CHAPTER 2

WAR/CONTINGENCY AMMUNITION FIELD FACILITIES

This chapter describes WCTO ammunition field storage and supply facilities, types of storage areas, and the basic storage systems used to store ammunition in the field. The ATP, a designated temporary area from which ammunition is transferred from corps transportation to using unit vehicles, is also discussed as a field facility. This chapter also contains guidance on site selection and the development and layout of a combat storage facility. Specifically, site selection criteria, the storage plan, and development of the area layout plan are discussed.

AMMUNITION STORAGE AND SUPPLY FACILITIES

Ammunition storage and supply facilities include the TSA, the CSA, and the ASP. There are also four ATPs per division in the theater of operations that provide a temporary site for the transfer of ammunition. The type of storage facility is decided on a case-by-case basis.

THEATER STORAGE AREA

The TSA is the largest ammunition facility in the theater. It is operated by one or more GS ammunition companies and provides direct support, by area, to units operating in the COMMZ and provides GS to the corps within the theater. The TSA can be a fixed, semifixed, or field storage location. The TSA maintains up to a 30-day supply of ammunition. The number, size, and stockage objective of TSAs are METT-T dependent.

The TSA is normally a permanent or semipermanent storage facility. It may expand to about 40 square kilometers. However, in a combat environment, the TSA may be relocated to a field environment where ammunition stocks are kept in open storage. If so, it should have as much hardstand as possible and a good road network to support heavy traffic. The TSA must be set up to move both breakbulk and containerized ammunition onto and off of both railcars and line-haul transporters. To ensure smooth shipment operations, the TSA should be located where there is ready access to highway, rail, air, and port facilities. Other units in or near the TSA (such as transportation and terminal support units) help the GS ammunition company conduct railhead operations as well as transload operations when changing from one mode of transportation to another.

The TSA receives 100 percent of its ammunition from the port of debarkation (POD), whether it be seaport, airhead, or logistics-over-the-shore (LOTS) operations. The ammunition and components received are either containerized, breakbulk, or a combination of both. The ammunition arrives at the TSA on theater transportation assets, primarily railcars and trucks. Under MOADS, ammunition sent from the TSA to the CSA and ASP is generally shipped as single-Department of Defense identification code (DODIC) loads. Since a high percentage of the TSA's

receipts are containerized, the containers must be effectively managed by both ammunition and transportation personnel to ensure accountability and to retrograde them efficiently for reuse.

CORPS STORAGE AREA

The CSA is the primary source of Class V ammunition for the division. Operated by one or more GS ammunition companies, the CSA also provides DS, by area, to units operating in the corps, The CSA can be a fixed, a semifixed, or a field storage facility. It should be located near improved roads and rails in order to allow access by theater and corps assets. The stockage objective of the CSA should be from 10 to 15 days of supply at the time of deployment. Following the initial combat drawdown, the CSA should maintain from 7 to 10 days of supply. The number, size, and actual stockage objective of CSAs are METT-T dependent.

In established theaters, initial stockage of the CSA is 100-percent breakbulk from prepositioned war reserve stocks (PWRS). Once the supply system is established, the CSA receives about 50 percent of its ammunition from the POD. The remainder is from the TSA. Generally, ammunition resupply from the POD is both breakbulk and containerized, while shipments from the TSA are single-DODIC loads. Ammunition is normally shipped from the CSA to an ASP in single-DODIC and multi-DODIC loads and as CCLs. The ammunition shipped from the CSA to the ATPs is configured into CCLs.

Like the TSA, the CSA can also expand to about 40 square kilometers. The storage environment depends on the tactical situation. A medium truck company that works in DS of the GS ammunition company that operates the CSA should be collocated in or near the CSA.

AMMUNITION SUPPLY POINT

Located in the division rear and operated by the DS ammunition company, the ASP provides Class V support to corps, divisional, and nondivisional units. An ASP is a field site. It should be located near an improved road network in order to ensure access by theater/corps transportation assets. It maintains a one- to three-day supply of ammunition in order to meet routine, surge, and emergency requirements of supported units. The actual stockage level and size of an ASP are METT-T dependent.

The ASP can expand to 5 or 6 square kilometers or even larger depending on the factors of METT-T. Ammunition storage in an ASP is more temporary than at the CSA and the TSA. Unlike the CSA and TSA, ASP stocks are most often stored on the ground on unimproved surfaces. An ASP should be laid out so that vehicles can enter and leave any one area without crossing any of the other areas. The ASP should also have a good road network to support heavy traffic.

Under MOADS, 50 percent of the ammunition arriving at the ASP is shipped from the CSA as single-DODIC loads. About 30 percent is shipped from the TSA, usually as single-DODIC loads. The remaining 20 percent is shipped from the POD. Once in the ASP, the ammunition is issued in single-DODIC loads or as CCLs.

AMMUNITION TRANSFER POINT

ATPs are the most mobile and responsive of all Class V supply facilities. In fact, ammunition may be transferred to using-unit vehicles immediately upon their arrival, depending upon the intensity of combat and the criticality of need, Normally, if the ammunition is loaded on PLS sideless containers (SCs), the SCs are placed on the ground. If PLS is not used, loaded semitrailers minus their tractors are parked in the ATP area. The ATP Class V assets remain in this temporary location until they are transferred to the organic vehicles of the using units. A one-day supply of ammunition is maintained in this manner.

Ammunition is transferred from corps semitrailers, flat-bed trucks, or PLS vehicles and/or trailers to the user's tactical vehicles using either resupply vehicles with MHE (such as, heavy-expanded mobility tactical trucks [HEMTTs]) or organic ATP MHE. When emptied, the trailers are backhauled by departing empty tractors or PLS vehicles. Trailers or PLS SCs are often used to retrograde unserviceable and/or captured enemy ammunition (CEA) back to the corps. Enemy prisoners of war (EPW) may also be transported by these vehicles. Refer to FM 55-10 for additional information,

ATPs receive about 75 percent of their ammunition requirements from the CSA. The remainder comes from an ASP. The CCLs issued from the CSA and ASPS together make up 90 to 95 percent of the ATP's assets. The remaining 10 percent is received as single-DODIC items from the ASP.

ATPs are located in the BSA and the DSA. The goal of an ATP is to provide as close as possible to 100 percent of the ammunition requirements of all units

within its sector. Within each maneuver brigade, the FSB operates an ATP. This ATP provides ammunition support to units in the brigade sector. It receives mission guidance from the DAO, who responds to priorities established by the division commander and brigade commanders.

The DS ammunition company provides personnel and equipment to operate an additional ATP in the DSA. This ATP supports all corps, divisional, and nondivisional units in the DSA. It receives mission guidance from and responds to priorities established by the DAO. This ATP increases the flexibility of the division commander by cutting travel time for those units supporting the division's mission. Units do not have to go to the ASP for Class V support. To support corps slices and division artillery, this additional ATP provides an additional transload capacity of about 970 STONs for high-volume, high-tonnage artillery and Multiple-Launch Rocket System (MLRS) ammunition.

Based on the division commander's concept of operation, the DAO specifies the units to be supported by each ATP. The DAO also recommends locations for the ATPs (based on METT-T) to the command organization responsible for positioning them. ATPs should be located near a main supply route (MSR) or an adequate road network in order to ensure access by corps vehicles. These vehicles have limited cross-country capability. ATPs should be established on firm ground that is well drained and that provides easy access for using-unit vehicles and for recovery of pallets and trailers. MHE must have enough space to maneuver. As with any other tactical site, good cover and concealment are important.

A DAO representative is assigned to each ATP to coordinate with the DAO. The DAO representative reports all daily transactions to the DAO via ammunition management computers or communications equipment. ATP personnel also maintain close communications with their respective commands.

Security at the ATP is critical. Normally, the ATP is located within a base cluster. However, due to safety reasons, the ATP is separated from the other units within the cluster. Therefore, the base-cluster commander must decide what additional security requirements are needed for the ATP as per local SOPS. ATPs must be prepared to move often. When an ATP is relocated, the move must be closely coordinated with the DAO and, in the case of the DS ATP, with the D S ammunition company commander. When cut off from its company's support, an ATP should be able to attach to the nearest base cluster.

STORAGE AREAS

A TSA, CSA, or ASP can be a field, a fixed-site, or a semifixed storage area. The type of storage area is decided on a case-by-case basis.

FIELD STORAGE AREA

A field storage area provides Class V support to combat and CSS units based on their combat requirements. Class V assets in a field storage area are usually stored on the ground, on an unimproved surface, or in built-up areas using existing buildings.

The number of sections and subdivisions within a field storage area depends on the following things:

- Quantity-distance requirements.
- Size of the area.
- Arrival time and size of incoming shipments.
- Site characteristics.
- Estimated length of time to relocate (to ensure adequate operational control and dispersion of stocks are maintained).

For more information, refer to FM 9-13, AR 385-64, and TM 9-1300-206. FM 9-13 provides a more detailed discussion of sections and subdivisions. Several storage areas may be planned, but only one area is prepared immediately. The initial storage plan may be expanded after the site becomes operational.

There are five storage systems that may be used for field storage of ammunition and explosives: area storage, roadside storage, combination area and roadside storage, modular storage, and urban/village built-up storage.

Area Storage System

In area storage, the storage area may be divided into sections. The stacks of ammunition are arranged in a checkerboard pattern and spaced according to the quantity-distance requirements in TM 9-1300-206.

Roadside Storage System

In roadside storage, explosives and ammunition are stored along the edges of existing roads. Based on METT-T, the stacks are spaced according to the quantity-distance requirements in TM 9-1300-206 and/or AR 385-64. Roadside storage in-depth offers maximum storage per mile of road front. However, the ammunition must be accessible to conveyors, forklifts, and cranes.

Combination Area and Roadside Storage System

In this system, both area and roadside storage are used. This combination is often used to make the most effective use of the storage area.

Modular Storage System

In modular storage, ammunition is stored on pads within earth-barricaded areas called cells. These cells are joined to form modules; and, in turn, these modules may be arranged to form module blocks. Requirements for this type of storage are in TM 9-1300-206.

Urban/Village Built-Up Storage System

The possibility of setting up ammunition supply operations in a village or other built-up area is very real and requires consideration when planning wartime operations. In the urban/village built-up storage system, the real estate could be in an existing small city, a village, or a structure in the outlying countryside. The physical configuration layout is based on the safety requirements for Class V storage found in AR 385-64 and TM 9-1300-206.

FIXED-SITE STORAGE AREA

A fixed-site storage area provides Class V support to combat, CS, and CSS units based on their requirements. Fixed-site areas are established in CONUS and outside CONUS (OCONUS) based on identified support requirements and contingency plans. They are permanent magazine storage structures used during the transition to war and during the war.

SEMIFIXED STORAGE AREA

A semifixed storage area is a storage area that has been opened and has structures (buildings and bunkers). It can be used for Class V storage and may become a fixed site. It can be closed out when the Class V organization moves.

SITE SELECTION

GENERAL CONSIDERATIONS

When selecting a WCTO field storage site (ASP, CSA, TSA, or a temporary holding site [ATP]), the ammunition unit commander and division support unit commanders should first consider safety and efficiency. Site selection and layout of an ATP are covered in ST 9-38-1.

When selecting a storage site, a primary site and an alternate site should be selected in case the unit's position becomes untenable due to enemy action or the effect of weather on the terrain. A map reconnaissance and, if possible, a ground reconnaissance of the proposed sites should be made to ensure that the sites are suitable for performing safe operations and providing service to using units. Sites should also be easily defended, yet suitable for tactical operations. A map reconnaissance provides information on the terrain and natural cover and concealment. A ground reconnaissance reveals terrain features that have changed since the map was printed. Based on reconnaissance information, the proposed sites are then drawn on the map, showing possible storage locations and operating areas. Then, if time permits, the unit commander and key personnel should make another ground reconnaissance to verify storage locations and the site plan and to ensure that operational needs are met.

TACTICAL CONSIDERATIONS

Tactical conditions and METT-T factors must be considered to reduce conflict between the tactical and safety requirements of an ideal site. These requirements are often not compatible, and defense risks must be weighed against the operational mission. Storage of ammunition in urban areas is a real possibility and should be considered in war/contingency operations plans and training. The urban/village built-up storage system was discussed earlier in this chapter. The procedures outlined in this section apply to all storage and supply areas. The tactical situation may require that the procedures be modified or supplemented. Ammunition unit commanders and division support unit commanders should consider transportation, nearby facilities, defense, road network, railheads, terrain, and fire safety when deciding on a storage site. Other tactical considerations are found in FM 71-100, FM 100-15, and the EAC portion of FM 90-23.

Transportation

Storage sites should be located near the MSR and supported units to allow easy access to customer units and resupply vehicles. The distance to supported units must be reduced in keeping with security constraints.

Facilities

Storage sites should have ready access to, but be located as far as possible from, hospitals, important military installations, airfields, docks, fuel storage and/or distribution activities, factories, and similar facilities, especially those sites subject to enemy attacks. Downwind distances to populated areas must also be considered, since chemical agents may be a part of the on-hand assets.

Defense

A storage site should be easy to defend against ground attack using the fewest personnel and materials possible. The site should be large enough to allow for dispersion of stocks to protect against heavy loss by fire or explosion,

Road Network

There must be as good a road network as possible into and within the site. Roads must be easily passable for large vehicles under all weather conditions. They should require as little maintenance as possible. A one-way traffic pattern is preferred to minimize confusion and congestion.

Railhead

A railhead nearby is desirable for those Class V storage sites that may later be developed into larger sites.

Terrain

Storage sites should be established on firm, level ground with good drainage and provide easy access for using unit vehicles and for recovery of SC pallets and trailers. Level ground with natural barriers at proper intervals to segregate field storage units (FSSs) and categories of ammunition is desirable. As with any other tactical site, good cover and concealment are important.

Fire Safety

Attention must be given to fire hazards when establishing a storage site. The field fire control SOP should be followed to reduce fire hazards.

STORAGE AREA PLAN

A detailed storage plan for a new storage area must be developed at the earliest practical time. It should be based on the following factors:

- The time available before the first and subsequent shipments will arrive.
- The estimated tonnage for each type of Class V materiel to be received, stored, issued, and shipped.
- The estimated time the storage area will be in operation.
- The type of storage area—ASP, CSA, or TSA (field or fixed).
- The amount of time and resources available to lay out or reconfigure and prepare the storage area.
- The storage system to be used—area storage, roadside storage, combination area and roadside storage, modular storage, or urban/village built-up storage.
- The use of planographs to show the exact location of ammunition in a field storage or fixed-site storage area. In order to meet the requirements of their particular situation, units may create local planograph layout forms according to TM 743-200-1.
- The use of signs to mark field storage or fixed-site storage areas. Enough signs should be put up along the MSRs to the storage area to guide supported units to the site. Signs should be used liberally inside the storage area to indicate routes, entrances, exits, and storage locations. They should be large enough to be read easily. Directional arrows should be used as needed. The signs should be written in the language of the host nation as well as in English. All signs are removed when the area is closed.
- The assistance needed from other units,
- The physical characteristics of the selected site (such as road network, terrain, size of the area, and cover).
- The emergency destruction plan.
- Engineer support requirements.
- Security requirements, ***to*** include defense against enemy action and theft.
- Section and FSU pad or module designations to ensure rapid location of Class V assets.
- Other tactical considerations according to FM 71-100, FM 100-15, FM 100-5, and the EAC portion of FM 90-14.

AREA LAYOUT PLAN

GENERAL CONSIDERATIONS

In operating an ASP and an ATP, the DS ammunition company has more well-defined layouts than the GS company does in operating the TSA and CSA. However, there are fundamental rules that apply to the layout of all types of ammunition supply and storage facilities. For example, general safety procedures for all operations are the same and should be considered first in any site layout. Basic operating procedures are also the same. In any field storage environment, an ASP should be divided into three sections so that issue, transfer, and receipt operations can all be performed at the same time.

Both the CSA and the TSA can operate in a deserted ASP that has been or can be expanded to meet the characteristics of a CSA or a TSA. They may also have to operate in a completely undeveloped area. Although an undeveloped area is the least favorable location, the tactical situation may dictate its use. The key differences between TSA and CSA field sites and ASP and ATP field sites are that the TSA and CSA should have larger, more stable storage areas and better road networks.

TACTICAL CONSIDERATIONS

One of the most important steps in developing a site for an ammunition supply area is preparing the area layout plan. Area layout requirements for each unit vary according to the tactical situation, the terrain, the nearness to forward areas, and the type and amount of materiel handled. A good layout is one that makes the work flow easier or more efficiently; minimizes the movement of ammunition, tools, and equipment; permits easy entry and exit for heavy traffic; provides effective control of unit operations; and permits defense of the area. Proper positioning of weapons, construction of defensive works and obstacles, organization of unit defense, and security are other prime considerations.

A map overlay should be prepared to include the defense plan and the operational layout for the new area. If appropriate, a route overlay or schematic diagram is also prepared. The overlays are used by the advance, main, and rear parties. A copy is submitted to higher headquarters.

When WHNS is available, area layout is a combination of' mutual coordination between US services and allied HNS activities. If the unit is being supported by WHNS, the planning guidance in the sections that follow applies to the US ammunition battalion (TOE 09574LA00) and the WHNS allied battalion that is augmenting the GS mission in the corps or at EAC. Refer to Chapters 1 and 6 for additional guidance on WHNS.

PLANNING CONSIDERATIONS

For safety, all storage areas should be arranged into three separate sections when possible. Each section should make the arrangement of stocks for receipt, issue, and inventory/rewarehousing as easy as possible. Each section consists of a number of storage locations (or modules), depending upon the type of storage system used. During WCTO, the storage locations within each section are separated according to the quantity-distance requirements in AR 385-64. Each storage section should contain a similar amount of each type of ammunition to be stocked. A field-developed storage plan that is based on the initial stockage objective should be prepared before stocks are received in order to ensure a smooth flow of receipts to the proper storage locations. To maintain efficient operations and to prevent using units from waiting unnecessarily, the following guidelines should be followed:

- Make sure signs are posted showing traffic direction, entrances, and exits.
- Draw maps of the storage areas, Use copies of them to direct using units to the proper storage area.
- Group ammunition by storage categories. Refer to AR 385-64 for further information on storage categories.

The ammunition company commander may assign the operation of each section of the storage area to various elements of the company (for example, to the supply platoon or a section of the supply platoon). This enables the platoon or sections of the platoon to remain intact so far as operations are concerned. It also fixes responsibility and increases operational control of each section. In the interest of uniformity, sections should be designated by number. Storage locations should be designated by number and letter.

Each storage location contains several ammunition stacks. Each stack contains a single type of ammunition. Ammunition stored in a single stack should follow the field storage category requirements in FM 9-13 and TM 9-1300-206. However, based on METT-T, ammunition unit commanders may be

faced with tactical situations that require the storage of ammunition under less strict conditions. For more information, refer to AR 385-64. CCLs are an example of how wartime supply facilities may store ammunition in order to provide more responsive support to the combat forces. CCLs are matching quantities of ammunition that are delivered to the user in complete rounds on one carrier. For example, a CCL might have fifty 155-millimeter projectiles, 50 propelling charges, 50 primers, and 50 fuzes.

LAYOUT CONSIDERATIONS

A typical area layout plan for an ammunition supply area is shown in Figure 2-1, page 2-8. Separation distance is discussed in AR 385-64. Each area should have the following areas, based on METT-T:

- Bivouac Area. The bivouac area is the living area for company personnel. It should be upwind from the ASP and outside the fragmentation and blast areas.
- Storage Area. The storage area is where the stocks of ammunition are actually stored.
- Storage Area Command Post (CP). This CP is located at the main entrance to the storage area in order to provide a control point for supported units. It should be conveniently located to the vehicle holding area so that arriving convoys can pull off the road while awaiting instructions. In larger storage facilities, such as the TSA and the CSA, section CPs are also used in order to service supported units efficiently.
- Vehicle Holding Area. The vehicle holding area is established to reduce congestion. It is located near the storage area office where vehicles will not interfere with the flow of traffic. Ammunition vehicles are held in the area until they can be loaded or unloaded. Incoming vehicles should be inspected in this area. Parking areas should allow for the required minimum safe distance between loaded vehicles and the storage area office as required by TM 9-1300-206.
- Vehicle Assembly Area. The vehicle assembly area is conveniently located to the exit of the storage area. Here, loaded vehicles are formed into convoys prior to leaving the area.
- Demolition Area. The demolition area is used for the destruction of unserviceable ammunition. This area should be cleared of vegetation and should not be used for anything else.
- Captured Enemy Ammunition Storage Area. The CEA storage area is used to store CEA separately from other munitions. It should be well isolated by firebreaks. Accountability of CEA is discussed in Chapter 6.
- Segregation Area. The segregation area is used to isolate ammunition that could be hazardous. This ammunition includes items damaged in transit, unidentified items, unit turn-ins, small arms brass that has not been inspected, and mixed lots of ammunition on the same pallet.
- Inert Salvage Area. The inert salvage area is used to store nonexplosive ammunition salvage material (boxes and brass). It should be conveniently located near the vehicle holding area so that returned salvage material can be unloaded from the users' vehicles before they enter the storage area to draw ammunition.
- Surveillance and Maintenance Area, The surveillance and maintenance area is used for the inspection and classification of ammunition and for maintenance operations.
- Ammunition Sling-Out Area. The ammunition sling-out area is located near the storage areas in order to provide for limited aerial resupply by rotary-wing aircraft. There are many factors a commander should consider when determining the location, construction, and use of this area. It should be at least 550 meters from either Class V storage areas or inhabited areas so that the aircraft will not pass too low over these areas while ascending and descending. The area should be at least 25 meters square and made of the best material available to support the weight of the stocks and the MHE. More information on sling-out operations is at the end of Chapter 5.
- CCL Area. The CCL area is used as a temporary holding area for CCLs awaiting shipment.
- Vehicle Maintenance Area. Located within the bivouac area, the vehicle maintenance area is used by ASP personnel to perform maintenance on their vehicles and MHE. A separate part of this area may also be designated for refueling operations.

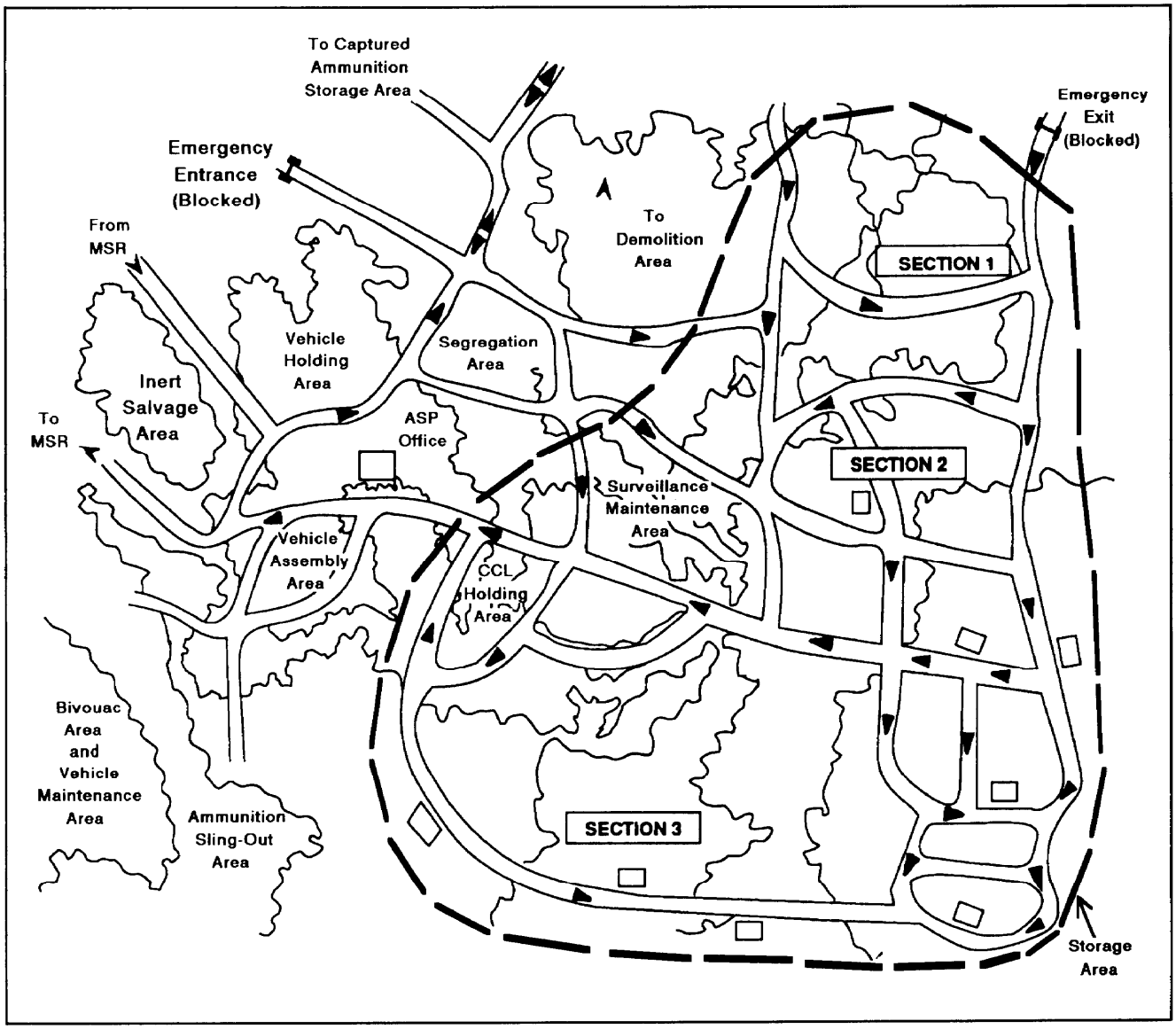

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Figure 2-1. Typical area layout plan for an ammunition supply point.