electric Bollard |
| K12 | L1 | B40 Retractable Bollard | B&B ARMR<br>http://www.bb-armr.com/ | 3-bollard array, hydraulic bollards |

***Barrier Type*: Active Drop-Arm Beam**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| K4 | L3 | CRB-240 Drop Gate | American Anti Ram<br>http://www.americanpsg.com/ | 11.5 foot clear opening |
| K4 | L3 | Bosik Bar VBS Shallow Foundation Barrier (SP VBB) K4 | ATG Access, Inc.<br>http://www.atgaccessinc.com/ | 14 foot clear opening |
| M30 | P1 | M530 12-foot Drop Arm Assembly | Apex Fabrication & Design, Inc.<br>http://www.apexfab.com/ | 12 foot clear opening |
| K4 | L2 | IP500 Transportable Beam for Quick Deployment | Delta Scientific Corporation<br>http://deltascientific.com/ | 12 foot clear opening, surface mounted |
| K4 | L2 | TT212EC Drop Arm Beam Barrier System | Delta Scientific Corporation<br>http://deltascientific.com/ | 12 foot clear opening |
| M30 | P2 | Barrier Arm Crash Gate | Logical Decisions<br>http://www.ldi.com/crashgates.htm | Approx 12.5 foot clear opening |
| M30 | P1 | StrongArm M30 | HySecurity Gate, Inc.<br>http://www.hysecurity.com/ | 12 foot clear opening |
| K8 | L3 | VPL-CB-24 | Autogate, Inc<br>http://www.autogate.com/ | 14.5 foot clear opening |
| K12 | L3 | VPL-CB-24 | Autogate, Inc<br>http://www.autogate.com/ | 14.5 foot clear opening |
| M50 | P1 | CRB-K12-2 Drop Arm Gate Barrier | American Physical Security Group, Inc.<br>http://www.americanpsg.com/ | 12.9 foot clear opening |

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| K12 | L3 | Bosik Bar VBS Deep Foundation Barrier (SP VBB) K12 | ATG Access, Inc. http://www.atgaccessinc.com/ | 14.25 foot clear opening |
| M50 | P3 | Drop Arm Vehicle Barrier - KBVB | Barrier1 Systems, Inc. http://www.barrier1.us/ | |
| K12 | L3 | DSC 7000 Barrier | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening |
| K12 | L2 | NMSB XII Crash Beam Barrier - 12 ft | Nasatka Barrier, Inc. http://www.nasatka.com/ | 12 foot clear opening |
| K12 | L3 | NMSB XII Crash Beam Barrier - 18 ft | Nasatka Barrier, Inc. http://www.nasatka.com/ | 18 foot clear opening |
| M50 | P2 | StrongArm M50 | HySecurity Gate, Inc. http://www.hysecurity.com/ | 12 foot clear opening |

***Barrier Type*: Active Gate**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| M30 | P1 | AR-266 - 12 ft | Heavy Duty Gate, Inc. http://heavydutygates.com/ | 12 foot clear opening |
| K4 | L3 | ARMR Model 730 Crash Gate | B&B ARMR http://www.bb-armr.com/ | |
| K4 | L2 | ARMR Model 400 Sliding Gate | B&B ARMR http://www.bb-armr.com/ | 12 foot clear opening |
| K12 | L3 | CG12 Gate | American Anti Ram http://www.americanpsg.com/ | 12 foot clear opening |
| M50 | P1 | DSC 288 | Delta Scientific Corporation http://deltascientific.com/ | 20 foot clear opening |
| K12 | L3 | DSC 7500 Barrier | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening |
| M50 | P1 | LSST 1000 | Gunnebo Competence Centre Outdoor Perimeter Security http://www.perimeterprotection.net/ | 7.2 meter clear opening |
| M50 | P2 | Cable Restraint Barrier - 50 ft | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 50 foot clear opening |
| K12 | L3 | Cable Crash Gate | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 24 foot clear opening |

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| M50 | P1 | AR 466 Anti-Ram Vehicle Barrier - 16.5 ft | Morrison Equipment http://www.morrisonequipment.com/ | 16.5 foot clear opening |
| M50 | P1 | SR 466 Anti-Ram Vehicle Barrier | Morrison Equipment http://www.morrisonequipment.com/ | 12.75 foot clear opening |
| K12 | L3 | AR 446 Anti-Ram Vehicle Barrier - 40 ft | Morrison Equipment http://www.morrisonequipment.com/ | 40 foot clear opening |
| M50 | P2 | K12 Cable Restraint Barrier - 50 ft | NEU Security Systems http://www.neusecurity.com/ | 50 foot clear opening |
| M50 | P1 | K12 Cable Restraint Barrier - 24 ft | NEU Security Systems http://www.neusecurity.com/ | 24 foot clear opening |
| K12 | L3 | Modified Interlocking Finger Gate | Logical Decisions http://www.ldi.com/crashgates.htm | V shape, 13 foot clear opening |
| K12 | L1 | ARMR Model 450 Anti-Climb High Security Vehicle Access Control Cantilever Gate System | B&B ARMR http://www.bb-armr.com/ | 12 foot clear opening |

***Barrier Type*: Active Net**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| M50 | P2 | 30' Retractable Net Vehicle Barrier System | Barrier1 Systems, Inc. http://www.barrier1.us/ | 30 foot clear between stanchions - interpolation with 90 foot barrier is acceptable with P3 rating |
| M50 | P3 | 90' Retractable Net Vehicle Barrier System | Barrier1 Systems, Inc. http://www.barrier1.us/ | 90 foot clear between stanchions - interpolation with 30 foot barrier is acceptable |
| M50 | P2 | Retractable Cable Net Vehicle Barrier System - 20 ft | Barrier1 Systems, Inc. http://www.barrier1.us/ | 19' 9.5" clear opening between stanchions - interpolation between 19’ 9.5” and 80’ is acceptable |
| M50 | P2 | Retractable Cable Net Vehicle Barrier System - 52.5 ft | Barrier1 Systems, Inc. http://www.barrier1.us/ | 52' 5" clear opening between stanchions - interpolation between 19’ 9.5” and 80’ is acceptable |
| M50 | P2 | 80-Foot Retractable Cable Net Vehicle Barrier System | Barrier1 Systems, Inc. http://www.barrier1.us/ | 80' clear opening between stanchions - interpolation between 19’ 9.5” and 80’ is acceptable |

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| M50 | P3 | Modified Vehicle Arresting System (VAS) | Engineered Arresting Systems Corporation http://www.esco.zodiacaerospace.com/ | 24 foot tested width |
| M40 | P1 | GRAB-400 - 12 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 12 foot clear opening - interpolation with 60 foot barrier is acceptable with a P2 penetration |
| M40 | P2 | GRAB-400 - 60 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 60 foot clear opening - interpolation with 12 foot barrier is acceptable |
| M50 | P2 | GRAB-300 - 14 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 14 foot net width - interpolation with 62 foot barrier is acceptable |
| M50 | P2 | GRAB-300 - 62 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 62 foot net width - interpolation with 14 foot barrier is acceptable |

***Barrier Type*: Active Post and Beam**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| K12 | L3 | SP Patriot | ATG Access, Inc. http://www.atgaccessinc.com/ | 12 foot clear opening |
| K12 | L2 | Barrier Lift System - K12 | Gunnebo Competence Centre Outdoor Perimeter Security http://www.perimeterprotection.net/ | 10 m width |
| K12 | L3 | Barrier Lift System | Gunnebo Wego GmbH http://www.perimeterprotection.net/ | 6 m clear opening |
| K4 | L3 | BLS 0.1 Barrier Lift System | Elkosta Security Systems http://www.perimeterprotection.net/ | 9 m (29.5 foot) clear opening |

***Barrier Type*: Active Wedge**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| M40 | P3 | DSC 1000 Barrier | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening, portable wedge |
| K4 | L1 | MP5000 Mobile Barrier | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening, portable wedge |
| K4 | L2 | DSC 1100 Quick Beam Deployment Barrier System | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening, surface mounted |
| K4 | L3 | DSC 1200 Barrier | Delta Scientific Corporation http://deltascientific.com/ | 12 foot clear opening |
| K4 | L2 | XS-2000-PW, Xpress Series Portable Wedge Barrier - (fka-Osprey Series Portable Wedge) | Ross Security Systems LLC http://www.rosssecuritysolutions.com/ | 12 foot clear opening, portable wedge |
| K4 | L1 | ARMR Model 850 Portable/Towable Barrier | B&B ARMR http://www.bb-armr.com/ | Portable wedge |
| M30 | P3 | MNSB XV Mobile Barrier | Nasatka Barrier, Inc. http://www.nasatka.com/ | 12 foot clear opening, mobile wedge |
| M40 | P3 | MP5000 Mobile Barrier - 20 feet | Delta Scientific Corporation http://deltascientific.com/ | 20 foot clear opening, mobile wedge |
| M40 | P3 | MNSB XVI Mobile Barrier | Nasatka Barrier, Inc. http://www.nasatka.com/ | 16 foot clear opening, mobile wedge |
| M40 | P3 | NMSB XVX 20 ft Clear Opening Barrier | Nasatka Barrier, Inc. http://www.nasatka.com/ | 20 foot clear opening, mobile wedge |
| K12 | L3 | Shallow Mount Wedge Model SW12 | American Anti Ram http://www.americanpsg.com/ | 8 foot plate |
| K12 | L3 | Model DSC501 - Phalanx Type Barricade | Delta Scientific Corporation http://deltascientific.com/ | 9 foot wide plate |
| K12 | L3 | DSP K12 | Gunnebo Competence Centre Outdoor Perimeter Security http://www.perimeterprotection.net/ | 4.6 meter tested width |
| M50 | P1 | M50-P1 8ft. Wedge Barrier | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 8 foot clear opeing |

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| M50 | P1 | DSC 207S | Delta Scientific Corporation http://deltascientific.com/ | 9 foot wide plate |
| K12 | L3 | DSC 2000 Barrier | Delta Scientific Corporation http://deltascientific.com/ | 3 - 2 foot wedges with 18 inch spacing |
| K12 | L3 | XT-1000-W, Xact Series Wedge Barrier - (fka-Eagle Series Wedge Barrier) | Ross Security Systems LLC http://www.rosssecuritysolutions.com/ | 9 foot wide plate |
| M50 | P1 | NSMB-IIID-E - 8 ft | Nasatka Barrier, Inc. http://www.nasatka.com/ | 8 foot plate |
| K12 | L3 | MSB II Barrier | Nasatka Barrier, Inc. http://www.nasatka.com/ | 12 foot clear opening |
| M50 | P1 | SHF3614S | SecureUSA, Inc. http://secureusa.net/ | 14 foot wide plate |
| K12 | L3 | SP Sentinel | ATG Access, Inc. http://www.atgaccessinc.com/ | 8 foot plate |
| M50 | P1 | RSS-2000VI | RSSI http://www.rssi.com/ | 6 post configuration - interpolation with 4 post configuration is acceptable, 5 post configuration acceptable |
| K12 | L3 | ARMR Shallow Mount Plate Barrier Model 820 | B&B ARMR http://www.bb-armr.com/ | 9 foot tested width |
| K12 | L3 | RSS-2000 | RSSI http://www.rssi.com/ | 4 post configuration - interpolation with 6 post configuration is acceptable, 5 post configuration acceptable |
| M50 | P1 | 9 ft Wedge Barrier | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 9 foot tested width |
| M50 | P1 | 16-ft Wedge System | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | 16 foot tested width |
| M50 | P1 | HT1 Viper | Heald Ltd. http://www.heald.uk.com/ | 3 m tested width (~10 ft) |
| M50 | P1 | Model III D-E 10’ Barrier System | Nasatka Barrier, Inc. http://www.nasatka.com/ | 10 foot tested width |

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|---|---|---|---|---|
| M50 | P1 | Model III D-E 11’ Barrier System | Nasatka Barrier, Inc.<br>http://www.nasatka.com/ | 11 foot tested width |
| M50 | P1 | Model III D-E 12’ Barrier System | Nasatka Barrier, Inc.<br>http://www.nasatka.com/ | 12 foot tested width |
| M50 | P1 | Model III D-E 14’ Barrier System | Nasatka Barrier, Inc.<br>http://www.nasatka.com/ | 14 foot tested width |
| M50 | P1 | Road Blocker Model GBRH50 Wedge Barrier | Guardian Industries Co.<br>http://www.guardianind.com/ | 10' 1" tested width |

***Barrier Type*: Active Cable**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| M40 | P2 | RSSI Cable Trap System | RSSI<br>http://www.rssi.com/ | 4 - 1" diameter cables, 100' tested total length |

***Barrier Type*: Passive Bollard**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| PU50 | P2 | DSC 650 Shallow Foundation Bollard Array | Delta Scientific Corporation<br>http://deltascientific.com/ | 2-bollard array |
| K4 | L3 | SP1000 Static Shallow Mount Barrier | ATG Access, Inc.<br>http://www.atgaccessinc.com/ | 3-bollard array |
| K4 | L3 | Shallow Bollard System | SecureUSA, Inc.<br>http://secureusa.net/ | 5-bollard array |
| M30 | P1 | M30 Shallow Foundation Modular Bollard System | Barrier1 Systems, Inc.<br>http://www.barrier1.us/ | 3-bollard array |
| M30 | P1 | Set and Pour Bollard | Barrier1 Systems, Inc.<br>http://www.barrier1.us/ | Single bollard |
| M30 | P1 | Shallow Foundation Modular Bollard System | Barrier1 Systems, Inc.<br>http://www.barrier1.us/ | Single modular bollard |
| M30 | P2 | 8" SM Removable K4 Shallow Mount Bollard | Calpipe Security Bollards<br>http://www.calpipebollards.com/ | 3-bollard array |
| M40 | P1 | M40 Shallow Foundation Modular Bollard System | Barrier1 Systems, Inc.<br>http://www.barrier1.us/ | 3-bollard array |
| M50 | P3 | FB-K12 Fixed Bollard System | American Physical Security Group, Inc.<br>http://www.americanpsg.com/ | |

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| M50 | P1 | Fixed Bollard M50 | Perimeter Protection Germany GmbH http://www.perimeterprotection.net/ | 3-bollard array |
| M50 | P2 | K12 Shallow Mount Bollard | Calpipe Security Bollards http://www.calpipebollards.com/ | 3-bollard array |
| M50 | P2 | Single Bollard Vehicle Barrier System | Barrier1 Systems, Inc. http://www.barrier1.us/ | single bollard |
| K12 | L2 | DSC 600 Shallow Frame Bollard Array | Delta Scientific Corporation http://deltascientific.com/ | 2-bollard array |
| M50 | P3 | M50 Shallow Foundation Bollard - 40 | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 3-bollard array |
| M50 | P1 | M50 Shallow Foundation Bollard | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 3-bollard array |
| K12 | L3 | Model 6 Bollards - 4-bank | Nasatka Barrier, Inc. http://www.nasatka.com/ | 4-bollard array, shallow mount |
| K12 | L3 | Shallow Mount Bollards | Sandia National Laboratories http://www.sandia.gov/ | 3-bollard array, shallow mount |

***Barrier Type*: Passive Cable**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| M30 | P1 | High Performance Post, Rail, and Structural Stand System - 73 ft (1" cable) | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 3 - 1" diameter cables, 72' tested length (post to post) |
| M40 | P2 | Cable Trap System | RSSI http://www.rssi.com/ | 4 - 1” diameter cables, 96’ tested length (end post to end post) |
| M40 | P2 | High Performance Post, Rail, and Structural Stand System - 73 ft (1.25" cable) | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 3 - 1.25" diameter cables, 72' tested length (post to post) |
| M50 | P2 | M50 P2 Cable Crash Fence | NEU Security Systems http://www.neusecurity.com/ | 3 strand cable barrier |
| M50 | P2 | M50 P2 Cable Crash Fence | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | tested length - 600 foot, end post to end post |
| M50 | P1 | M50 P1 28ft. Cable Crash Fence | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | 3 strand cable barrier |
| M50 | P1 | M50/P1 Cable Barrier System | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 3 - 1.5" diameter cables, 40' tested length (post to post) |

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|---|---|---|---|---|
| M50 | P2 | High Performance Post, Rail, and Structural Stand System (1.5" cable) | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 3 - 1.5" diameter cables, 56' tested length (post to post) |
| M50 | P3 | High Performance Post, Rail, and Structural Stand System - 41 ft (1.25" cable) | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 3 - 1.25" diameter cables, 40' tested length (post to post) |
| M50 | P2 | M50 Post and Cable System – 50 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | tested length - 50 foot, center of end post to center of end post, interpolation with 200ft barrier is acceptable |
| M50 | P2 | M50 Post and Cable System – 200 ft | Smith & Wesson Security Solutions (fka Universal Safety Response) https://www.smith-wessonsecuritysolutions.com/ | tested length - 200 foot, center of end post to center of end post, interpolation with 50ft barrier is acceptable |

***Barrier Type*: Passive Fence**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| K8 | L1 | Perimeter Security Fence with One-Inch Cable and Diagonal | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | |
| K8 | L2 | Perimeter Security Fence with 1 in Cable and Bollard Anchorage | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | |
| K8 | L2 | Ameristar Impasse Perimeter Security Fence | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 2 - 1" diameter cables, 162 foot tested length |
| K8 | L2 | Perimeter Security Fence with One-Inch Cable and Bollard Anchorage | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 2 - 1" diameter cables, 162 foot tested length |
| M50 | P1 | Ameristar High Performance Post, Rail, and Structural Strand System | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | 40 foot tested length end post to end post |
| K12 | L3 | Impasse Security Fencing | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | |
| K12 | L2 | Perimeter Security Systems Fence | Ameristar Perimeter Security Systems http://www.ameristarfence.com/ | |
| K12 | L3 | Gibraltar Cable Crash Fence | Gibraltar Cable Barrier Systems, L.P. http://www.gibraltarmaterials.com/ | test length - 60 foot span, post to post |

***Barrier Type*: Passive Inertial**

| *Barrier Rating* | *Penetration Rating* | *Barrier Model/Description* | *Manufacturer/Designer/Distributor* | *Remarks* |
|---|---|---|---|---|
| K12 | L3 | RDRW Mk. 4 | Geocell Systems Inc.<br>http://www.geocellsystems.com/ | Earth filled barrier |
| K12 | L3 | Expeditionary Earth Filled Barrier | DefenCell<br>http://www.defencell.com/ | Earth filled barrier |