

Installation Design Guide

March 2007



Fort Stewart, Georgia

Installation Design Guide

March 2007



FORT STEWART, GEORGIA

Prepared for:
Savannah District, US Army Corps of Engineers



Prepared by:
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Contract Number W912HN-06-D-0004



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USERS GUIDE

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The Table of Contents is hyperlinked to the sections, subsections and appendices. At the end of each section and appendix there is a box like the one at the bottom of this page. The box contains two hyperlinks; one to return to the Table of Contents and the other to go on to the next section or appendix.

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SECTION 1 INTRODUCTION

1.1 PURPOSE

1.1.1 This Installation Design Guide (IDG or “Guide”) provides guidance on standardizing the visual effects for the exterior of new and renovated facilities as well as the surrounding land. The guide provides measures on improving the total environmental and visual quality of the installation (Fig. 1.1). It also includes provisions for maintenance and repair requirements on the installation.

Improvements to the quality of development and the use of sustainable design and development practices have a direct impact on the efficiency and effectiveness of the installation. These measures affect mission performance and the quality of life for those who live and work on or visit Fort Stewart.

1.1.2 The Fort Stewart staff is committed to fully integrating relevant management and environmental considerations into installation design practice so that operations and services are efficiently and effectively performed, and so that sustainable environmental policies are upheld.

1.1.3 This IDG includes standards and general guidelines for site planning; architectural character, colors and materials; vehicular and pedestrian circulation; and landscape elements, including plant material, outdoor seating, signage, lighting and utilities. The design guidelines incorporate sustainable design, quality of design, antiterrorism, low maintenance, life cycle costing, historical and cultural considerations, durability, safety and compatibility.

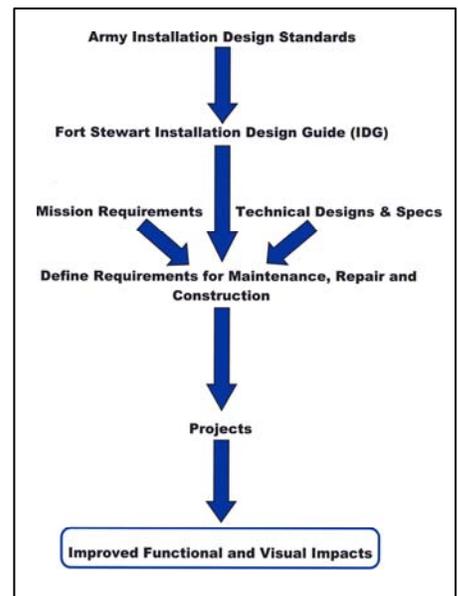


Fig. 1.1 - The Fort Stewart IDG is a tool to implement Army standards.

1.1.4 The goal of this IDG is to provide guidance and to establish requirements for all installation personnel involved in design, construction, maintenance or renovation and to develop, implement and sustain Fort Stewart infrastructure in order to meet current and future mission needs.

1.2 OBJECTIVES

The objectives of the Fort Stewart IDG are:

- To provide guidance and establish minimum requirements for design criteria used at Fort Stewart. The criteria apply to new construction, renovation, maintenance and repair projects. The design criteria include design principles for architecture, landscape architecture and site planning. Environmental requirements, energy conservation, sustainable design, traffic safety, and life-cycle maintenance cost approaches are defined as well.
- To provide design standards that define color, materials, style, proportion, signage and other aspects of design for all visual elements. These guidelines ensure design unity and harmony and reinforce unique visual character and site conditions.
- To provide instructions for implementation of the design guidelines and selection of materials for new construction, renovation, maintenance and repair projects, as appropriate.
- To provide direction for accomplishing sustainable development. Sustainable development includes conservation of materials and energy; cost effective life cycle maintenance; recycling, waste reduction and reuse of materials; and other actions and innovations that result in preservation of manpower, materials and environmental resources. [See Appendix D.](#)
- To provide guidance to integrate antiterrorism standards.

1.3 STAKEHOLDERS

1.3.1 This IDG is to be used by all individuals involved in the decision making process for design, construction, and maintenance of facilities.



Fig. 1.2 - A diagram of the Guide's primary stakeholders.

1.3.2 The primary stakeholders and users include the following:

- Installation Commander and staff
- Garrison Commander and staff
- U.S. Army Corps of Engineers, Savannah District
- Customers and other users of installation infrastructure
- Consulting planners, architects, engineers, and landscape architects (working on installation projects)
- Maintenance personnel
- Contractors employed by the Operations and Maintenance Division

1.3.3 The ultimate success of the IDG depends on the commitment of all stakeholders to fully implement the guide and on the proper education of installation staff about the existence and purpose of the guide.

1.4 ORGANIZATION

This IDG is organized to facilitate the preparation and execution of projects to improve the visual image of the installation and to ensure that design conforms to Army standards, including sustainability requirements.

- [Section 2 “The Installation Design Guide Process and Implementation”](#) describes how the IDG plays a part when initiating any maintenance, repair, renovation or new construction project and how to use the IDG as a resource.
- [Section 3 “Design Guide Analysis Criteria”](#) discusses specific goals and objectives promoted by the Fort Stewart IDG, the visual elements that are addressed by the IDG and the design principles employed in analyzing the current and desired state of the installation.
- [Section 4 “Installation Profile”](#) details the regional setting, natural environment and existing land use on Fort Stewart.
- [Section 5, “Visual Themes and Zones”](#) analyzes the design theme of Fort Stewart by breaking it down into a set of visual zones. Assets, liabilities and recommendations are described for each zone.
- [Section 6 “Improvement Projects”](#) provides a consolidated list of recommendations to correct the visual and functional liabilities identified for each visual zone.
- [Section 7 “Site Planning Design Standards”](#) discusses what factors and requirements must be considered in selecting and planning a building site.
- [Section 8 “Buildings Design Standards”](#) discusses what factors and requirements must be considered in building design.
- [Section 9 “Circulation Design Standards”](#) discusses what factors and requirements must be considered in the design of roads, parking lots and the pedestrian circulation system.
- [Section 10 “Landscape Design Standards”](#) discusses what factors and requirements must be considered in landscape design.
- [Section 11 “Site Elements Design Standards”](#) discusses what factors and requirements must be considered in the selection and location of site elements.
- [Section 12 “Antiterrorism Design Standards”](#) discusses what factors and requirements must be considered for all infrastructure that may affect antiterrorism efforts.

1.5 WHEN TO USE THE FORT STEWART GUIDE

The Guide must be used for any project that will modify Fort Stewart buildings, landscape or infrastructure unless the project proponent has acquired a waiver from the Directorate of Public Works (DPW). This requirement applies to all building and landscape construction, renovation, rehabilitation and maintenance projects. All projects, regardless of the funding source, are subject to this requirement, including self-help projects.

This IDG provides design guidance and establishes requirements for all aspects of Fort Stewart infrastructure. The document also contains general design concepts and Army installation standards. Use this IDG in determining the design and construction considerations inherent in the preparation of project plans. The IDG provides design guidelines and Army installation standards intended to be used in all maintenance, renovation and new construction projects. In particular, this document should be used as a reference for requirements in the design of facilities including buildings, new roads, road widening, parking, sidewalks, bicycle paths, access control points (ACP), site furnishing selection and placement, signage selection and placement, lighting selection and placement, utility corridor selection, utility structures, landscaping and the preservation of vegetation.

1.6 MAINTAINING THE FORT STEWART GUIDE

1.6.1 Since the Guide is a "living document", it will be kept up-to-date and accurate to ensure its continued usefulness. It will be revised as mission, budget, guidance, and other conditions generate new planning and design requirements, and in response to facility user feedback.

1.6.2 In accordance with AR 210-20, *Real Property Master Planning for Army Installations*, the Real Property Planning Board (RPPB) is the adjudicating body for the Fort Stewart IDG at the installation level. Violations and variances from standards will be reviewed and adjudicated by the RPPB. The Installation Commander chairs the RPPB.

1.7 RESPONSIBILITIES

As directed by the Secretary of the Army and the Chief of Staff, Army and approved by the Army Installation Management Board of Directors, the following responsibilities are established:

1.7.1 Assistant Chief of Staff for Installation Management (ACSIM):

- Establish Army facility standards and approve deviations from the standards.
- Approve Army Installation Design Standards Implementation Plan.
- Approve Army Installation Design Standards Investment Strategy.

1.7.2 Installation Management Command (IMCOM):

- Develop and implement the Army Installation Design Standards Implementation Plan.
- Develop and implement the Army Installation Design Standards Investment Strategy.
- Ensure compliance with the Army Installation Design Standards.
- Maintain electronic newsletter for communicating changes in standards.

1.7.3 Commander, Installation Commander and Staff:

- Chair RPPB to review and approve projects established by the Executive Steering Committee (ESC) and the Military Construction Army (MCA) program.

1.7.4 Garrison Commander and Staff:

- Maintain and provide IDG compliance for Fort Stewart.
- Submit MCA project requests to the IMCOM Southeast Region Office for approval and funding. After review and approval by the Garrison Commander, submit projects according to instructions provided by IMCOM.
- Approve outcomes of Planning and Design Charrettes. See ACSIM memorandum, [DAIM-ZA, "Planning Charrettes for Military Construction, Army \(MCA\) Projects" dated 30 April 03](#). See also [ACSIM Memorandum, DAIM-FD, "Conducting a Planning Charrette for Military Construction, Army \(MCA\) Projects" dated 2 Apr 03](#).
- The DPW supports the Garrison Commander and Staff by performing the following tasks;
 - Developing the IDG.
 - Defining and communicating the responsibilities of other organizations in implementing the IDG.

- Ensuring that the processes needed for IDG implementation are established, implemented and maintained.
- Conducting Planning and Design Charrettes in accordance with the DIAM memoranda identified above.

1.7.5 U.S. Army Corps of Engineers, Savannah District:

- Provide planning, design and construction support to Fort Stewart.

1.7.6 Consulting Planners, Architects, Engineers and Landscape Architects:

- Use the IDG for planning and design to make Army standard designs conform to the Fort Stewart master plan for exterior appearance called “Southern Living Station of Choice.”

1.8 SUSTAINABLE DESIGN AND DEVELOPMENT

1.8.1 Practicing the principles of sustainable design in the planning, design, construction and operation of infrastructure and facilities is a smart business practice. Protecting our natural resources and reducing our impact on the natural environment is achievable when we create high-performance (Fig. 1.3), energy efficient (Fig. 1.4), healthy (Fig. 1.5) and safe buildings.

1.8.2 The Integrated Design Process. Critical to the success of sustainable design and development is the organization and commitment of design teams to engage in the Integrated Design Process. To effect change in building design and operation, the project delivery process itself is a collaborative effort to integrate design strategies among all disciplines and all players in the project delivery process. Integrated design demands a more inclusive team during planning and design to ensure that all relevant experience and knowledge are applied to the project. Future building users and facility managers must be invited to join architects, engineers, and planners in developing the vision and goals for new facilities.

1.8.3 [Appendix D, Sustainable Design](#), discusses the sustainable design concept and its application to Army projects. Paragraph D.3 discusses the “Leadership in Energy and Environmental Design” (LEED) Green Building Rating System developed by the U.S. Green Building Council. To comply with the [Assistant Chief of Staff for Installation Management \(ACSIM\) endorsement of Sustainable Design and Development](#) initiatives, the LEED Rating System will be used for all projects funded FY08 and later.



Fig. 1.3 - Efficient water usage contributes to a high performance facility.



Fig. 1.4 - Energy efficient lighting contributes to sustainability.



Fig. 1.5 - CO2 monitoring measures indoor air quality to assist in creating a healthy environment.

Because the planning and design process for projects anticipated for funding in FY08 is initiated many months in advance of funding, Fort Stewart has adopted use of the LEED Rating System.

As stated on the Green Building Council website, the LEED Green Building Rating System (a trademarked system) is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

1.8.4 Further information on sustainable design can be obtained at the following websites:

- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#) This site provides information on the following topics: documentation and references; sustainable process, tools, products and materials; Sustainable Design and Development Training; and links to various sustainable design and development informational website.
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#).
- The [Whole Building Design Guide](#) (WBDG) website provides comprehensive and current information on sustainable design strategies and technologies.
- The U.S. Green Building Council (www.usgbc.org) developed the LEED Rating System and provides current information on sustainability for design and construction.

1.9 ARMY STANDARDS

Army Standards and References are included in the last two paragraphs in each of the following sections and appendices:

- [Section 7 “Site Planning Design Standards”](#)
- [Section 8 “Buildings Design Standards”](#)
- [Section 9 “Circulation Design Standards”](#)
- [Section 10 “Landscape Design Standards”](#)
- [Section 11 “Site Element Design Standards”](#)
- [Section 12 “Antiterrorism Design Standards”](#)
- [Appendix D “Sustainable Design”](#)
- [Appendix M “Historic Preservation Guidelines”](#)

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SECTION 2 THE INSTALLATION DESIGN GUIDE PROCESS AND IMPLEMENTATION

2.1 INTRODUCTION

Military installations are hometowns for many of our military families, resources for many veterans and retirees and an integral part of the surrounding communities. The Fort Stewart IDG provides direction for achieving a sense of community, order, tradition and pride on and off the installation. This section provides a brief overview of the IDG developmental process and methodology detailed in [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design](#).

2.2 THE DESIGN GUIDE PROCESS

2.2.1 The IDG includes a process for analysis, planning, design and implementation. This process includes the following steps:

- **Setting Goals and Objectives.** The installation develops a set of goals and objectives that address the visual requirements of the installation. The goals and objectives provide a pre-determined image that helps create a visually pleasing and optimally functional environment (Fig. 2.1). See [Section 3 “Design Guide Analysis Criteria”](#) for Fort Stewart goals and objectives.
- **Conduct Visual and Spatial Surveys.** Two visual surveys were performed in the preparation of the IDG. The first survey established the visual zones and themes of Fort Stewart. The second survey documented the assets and liabilities within each visual zone. [Chapter 5 of UFC 2-600-01](#) details the method for conducting the installation visual survey.

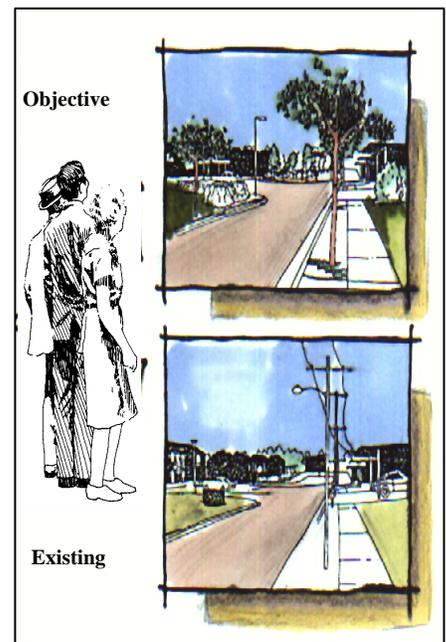


Fig. 2.1 – A goal is to include positive visual elements to enhance the appearance of the installation.

- **Visual Zones.** The information gathered during the first survey was used to establish the visual zones at Fort Stewart. The visual zones are delineated by the visual characteristics of an area defined as the "look and feel" of an area together with the dominant features that help define its image. An analysis of each zone identifies the features that organize the visual character and functional relationships between major elements. Visual features include the main entrance, primary and secondary roads, focal points and landmarks, significant architecture and good views.
- **Themes.** Visual zones with similar characteristics are then grouped together to form broader categories called themes.
- **Determine Assets and Liabilities.** During the second survey, a visual zone inventory is conducted. Each visual zone is analyzed for specific visual impacts. The objective of the inventory is to define the visual assets and liabilities within the visual zone. The assets and liabilities are listed in [Section 5 “Visual Themes and Zones”](#).
 - **Assets.** Assets are positive visual elements, design elements or features that enhance the surroundings, either visually or functionally.
 - **Liabilities.** Liabilities are negative visual elements, design elements or features that detract from the visual image or functionality of the surroundings. Liabilities should be corrected through appropriate design measures and are the basis for the recommendations listed for each visual zone.
- **Recommendations and Implementation Plan.** The assessment of each visual zone includes recommendations to correct liabilities and, where desired, to enhance assets.

2.2.2 The following six design components, described in sections 7 through 12, provide guidelines and standards from which to conduct the visual zone review and analysis:

- [Section 7, Site Planning Design Standards](#)
- [Section 8, Buildings Design Standards](#)
- [Section 9, Circulation Design Standards](#)
- [Section 10, Landscape Design Standards](#)
- [Section 11, Site Elements Design Standards](#)
- [Section 12, Antiterrorism Design Standards](#)

2.2.3 The visual inventory and analysis requires an understanding of basic design principles. These design principles are discussed in [Section 3.4](#).

2.2.4 The basic design principles are used to define the visual elements described in [Section 35](#). The assessment and classification of visual elements follows basic design principles describing "most preferred" (positive visual elements) and "least preferred" (negative visual elements) design.

2.3 USING THE IDG

2.3.1 Use this IDG in determining the general design and construction considerations inherent in the preparation of project plans at Fort Stewart. The IDG provides Fort Stewart design guidelines and references to Army-wide design standards, both of which are to be used in all maintenance, repair, renovation and new construction projects. The IDG applies to all projects, regardless of the funding source.

2.3.2 The following steps illustrate how the design guide is used for the preparation of plans for new construction, renovation, maintenance and repair projects on the installation (Fig. 2.2):

- **Step 1:** Review the Installation Profile in [Section 4](#).
- **Step 2:** Review the IDG analysis criteria information in [Section 3](#) including design goals and objectives, visual elements and design principles.
- **Step 3:** Review the applicable references, guidelines and standards of the design components. These include site planning, buildings, circulation, landscaping, site elements and antiterrorism. These components are discussed in Sections 7 through 12 respectively.
- **Step 4:** Review the information and description of the installation themes in [Section 5](#), paragraph 5.2.
- **Step 5:** Select the zone where the project will be located from [Section 5, Visual Themes and Zones](#). Review the assets, liabilities and recommendations for that zone.
- **Step 6:** Select the appropriate guidelines or standards from the design components addressed in Sections 7 through 12.
- **Step 7:** Assemble all materials gathered in steps 1 through 6 above.

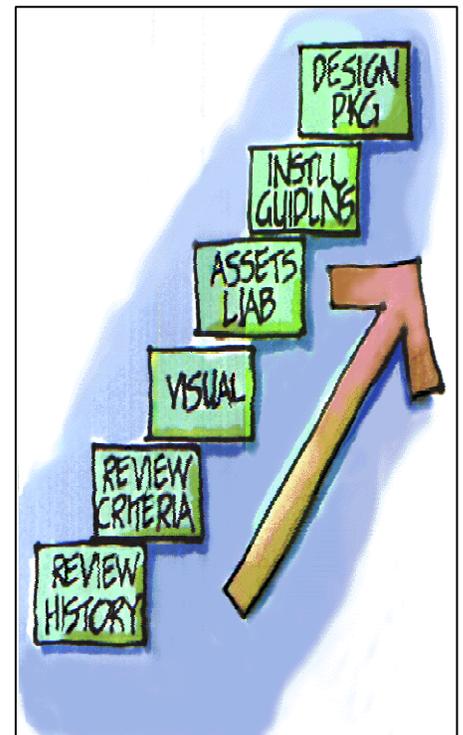


Fig. 2.2 – Steps in using the IDG.

2.4 IMPLEMENTATION

2.4.1 IDG Review and Approval.

The Fort Stewart IDG is reviewed periodically by the DPW Master Planning Division (Master Planning). Suggestions for changes to the IDG that have been received from units, tenants, other directorates, the Corps of Engineers and other parties are evaluated and considered. If additional information is needed to support a suggestion, the party making the suggestion is contacted.

Prospective changes are drafted and reviewed by the Directorate of Public Works. When the prospective changes are in final form they are presented to the Garrison Commander for consideration and adoption. Adopted changes are incorporated into the IDG by DPW Master Planning and all parties are notified by memorandum.

2.4.2 Compliance.

- For the IDG to work optimally it is essential that DPW Master Planning establish an understanding of the IDG among the parties concerned with its use. This can best be established at the RPPB level where all installation principles are represented. Master Planning will insure that the guidelines and requirements of the IDG are readily available to, and understood by, all parties involved in the design of new facilities, design of additions or alterations to existing facilities, or maintenance.
- The Master Planner or designee, acting in support of the RPPB, is the first level reviewer of projects (Sustainability, Restoration and Modernization; Military Construction, Army; and Non-Appropriated Fund to include Design Build) and other requests for actions that involve compliance with IDG guidelines and standards.
- The Garrison Commander, supported and advised by the RPPB, is the final authority in enforcement of the IDG guidelines and standards.
- The RPPB, chaired by the Installation Commander, will monitor development of the installation planning process and provide guidance to other installation boards and the Garrison Commander for areas such as:
 - Strategic Planning,
 - Real Property Planning,
 - Range Planning and
 - Communications Planning.

2.4.3 Project Approval

Military Construction, Army (MCA) Project Approvals. Once an MCA project is funded, the U.S. Army Corps of Engineers (USACE) will provide initial design and project management support to Fort Stewart. This initial support normally includes a planning charrette followed by a design charrette.

- The purpose of the planning charrette is to produce a draft DD form 1391 ready for the Garrison Commander's signature. It is extremely important for all appropriate design considerations to be incorporated into the 1391 to ensure that funds are available for sustainability and antiterrorism. The 1391 also spells out the basic physical characteristics of a project, such as the number of stories, the type and pitch of the roof and the exterior finish, to ensure that proper funds are programmed. A site location and site plan are developed during the planning charrette and dictate the appearance of the proposed facility based on the visual zone of the selected site. The planning charrette is a process that includes an on-site workshop that involves participation by Master Planning staff, USACE staff, user organization representatives, technical specialists and others with vested interests in the project.
- After a project is funded by the Department of the Army, a design charrette is conducted. The purpose of the design charrette is to further clarify and define the physical and programmatic aspects of the project and to complete the DD Form 1391. Master Planning staff, USACE staff, user organization representatives, technical representatives, the project architect and engineer and others participate in the design charrette to ensure that the scope and costs are fully defined. Proper completion and documentation of the design charrette ensure that the cost estimate and project justification fully address user requirements and all IDG criteria.
- Master Planning staff will coordinate participation by appropriate Garrison representatives in meetings to finalize the design and incorporate appropriate IDG criteria. The request for proposals (RFP) for design architect and engineer will reference the IDG, and require the designer or contractor to comply with it. Any deviation from the IDG guidance requires that a waiver request be submitted to Master Planning. A DPW project manager will provide installation oversight and guidance during construction.

Project requests (include a Form 4283 Work Order Request) shall be submitted to the DPW and will include the required [Design Team IDG Checklist](#).

- Operation and Maintenance Army (OMA) Project Approvals. OMA projects are prioritized and funded based on an Initial Job Order (IJO) “Work Order” review process. Each OMA project will be assigned an IJO which will be distributed to related agencies for comment. Initial IDG guidance will be provided by Master Planning. Once the project is funded, Master Planning will function as the IDG proponent, ensuring that IDG standards are incorporated into the design or RFP. The installation will participate in meetings to finalize the design and incorporate appropriate IDG criteria. The RFP will reference the IDG and requires the designer or contractor to comply with it. Any deviation from the IDG guidance requires a waiver request be submitted to Master Planning. A DPW project manager will provide installation oversight and guidance during construction.

2.4.4 Self-help Projects and Occupant Purchased and Installed Site Furnishings and Features Projects.

Self Help Projects will be requested using an IJO. Once the IJO is received, it will be distributed to related agencies for guidance. Master Planning will provide assistance and guidance to ensure that the project conforms to the IDG.

2.4.5 Request for Waiver.

A request of waiver from the Design Team IDG Checklist will be submitted to Master Planning for approval by the DPW.

2.4.6 Checklists.

Design Team IDG Checklist

The Design Team IDG Checklist is to be completed by the design team to assure the IDG guidelines and standards have been considered in the design process. The Design Team IDG Checklist format is provided in [Appendix A](#).

The Designer of Record or Design Agent shall provide a copy of the completed checklist to Master Planning, together with a signed certification statement with each design submittal. The checklist, along with concept site plans and elevations for each design submittal, shall be provided to Master Planning for review. If

Master Planning concurs, the plan and the signed checklist are forwarded to the RPPB for final approval.

The accepted checklist shall become a part of the DPW Project Manager's record files.

Projects Requirements Checklist

It is recommended that this checklist be used by the DPW Project Manager as a pre-design planning tool for initiating projects and to present a functional description of the project at MILCON planning and design charrettes. The checklist can assist participants of the charrettes in project formulation and documentation. The checklist should be completed to the extent possible prior to the charrettes. The checklist will be completed during the charrettes and can be used to document the decisions made in the process. The Projects Requirement Checklist is provided in [Appendix B](#).

Interior Design Review Checklist

It is recommended that the Interior Design Review Checklist be used during review of an RFP submission, an architecture/engineering firm design, or in-house design prior to solicitations. The Interior Design Review Checklist is provided in [Appendix C](#).

2.4.7 Requirement to Use the IDG.

The requirement to use the IDG as a design tool in all facility planning, design and construction should be included in the RFPs for new projects, in scopes of work for new projects and in maintenance agreements.

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SECTION 3 **DESIGN GUIDE ANALYSIS CRITERIA**

3.1 INTRODUCTION

3.1.1 The Fort Stewart IDG process depends upon the development of visual goals and objectives and the identification of visual elements. Goals and objectives provide the desired visual context of the installation.

3.1.2 Basic design principles are used to assess, define and classify visual elements. This assessment becomes the design criteria used to determine the visual character of the installation. These design criteria are used for design decisions in the review of existing visual context and determination of project recommendation.

3.2 GOALS, OBJECTIVES AND RECOMMENDATIONS

3.2.1 Fort Stewart must have facilities, ranges and training lands that adequately support the mission of the 3rd Infantry Division (3rd ID), the brigade combat teams (BCT) and other tenants (Fig. 3.1). These facilities must also provide an overall environment of quality and protection for the force necessary for national security. The Garrison Commander's means for unifying planning and programming for installation real property management, development and associated services is the master planning process. This process is recorded in the Real Property Master Plan (RPMP). The RPMP documents a long-term investment strategy for achieving the Garrison Commander's goals by providing quality facilities while supporting the Army's vision for current and future missions.



Fig. 3.1 – A rendering of the new Command and Control Facility.

3.2.2 The IDG, a component of the RPMP, provides for the visual aspects of the Fort Stewart RPMP. The goal is to implement the Southern Living Station of Choice theme. This theme creates a community environment where soldiers and their families want to be stationed. The visual aspects in the IDG, including the improvement recommendations, are the goals to be achieved through planning, design and construction services at Fort Stewart.

3.3 IDENTIFICATION AND CLASSIFICATION OF VISUAL ELEMENTS

3.3.1 Basic design principles define visual elements and assess their character.

3.3.2 The assessment and classification of visual elements follows basic design principles describing "most preferred" and "least preferred" design. THIS assessment becomes the design criteria used to determine the visual character of the installation.

3.4 DESIGN PRINCIPLES

The visual inventory and analysis requires an understanding of basic design principles. The primary principles are:

- **Scale** - The proportional relationship of humans to their spatial environment. The scale should result in a comfortable relationship for the user and will vary as space, size and activities vary (Fig. 3.2).
- **Form** - The size and shape of mass. Individual forms should be designed to complement one another and the environment.
- **Function** – The use of a space or an area. Function is gauged by the degree to which the space works for its intended purpose.
- **Color** – All elements of the visual environment have color. The use and arrangement of colors greatly determine the visual impact of all elements.
- **Texture** – All elements of the visual environment have texture. The use and blending of textures greatly impact the visual environment.
- **Unity** – All elements of the visual environment should blend to complement one another. Repetition of scale, form, color and texture results in a unified visual impression.

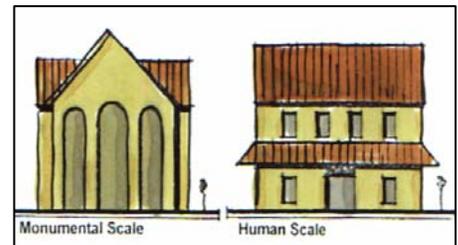


Fig 3.2 – Sketches of monumental scale and human scale buildings.

- **Framing** – All views include a ground plane, side planes and overhead plane. The relationship of planes changes as the individual moves through the environment
- **Axis** – An axis is a linear progression of space connecting two or more dominant features (Fig. 3.3).
- **Terminus** – A terminus is the end of an axis and is typically defined by a dominant feature such as a building (Fig. 3.3).
- **Balance** – Visual elements are composed to be symmetrical (Fig. 3.4) or asymmetrical. In either case, visual elements should be sized and located to provide visual balance.
- **Sustainability** - Practicing the principles of sustainable design in the planning, design, construction and operation of infrastructure and facilities is a smart business practice ([See Appendix D](#)).

3.5 VISUAL ELEMENTS

The visual elements, described below, include manmade and natural features and their interrelationships. This IDG provides guidance on how to recognize the visual elements of Fort Stewart and how to improve upon them if warranted.

- **Natural Characteristics** - Regional and site characteristics that are preserved and enhanced contribute to the unique visual quality of the installation (Fig. 3.5).

Edges and Boundaries - Linear elements such as walls, fences, or trees create separation of use and activities (Fig. 3.6).



Fig 3.3 – An illustration showing a parade ground with a building at the terminus of the long axis.

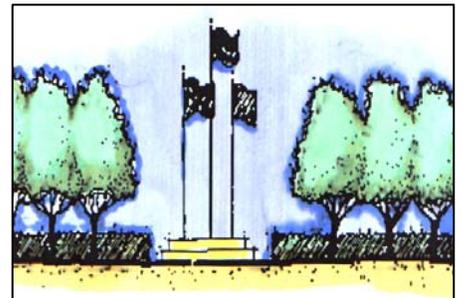


Figure 3.4 – A sketch showing trees and flag poles in a symmetrical arrangement.



Fig. 3.5 – Regionally characteristic pine trees are preserved at Fort Stewart.



Fig. 3.6 – Trees and shrubs are used to visually separate incompatible land uses.

- **Buildings and Structures** – Buildings are the dominant features within the cantonment area. Their location and design characteristics define the primary visual image of Fort Stewart (Fig. 3.7).



Fig. 3.7 – The Soldier Service Center contributes significantly to the character of Fort Stewart.

- **Activity Nodes** – Activity nodes are locations that attract people on a daily basis (Fig. 3.8).



Fig. 3.8 - The PX and Commissary are major activity centers at Fort Stewart.

- **Landmarks** – Landmarks are visually or historically prominent features, such as towers, statues, static displays and buildings, that provide identity, image and orientation (Fig. 3.9).



Fig. 3.9 - Warrior's Walk is a dramatic and moving landmark.

- **Entrances and Gates** – Installation gates produce the first and last impression of the installation (Fig. 3.10).



Fig. 3.10 - The Main Gate inspires a particularly good impression of Fort Stewart.

- **Circulation System** – The circulation system includes streets, railroad tracks, trails, sidewalks, parking lots, driveways, delivery areas and bicycle paths. It uses a large amount of space and creates significant visual impact (Fig. 3.11).



Fig. 3.11 - Many of the barracks are connected by a pedestrian and bicycle route.

Trees and Other Vegetation - Trees and other vegetation frame views, provide visual screens, shade, color and interest on the installation (Fig. 3.12).



Fig. 3.12 - Mature landscaping at the hospital produces an attractive entrance area.

- **Street Trees** - Street trees soften, complement and define the road hierarchy and improve the overall visual quality of the installation (Fig. 3.13).



Fig. 3.13 - Mature street trees at the hospital enhance the roadway and shade sidewalks.

- **Views and Vistas** - Scenic and attractive views and vistas should be enhanced. Unattractive views should be screened (Fig. 3.14).



Fig. 3.14 - Broad views across Donovan Parade Field provide striking contrast to the dense woods.

- **Open Spaces** - Open space areas create visual impact and can be designed to either separate or integrate adjacent uses (Fig. 3.15).



Fig. 3.15 - The golf course is an attractive open space that separates Housing from the Barracks and Installation Support visual zones.

- **Signage** - A coordinated installation signage plan, addressing both exterior and interior signage, facilitates circulation and provides useful information (Fig. 3.16).



Fig. 3.16 - Uniformity among organizational signs contributes to way-finding and visual quality.

- **Utility Corridors** - Utilities should be in corridors and unsightly above-ground utilities should be minimized (Fig. 3.17).



Fig. 3.17 - Overhead utilities are obscured when viewed against trees.

- **Other Elements** - Visual elements other than those above may occur within an installation and should be noted (Fig. 3.18).



Fig. 3.18 - Static displays exhibit military hardware and memorialize the history of the 3rd ID.

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SECTION 4 **INSTALLATION PROFILE**

4.1 SETTING

4.1.1 Primary Mission of the Installation

The primary mission of Fort Stewart is to support and assist in the training of the 3rd ID. This mission is accomplished by providing the living, working, training and recreational facilities needed by approximately 16,000 active duty personnel, their dependents, civilian employees and retirees. Fort Stewart also supports tenant activities, predominantly the Army Reserve Component and National Guard units that train there.

4.1.2 Regional Setting

The expansive Fort Stewart military installation covers portions of five counties in the coastal plain of southeast Georgia. The cantonment area is located about 40 miles southwest of Savannah near Hinesville, Georgia. The Fort Stewart installation also includes Hunter Army Airfield (HAAF) which is geographically separated and located in nearby Savannah, Georgia.

Fort Stewart is one of the largest Army installations in the United States, occupying a contiguous land area of 279,270 acres. Major regional population centers include: Savannah, 40 miles to the northeast, and Jacksonville, Florida, 117 miles to the south. Figures 4.1 and 4.2 provide the geographical location and vicinity maps for Fort Stewart.

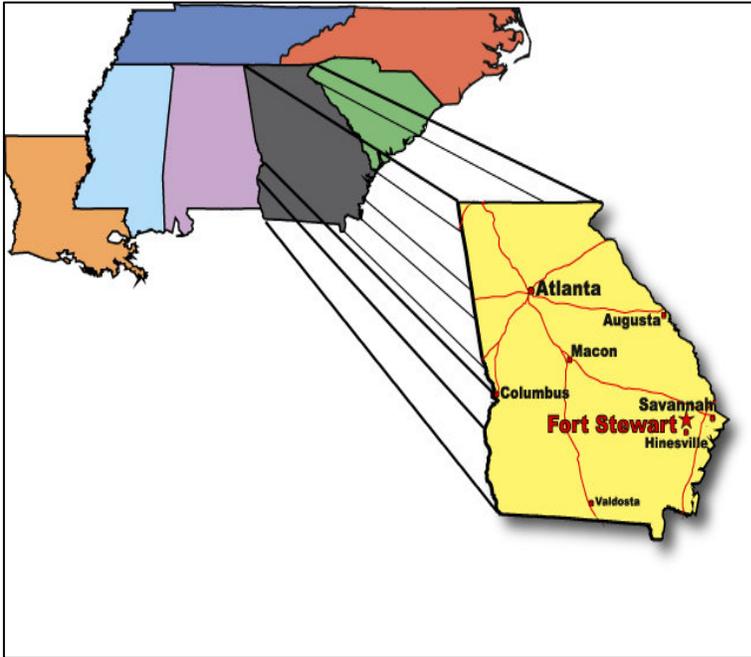


Fig.4.1 - Fort Stewart Location Map



Fig. 4.2 - Fort Stewart Vicinity Map

Fort Stewart's cantonment area encompasses the concentrated area of developed land near the center of the southern border of the installation. It includes the buildings, roads, parking and adjacent open spaces. These areas consist of improved lands used for administrative functions, community activities, housing, barracks, installation support services and other activities typical of an Army installation. The cantonment area excludes military training ranges and ordnance storage areas. Some grounds are intensively maintained, but many areas are unimproved and support excellent wildlife populations. Figure 4.3 shows a map of the cantonment area in relation to the rest of the post.

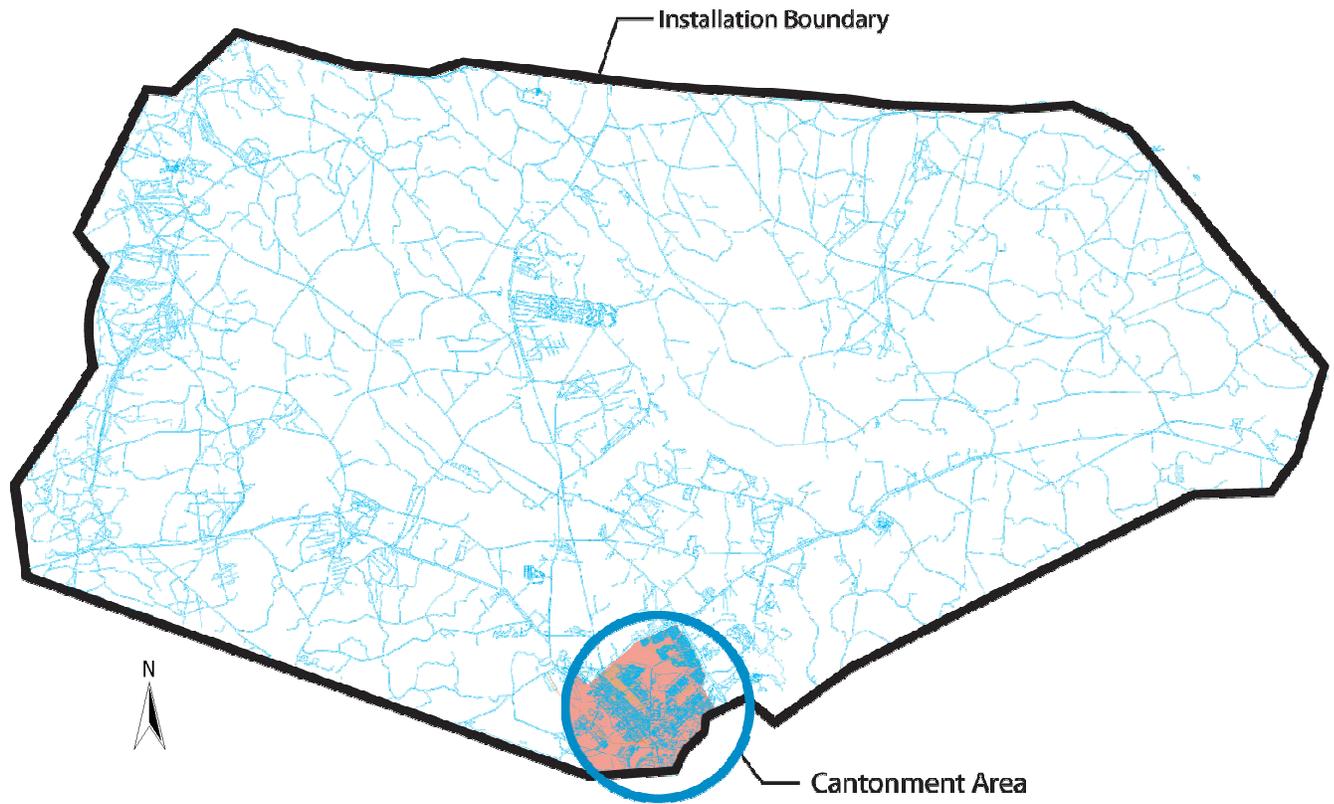


Fig. 4.3 – The cantonment area of Fort Stewart is located at the center of the southern boundary, adjacent to Hinesville, Georgia.

Fort Stewart has been surveyed to identify the visual components in the developed areas of the installation. Seven visual zones were defined based on their visual features, architectural trends and the functions of the predominant facilities. Southern Living Station of Choice is the architectural theme to be used for the design and construction of facilities in these visual zones. Paragraphs 4.2 and 4.3 of this section and [Section 5, Visual Themes and Zones](#) provide

further information on land uses including associated visual zones and themes at Fort Stewart.

4.3.1 History of the Installation

The area surrounding Fort Stewart has a rich history dating back to the establishment of the 13 colonies. The city of Savannah dates back to 1733, when James Oglethorpe carefully selected the site for a new settlement (Fig. 4.4). The town of Sunbury, located 21 miles southeast of Fort Stewart's main entrance, rivaled Savannah as an important military and commercial seaport until it was destroyed by the British in 1782. Other sites of historic significance in the region are Fort King George (35 miles south), Fort Morris (38 miles east), and Fort Argyle which is located within Fort Stewart's boundaries.

Fort Stewart was established just prior to World War II and named Camp Stewart in honor of Brigadier General Daniel Stewart, a local resident who fought in the Revolutionary and Indian Wars.

The first tract of land for Camp Stewart, approximately 5,000 acres, was purchased around July 1, 1940. A steady acquisition of additional areas followed until the military reservation included more than 280,000 acres, stretching over five Georgia counties. In addition, extensive maneuver rights were acquired in areas adjoining the reservation. By late 1941 Camp Stewart covered an area approximately 20 miles by 35 miles. Virtually all of the land was obtained from private individual owners. Small adjustments to boundaries were common throughout the first 20 years of the Fort Stewart's history.

During World War II, the camp housed up to 55,000 troops in training, along with additional prisoners of war. Following the war the camp was used for demobilization, as a tank and artillery range, and as a Reserve and National Guard training area. The installation provided training facilities for fixed wing pilots during the Korean conflict and for helicopter pilots during the Vietnam War. Ground personnel also used the artillery and tank practice ranges in the Vietnam Era.

Fort Stewart became a training and maneuver area providing tank, field artillery, helicopter gunnery and small arms training for regular Army, U.S. Army Reserve and National Guard units. The installation also provides training and support facilities for ROTC components.



Fig. 4.4 - Savannah Was Founded by General James Oglethorpe in 1733.

The 1st Battalion, 75th Infantry (Ranger) was activated at Fort Stewart on January 31, 1974. The 24th Infantry Division (Mech) was assigned to Fort Stewart as a permanent garrison unit in 1975. The Division was active during the Persian Gulf War in 1991, and was reflagged as the 3rd ID in May 1996.

Fort Stewart presently accommodates three heavy BCTs; BCT 1, BCT 2 and BCT 4. BCT 3, located at Fort Benning, rounds-out the 3rd ID.

Fort Stewart is designated as a Class 1 Army Installation, requiring new development to phase out obsolete and temporary buildings. A very active construction program is underway at Fort Stewart to accommodate the current Army mission requirements for new facilities.

4.1.4 Environmental Setting

The following paragraphs provide information on the environmental components for Fort Stewart. Further information can be found in the Integrated Natural Resources Management Plan (INRMP), the Integrated Cultural Resources Management Plan (ICRMP) and the Baseline Environmental Report for Fort Stewart (including supplements).

Topography

Topographic relief is very limited on Fort Stewart. The topography is typical of the physical features in the Atlantic Coastal Plain physiographic province. The installation is relatively level with five terraces gently rising east to west from four to 186 feet above sea level. Most of the land is less than 33 feet above sea level with slopes less than three percent. Relatively small changes in elevation have significant effects on vegetation with wetlands and hardwood bottoms in lower areas and upland pines and scattered hardwoods at slightly higher elevations.

Geology

The land formation of the Fort Stewart includes marine terraces formed by fluctuations in sea level during the Pleistocene geologic period. These features were formed by the deposition and subsequent erosion of marine sediments. Most formations originated in the Pliocene to the Holocene time periods.

Soils

Generally the soils at Fort Stewart consist of unconsolidated marine sands. They are highly permeable, acidic soils which are low in natural fertility and organic content.

In coastal Georgia, drainage from the Blue Ridge Mountains, Piedmont Plateau and higher areas of the Coastal Plain affect the composition of alluvial deposits. The parent material for all soils in this area is sediments deposited during and prior to the Pleistocene era.

The infrequent freezing and thawing cycles in this area have little effect on soil weathering. Much of the rainfall percolates through the soil and moves dissolved and suspended materials downward. Most of the upland soils are highly weathered as a result of this percolation of rainfall.

The USDA Soil Conservation Service--now the Natural Resources Conservation Service--completed soil surveys for Fort Stewart. Although adequate for agricultural and forestry use, the surveys are somewhat general. Site specific soils testing may be required for grounds maintenance, turf management, facility construction or other intense land use.

Common soils at Fort Stewart are classified in the Ellabelle loamy sand, Ogeechee, Pelham, Stilson, Rutlege, Leefield, and Mascotte soil series. Most of these soil series are well suited to the production of forest stands but are unsuitable for supporting the movements of heavy equipment during wet periods. A summary listing of soils for Fort Stewart and a soils classification map are included in the INRMP.

Climate

The subtropical climate of the region is pleasant, as evidenced by the many visitors to the region's resort communities, such as Hilton Head. The winters are short and mild, with long spring and fall seasons, while summers are hot and humid. The abundance of both sunshine and rainfall creates a favorable natural environment.

The average annual maximum and minimum temperatures for Fort Stewart are around 79° F and 56° F. The average summer temperatures range from 68° F to 93° F. The coldest month is January with average temperatures at 63° F for highs and 40° F for lows.

Wind speeds rarely exceed ten miles per hour, except during thunderstorms, hurricanes and tropical storms. The fall hurricane season runs from September through November. Yearly rainfall at Fort Stewart is about 49 inches, half of which falls during the thunderstorm season of June through September. The wettest month is August and the driest is November. There is very little snowfall at Fort Stewart. Local weather data for Fort Stewart is compiled at Wright Army Airfield.

Hydrology

Fort Stewart's surface water resources are diverse and include many rivers, streams, ponds and lakes. Drainage within the cantonment area is by means of storm sewers, ditches and swales that discharge into the streams and rivers. Figure 4.5 provides the location of surface waters on Fort Stewart.

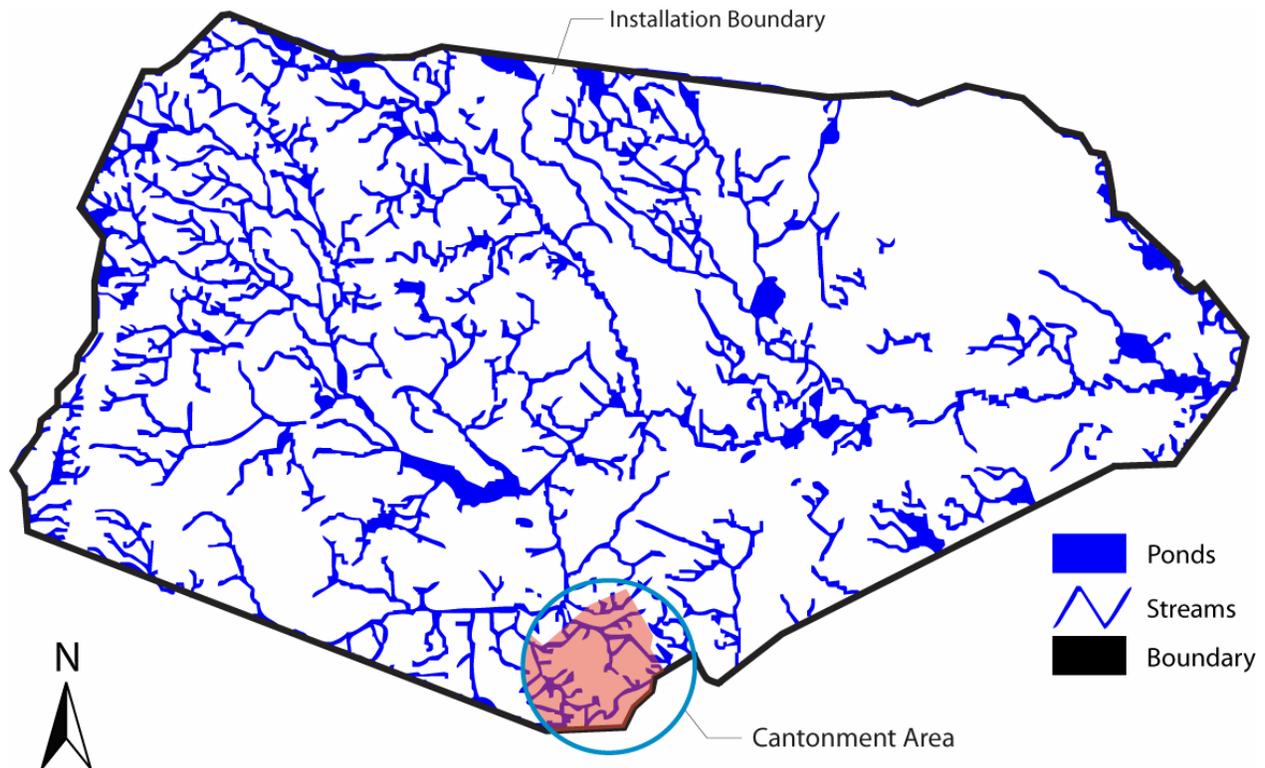


Fig. 4.5 – Map of surface waters at Fort Stewart.

The majority of the surface waters of Fort Stewart are within the Ogeechee River drainage system, which forms part of the eastern boundary of the installation. The Canoochee River is the main tributary of the Ogeechee and bisects Fort Stewart. It merges with the Ogeechee about 35 miles inland from Ossabaw Sound. Although most of Fort Stewart land is drained by the Canoochee,

part of the northeast quadrant drains directly into the Ogeechee and the southwestern quadrant drains to the Altamaha River.

While the Ogeechee generally carries a high silt load, the Canoochee does not. Consequently, the Canoochee has not developed large natural levees. The floodplain, however, is generally narrow, with little lateral migration of the stream channel. The organic content of the river water is generally high due to inflow from Blackwater River and Blackwater Swamp tributaries.

Several old mill ponds were present at the time of the Army's purchase of Fort Stewart. Some of the most significant are Glisson's Mill Pond, Strickland's Mill Pond, Pineview Lake, and the mill ponds where Pond Number 3, Pond Number 17 and Pond Number 28 now exist. Since establishment of the fish and wildlife management program five old mill ponds have been renovated and improved, 14 excavated borrow pits have been converted to usable fish ponds and wetland sites and 10 impoundments have been constructed.

There are three distinct aquifer systems in the region. The principal artesian aquifer is a deep layer of limestone dating back to the Eocene or Oligocene age. This aquifer is the primary source of large ground water withdrawals in the coastal area. The aquifer is generally 300 to 500 feet below the surface and is overlain by two shallow aquifer systems. The surface aquifer is composed of a relatively thin layer of sands, gravels, and clays, extending to a depth of approximately 80 feet near the coast. The surface aquifer is recharged directly from rainfall percolating through sediments.

During dry months, the base flow of streams and rivers of the coastal area is maintained by discharge from the surface aquifer. Water ranges in quality from that which is very low in total dissolved solids to that which is slightly alkaline and moderately hard. The two shallow aquifer systems are used almost exclusively for domestic water, but mainly as a secondary water supply rather than for drinking water.

Groundwater from the deep aquifer provides potable water for Fort Stewart. The installation has five wells that provide water for the cantonment area, eight additional non-community wells and one non-potable well. The wells for the cantonment area tested monthly while non-community system wells are tested quarterly. The water from these wells fully meets the standards of the Georgia

Environmental Protection Division, Department of Natural Resources.

Vegetation

A wide variety of plant materials thrive in this region, due to the favorable climate and variety of soil conditions. The area is located in the northern portion of plant hardiness zone 9 (United States Department of Agriculture Plant Hardiness Zone Map), which also includes most of central and northern Florida and the Gulf Coast region. Native vegetation ranges from the sedges of the wetlands to palmetto, pine and oak woodlands in the higher elevations. Introduced varieties of plant material adapt well to this area.

The mixed forest environmental community that once existed in the southeastern U.S. has been broadly altered or replaced. The regionally established communities of longleaf pine and wiregrass, and additional habitat types that depend on the longleaf pine community, comprise the overall ecological unit that is managed under the INRMP. The longleaf pine community is the keystone environmental component. The compatibility of this community with military training stems from its tolerance to such environmental factors as fire, mechanical damage and disease, as well as its characteristic open, park-like stands (essential for visibility during maneuver training).

Fort Stewart is located in the lower coastal plain physiographic province, in the heart of the once vast longleaf pine ecosystem. Prior to settlement by European colonists in the 17th and 18th centuries, longleaf forests dominated an estimated 60 to 92 million acres in the Atlantic and Gulf coastal regions. Rivaling Latin American rain forests in species diversity, longleaf pine ecosystems can contain over 40 plant species per square meter. This level of diversity is among the highest reported in the world. Also, it supports an estimated 300 globally imperiled species. Today, less than 3 million acres of longleaf forest remain, and less than three percent of this acreage is considered to be in relatively natural condition. The rest has been converted to agricultural use, developed, converted to short rotation slash and loblolly pine plantations or degraded by interruption of the natural fire regime that sustains this ecosystem.

Longleaf pine forests are dependent on periodic fires that typically occur every one to five years. The fires set normal succession back and maintain the open forest condition and herbaceous ground cover that characterize this ecosystem. For thousands of years, forest fires occurred naturally in the spring and summer as a result

of lightning strikes during frequent thunderstorms. In recent decades, most of the longleaf forest burns much less often due to modern fire suppression technology and fragmentation of the landscape. On Fort Stewart, however, live fire training frequently starts forest fires, and military land managers have continued to use prescribed fire to reduce wildfire risks, so the installation supports some of the best remaining examples of longleaf forest. Fort Stewart is currently home to six federally listed endangered species and 20 state or federal listed species of concern.

Wetlands

Fort Stewart uses the *National Wetlands Inventory* for wetland identification. This inventory is considered reasonably accurate but requires updating as additional areas are evaluated. Fort Stewart contains approximately 91,960 acres of wetlands. Wetlands located within the cantonment area present a constraint to development. The INRMP provides for measures to protect, restore and mitigate impacts to wetlands on Fort Stewart.

Wildlife

Fort Stewart has a diverse animal population. Large species such as white-tailed deer and smaller mammals such as grey squirrels are common and have remained relatively undisturbed by urbanization. Other mammals have been drastically affected. For example, feral hogs have practically been eliminated in the vicinity of the installation. The INRMP provides a list of confirmed animals and ones that are threatened, endangered or of special concern on the installation.

Plant and animal diversity, habitat productivity and environmental stability are greatly increased by the variety of natural habitat types. Habitat classifications (such as Longleaf Pine-Wiregrass, Pine Flatwoods, Bay Swamp and Herb Bogs) and community classifications (based on land cover types such as Southern Mixed Hardwood Forest and Upland Pine Forest) have been developed for the plants located in this region. Some developed land within the cantonment is designated as “no mow” areas to promote the development of forests, grasslands and wildflowers.

The Nature Conservancy identified 1,066 plant species on 724 sites on both Fort Stewart and Hunter AAF. A listing of threatened, endangered or special concern plants is located in the INRMP.

Environmentally Sensitive Habitat

The Nature Conservancy's *Fort Stewart Inventory* includes descriptions of 36 conservation sites on both Fort Stewart and Hunter AAF. The Nature Conservancy defines conservation sites as "areas of significant biodiversity, harboring concentrations of rare species and containing highly intact natural communities." This document includes each conservation site name, size, rank, training area, living resources summary, site description, threats to sites and recommendations for monitoring and management.

Cultural Environment

Fort Stewart has an ICRMP that addresses historic and archeological preservation. Several sites on the installation have been identified and investigated for their historical and archeological significance. This process determines if the site is eligible for inclusion into the National Register of Historic Places (NRHP). Protective measures are implemented for eligible and included sites. The ICRMP contains further information on NRHP site investigations on the installation and other regulations pertaining to historical and archeological requirements.

Procedures are in place for compliance with the National Historic Preservation Act at Fort Stewart. Projects, activities and programs that may affect the physical landscape are subject to the requirements of the NHPA.

4.1.5 Man-Made Environment

The natural environment at Fort Stewart has been modified by the construction of buildings, roads, parking areas, storm water management ponds, training areas and other land altering uses. The RPMP is the key source of information on the existing and planned development of the installation. The RPMP is the key source of information on the existing and planned development of the installation.

Contaminated Areas

The Installation Restoration Program (IRP) and associated Installation Action Plan (IAP) for Fort Stewart contain the various contaminants of concern (metals, volatile organic compounds, explosive residues, etc) and their locations. Significant remediation actions have occurred over several years to significantly reduce or eliminate these contaminants. The majority of the sites requiring remediation are primarily contaminated with hydrocarbons. The IAP contains the schedule, costs and scopes of work for remediation activities.

Solid Waste Management

There are two active landfills at Fort Stewart. The landfills are located northwest of the cantonment area near State Route 144. The site, called the Post South Central Landfill, consists of the two active and one inactive landfills. The active landfills are permitted by the State of Georgia and are monitored for environmental compliance.

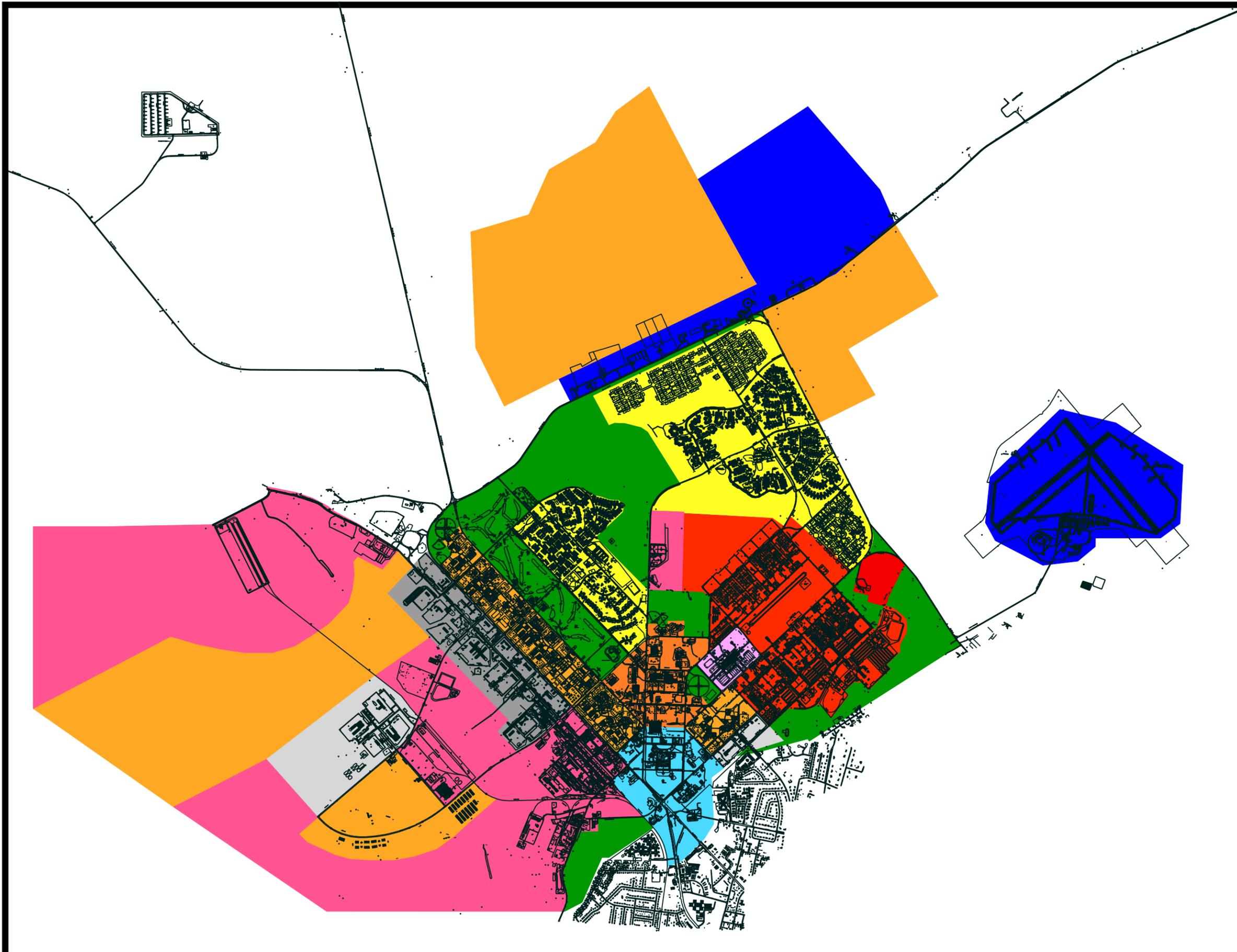
Fort Stewart has a recycling program for paper items, bottles, cans, scrap metal, printer and toner ink cartridges, cardboard and wooden pallets. Recycling dumpsters and containers are provided for collection, however, some recyclables are not collected and must be taken to the recycling center.

4.2 LAND USE

The land use classifications at Fort Stewart are as follows: Administration, Green Space, National Guard, Family Housing, Barracks (UPH), Community, Industrial, Airfield, Medical, Maintenance, and Training/Ranges. Map 4.1 shows the land areas with these designations. The installation RPMP is the source document for further information on land use classification at Fort Stewart.

4.3 VISUAL ZONES

The visual zone classifications at Fort Stewart are as follows: Headquarters, Town Center, Barracks, Installation Support, National Guard, Housing and Green Space. Information on the definition and appearance of these visual zones is contained in [Section 5, Visual Themes and Zones](#).



LEGEND:

LAND USE

- ADMINISTRATION
- COMMUNITY
- PERSONNEL HOUSING
- INDUSTRIAL
- NATIONAL GUARD
- FAMILY HOUSING
- GREEN SPACE
- MEDICAL
- TRAINING / RANGES
- MAINTENANCE
- AIRFIELD



U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

FORT STEWART, GEORGIA
INSTALLATION DESIGN GUIDE
NOVEMBER, 2006

LAND USE

GREENHORNE & O'MARA, INC.
CONSULTING ENGINEERS

MAP 4.1

A blue rectangular graphic with white text. The text reads "SECTION 5 VISUAL THEMES AND ZONES" in a serif font, with "SECTION 5" on the top line, "VISUAL THEMES" on the second line, and "AND ZONES" on the third line.

SECTION 5 VISUAL THEMES AND ZONES

5.1 INTRODUCTION

5.1.1 Visual themes and zones were determined after performing the two surveys described in [Section 2](#). These surveys were conducted using existing installation maps, visual inspection, interviews, questionnaires and photographs to record impressions of visual and spatial impacts. The data captured was used to define the visual themes and zones of Fort Stewart.

Visual zones are shown on Map 5.1. Table 5-1 shows how the visual zones are grouped to define the visual themes for Fort Stewart. The visual themes are based on the general relationships between the land uses that are included in the visual zones.

5.2 VISUAL THEMES

5.2.1 Visual themes create a perception of unification within the installation. These themes create design consistency that provides orientation and a “sense of the place,” or understanding of the character and purpose of the installation.

5.2.2 Visual themes are generalized groupings of visual zones with similar use and visual characteristics. Visual themes include broad scale activities that occur at Fort Stewart. These activities typically include similar design and layout characteristics.

Table 5.1 shows the theme/visual zone relationships that occur at Fort Stewart.

TABLE 5.1 - THEME/ZONE RELATIONSHIP

NEIGHBORHOOD THEME	CENTRAL CAMPUS THEME	OPERATIONS THEME
Family Housing Visual Zone	Headquarters Visual Zone	Installation Support Visual Zone
Green Space Visual Zone (part)	Town Center Visual Zone Barracks Visual Zone Green Space Visual Zone (part)	National Guard Visual Zone

5.3 VISUAL ZONES

5.3.1 Visual zones are areas within the installation that include similar visual characteristics. Visual characteristics and dominant features define the look, feel and image of the areas. Typical visual characteristics include unique buildings, vehicular and pedestrian corridors, natural features and spatial relationships.

5.3.2 The following paragraphs present a functional analysis of each of the visual zones. This analysis includes a description of the visual character, a visual analysis map, assets, liabilities and recommendations for each zone.

5.3.3 The visual analysis maps graphically illustrate the features and constraints that affect the visual character of the zone.

5.3.4 Assets and liabilities are determined according to the following criteria: installation visual goals and objectives ([Section 3.2](#)), design principles ([Section 3.3](#)) and visual elements ([Section 3.4](#)) in relationship to the six design components described in Sections 7 through 12 of this Fort Stewart IDG.



LEGEND:

VISUAL ZONES

- HEADQUARTERS
- TOWN CENTER
- BARRACKS
- INSTALLATION SUPPORT
- NATIONAL GUARD
- HOUSING
- GREEN SPACE



U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

FORT STEWART, GEORGIA
INSTALLATION DESIGN GUIDE

VISUAL ZONES

GREENHORNE & O'MARA, INC.
CONSULTING ENGINEERS

MAP 5.1

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

5.3.5 Recommendations are made to correct liabilities or to enhance assets. These recommendations, and the projects they have been used to generate are listed in [Section 6, Improvement Projects](#).

5.4 HEADQUARTERS VISUAL ZONE

5.4.1 Visual Character

The Headquarters Visual Zone is the command and administrative center of Fort Stewart and includes the Main Gate, the 3rd Infantry Division (Mech) headquarters building, the Education Center, the Museum, the Legal Center and Marne Gardens.

The Headquarters Visual Zone, in its architecture and site planning, represents the traditional core of Fort Stewart and is dominated by buildings designed with the Southern Living Station of Choice architectural theme.

The Headquarters Visual Zone occupies a site at the apex of Fort Stewart's chevron-shaped street plan. The unique visual imagery and sense of importance projected by the prominent location strongly reflects the command function of the zone. The site layout and predominant architectural theme further reinforce the formality of the command function that dominates this visual zone.

Future development plans call for a new Legal Center and a Command and Control Facility Annex. These buildings will replace the older wooden buildings that remain in the area.

5.4.2 Visual Analysis Map

Map 5.2 shows the Headquarters Visual Zone with symbols identifying the most significant visual elements located in it.

5.4.3 Assets

Site Planning

The orderly arrangement of buildings relates well to the original chevron-shaped street plan for Fort Stewart. The original planning incorporated the parade grounds, axial relationships between features, controlled vistas and a symmetrical arrangement of roadways to create a complex with a cohesive campus feeling.

The Command and Control Center is strategically located at the apex of the chevron plan and is visually prominent when viewed from the Main Gate. Subordinate structures are arranged around the Command and Control Center. The Education Center is outside of the Main Gate to allow for convenient public access (Fig.5.1).



Fig. 5.1 – Access to the Education Center from Fort Stewart is by pedestrian path through the perimeter fence.

Marne Garden provides an excellent setting for military ceremonies and other events for visiting dignitaries because of its formal landscaping and orderly arrangement of monuments (Fig. 5.2).



Fig. 5.2 – View of the reviewing stand at Marne Garden.

Buildings

The newer buildings in the visual zone share the Southern Living Station of Choice architectural theme and combine to produce a visually cohesive campus (Fig. 5.3).



Fig. 5.3 – The Soldier Service Center incorporates key elements of the Southern Living Station of Choice architectural theme.

Circulation

The approach from Main Gate into the Headquarters Visual Zone is generally on axis with the Command and Control Facility. This quickly orients visitors to their relationship to the main administrative area of the installation (Fig. 5.4).

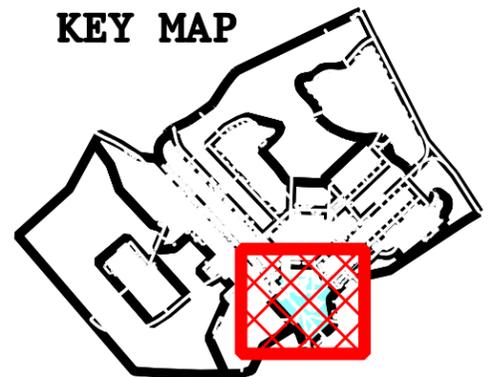
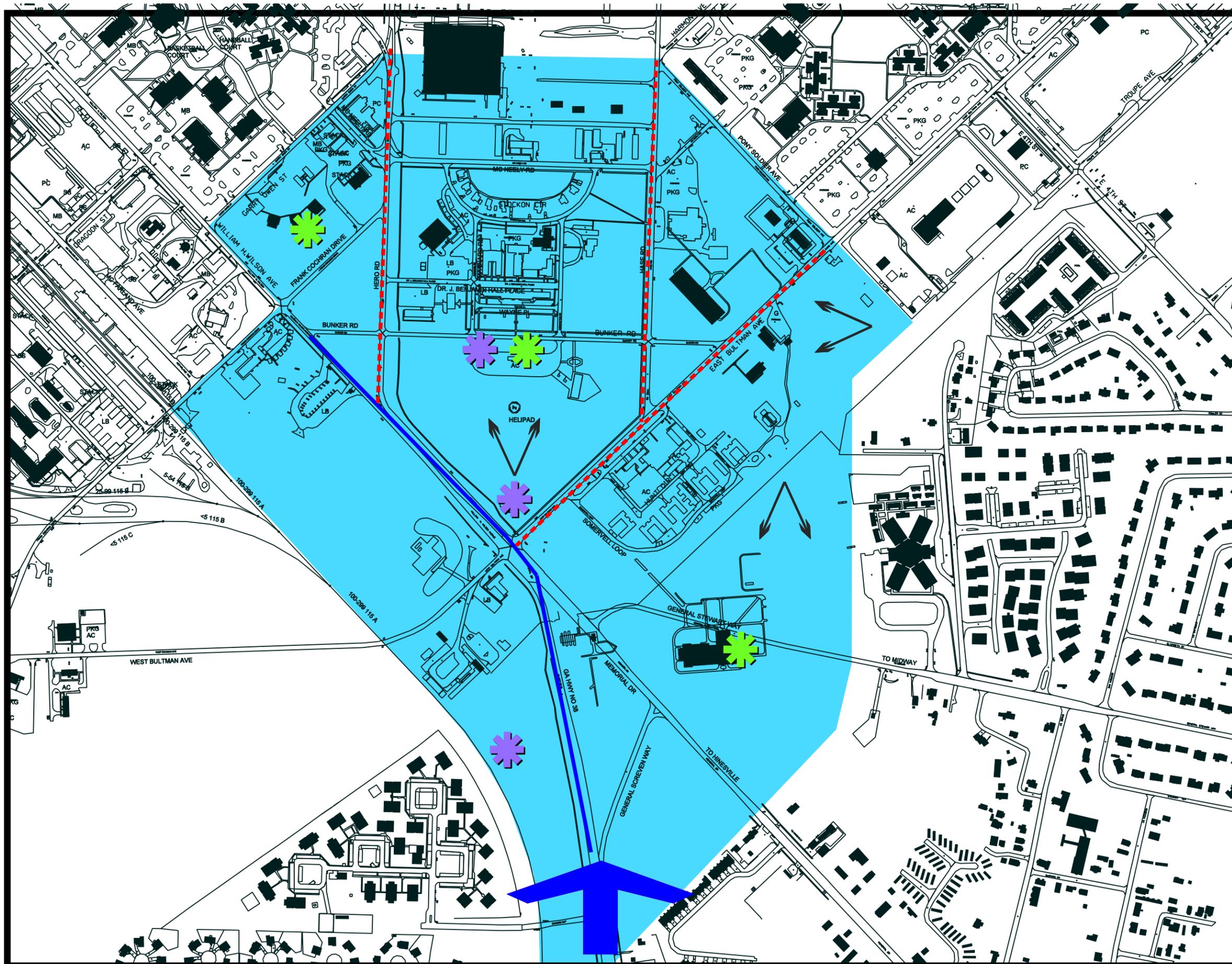


Fig. 5.4 – View of the Command and Control Center from the Main Gate.

Pedestrian walks, as well as roadways, provide access between most of the buildings in this visual zone (Fig. 5.5).



Fig. 5.5 – Typical sidewalk in the Headquarters Visual Zone.



- LEGEND:**
- HEADQUARTERS VISUAL ZONE
 - MAIN ENTRANCE
 - PRIMARY ROAD
 - SECONDARY ROAD
 - FOCAL POINT / LANDMARK
 - SIGNIFICANT ARCHITECTURE
 - GOOD VIEWS



U.S. ARMY CORPS OF ENGINEERS
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FORT STEWART, GEORGIA
INSTALLATION DESIGN GUIDE

**HEADQUARTERS
VISUAL ZONE**

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MAP 5.2

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

Plant Material

Stands of mature trees are plentiful and provide dramatic park-like views inside the Main Gate and provide an attractive background for static displays and buildings within the visual zone (Fig. 5.6).



Fig. 5.6 – Stands of pine trees bound open space near the Main Gate.

The setting of the Command and Control Facility, with expansive lawns and Marne Garden, helps the building project a sense of importance (Fig. 5.7).



Fig. 5.7 – View of the Command and Control Center and Marne Garden.

Site Elements

The exterior display at the museum impressively communicates the past and current missions of Fort Stewart (Fig. 5.8).



Fig. 5.8 – A helicopter static display at the 3rd ID Museum.

A number of structures, landmarks and monuments representing the history of the installation are located throughout the visual zone (Fig. 5.9).



Fig. 5.9 – A static display of armored vehicles is located inside the Main Gate.

Antiterrorism

The Main Gate is new and incorporates the Southern Living Station of Choice architectural theme while providing state of the art security (Fig. 5.10).

5.4.4 Liabilities

Site Planning

The static display of military vehicles at the intersection of Hero Road and East Bultman Avenue interferes with views of the Command and Control Center for arriving personnel and visitors.

Buildings

The existing 3rd ID Museum detracts from the otherwise orderly and formal appearance of the visual zone (Fig. 5.11).

Circulation

The Museum is not conveniently located for pedestrian access from the main activity centers on the installation.

Plant Material

Much of this visual zone lacks ornamental landscaping near buildings and vegetative screening in parking lots (Fig. 5.12).

Site Elements

Erosion and silt-filled drainage ditches detract from the overall visual image of the Headquarters Visual Zone (Fig. 5.13).



Fig. 5.10 – The roof, roof color and columns of the Main Gate incorporate the Fort Stewart architectural theme.



Fig. 5.11 – The 3rd ID Museum building and some exterior displays are due to be replaced.



Fig. 5.12 – The Education Center parking lot lacks shade trees.



Fig. 5.13 – It is difficult to stabilize vegetation in open drainage ditches.

Inconsistent styles of lighting, signage and site furnishings fail to reinforce the dignified visual image of this visual zone (Fig. 5.14).



Fig. 5.14 – Unrelated elements at the Education Center.

Antiterrorism

Berms that surround the Education Center result in awkward pedestrian approaches and lawn areas that are difficult to maintain (Fig. 5.15).



Fig. 5.15 – It is difficult to establish a healthy lawn on the slopes of berms.

5.4.5 Recommendations

Site Planning

Rearrange elements along the approach from the Main Gate to clarify the relationship of arriving visitors to the Command and Control Center. Relocation of the static display of tactical vehicles at the intersection of Hero Road and East Bultman Avenue should be considered to open the view of the Command and Control Facility.

Buildings

Continue to employ the Southern Living Station of Choice architectural theme in new buildings.

Circulation

Develop a complete pedestrian system that connects the main features of the visual zone and use lighting, signage, seating and landscaping for the walk system to further reinforce the views for vehicles.

Plant Material

Install street trees and other landscaping along the entrance route from the Main Gate to better focus views on the Command and Control Center.

Install shade trees and screening plants in and around parking lots to improve comfort for users and to reduce their visual impact on roads and adjacent sites.

Site Elements

Install lighting, signage and landscaping to reinforce views to the Command and Control Center.

Antiterrorism

Remove the berms and incidental walkway barriers from the Education Center and replace them with more permanent features such as walls, planters, sunken areas with trees, bollards and other obstacles designed to complement the building architecture as well as provide antiterrorism.

5.5 TOWN CENTER VISUAL ZONE

5.5.1 Visual Character

The Town Center Visual Zone is centrally located in the cantonment area and is the primary focal point for community services and retail activities on Fort Stewart. This visual zone also serves as a transitional area between the Headquarters Visual Zone and the other visual zones. The Town Center Visual Zone contains three sub-areas; the retail center, the hospital and the recreation facilities. The Southern Living Station of Choice architectural theme has become dominant in this visual zone as many new buildings have been constructed.

5.5.2 Visual Analysis Map

Map 5.3 shows the Town Center Visual Zone with symbols identifying the most significant visual elements located in it.

5.5.3 Assets

Site Planning

The high concentration of community functions located within the Town Center Visual Zone produces a feeling of vibrancy and a sense of community.

Buildings

Most buildings have facades and architectural details that communicate their functions as retail and community service outlets. Many buildings have entrance arcades and canopies that provide protection from the sun and rain and produce an appealing sense of scale. Overhangs, signage and architectural detailing articulate building entries and produce visual interest (Fig. 5.16).

There is a general consistency in overall appearance of buildings that share a common construction era. The predominant building material is brick ranging from light to medium brown (Fig. 5.17).



Fig. 5.16 - The entrance to the PX is an attractive and active area.



Fig. 5.17 – Most buildings are clad with light to medium colored brick.

Circulation

Walkways connecting adjacent buildings and activity areas provide pedestrian access and reduce vehicular traffic (Fig. 5.18).



Fig. 5.18 – Pedestrian walks connect many parts of the Town Center Visual Zone.

Plant Material

Substantial areas of mature landscaping are located at key locations such as near building entrances and in parking lots.

The hospital site is an example of the effective use of massive planting to subdue the apparent size and to control views of a very large building with extensive parking lots (Fig. 5.19).



Fig. 5.19 – Trees diminish the apparent size of the hospital and its parking lots.

Site Elements

Seating, lighting and other elements near building entrances make them appear inviting (Fig. 5.20).



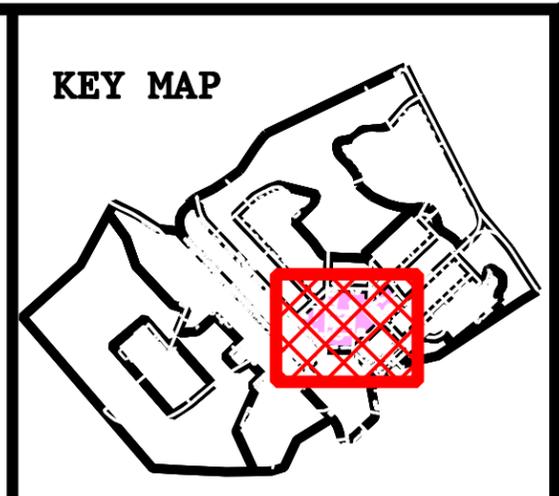
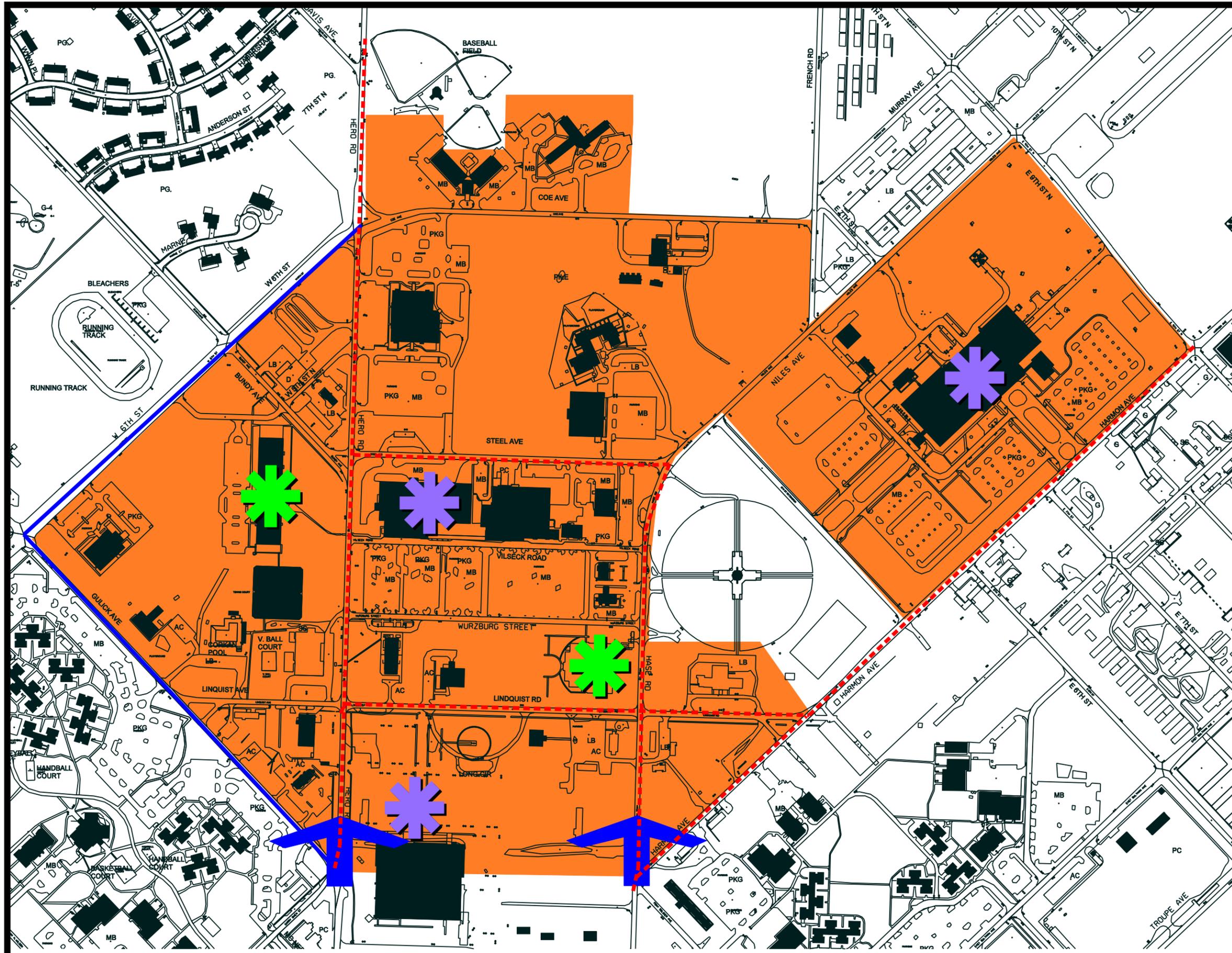
Fig. 5.20 – The main entrance to the Army Lodge provides shaded comfort.

Antiterrorism

Most buildings have appropriate standoff distance or barriers (Fig. 5.21).



Fig. 5.21 – Traffic is separated from the clinic by wide lawns and curbs.



LEGEND:

- TOWN CENTER VISUAL ZONE
- MAIN ENTRANCE
- PRIMARY ROAD
- SECONDARY ROAD
- FOCAL POINT / LANDMARK
- SIGNIFICANT ARCHITECTURE

N

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**TOWN CENTER
VISUAL ZONE**

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MAP 5.3

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

5.5.4 Liabilities

Site Planning

No liabilities noted.

Buildings

Some buildings and site elements are not visually consistent and lack visual harmony, despite their related functions (Fig. 5.22).

Circulation

A link between community facilities such as schools and the neighborhoods they serve should be better emphasized. Fort Stewart setbacks and rights of way should allow for the inclusion of a pedestrian/bikeway, which would create a link through this visual zone between neighborhoods and community facilities (Fig. 5.23).

Plant Material

Some planted areas contain damaged, unhealthy and misshapen shrubs and trees producing a negative impression (Fig. 5.24).

Site Elements

Site elements in the vicinity of some buildings are deteriorated or are not visually coordinated with the architecture or materials of adjacent buildings (Fig. 5.25).



Fig. 5.22 – The collection of newspaper boxes detract from the entry to the AAFES Shoppette.



Fig. 5.23 – The need for some new walks is demonstrated by ad hoc trails.



Fig. 5.24 – A view of screening shrubs that are uneven and damaged.



Fig. 5.25 – Older trash receptacles at the Army Lodge should be replaced.

Antiterrorism

The massive bollards at the PX are overwhelming in scale and detract from the otherwise inviting entry area (Fig. 5.26).



Fig. 5.26 – PX bollards are functional but visually dominate the pedestrian area.

5.5.5 Recommendations

Site Planning

Use screening to reduce views of utility areas from building entries. Use landscaping and site elements to strengthen visual relationships between building entries and pedestrian linkages.

Buildings

When site elements or building facades are due for replacement or renovation, coordinate the design of the façade and the selection of site elements to create a unified appearance.

Circulation

Continue to develop the installation-wide pedestrian and bikeway systems and emphasize the linkages between major areas within the Town Center Visual Zone and between those areas and the Housing and Barracks visual zones.

Plant Material

Replace missing or deformed shrubs and trees in landscaped areas and parking lot screening and prune street trees to produce greater uniformity.

Site Elements

Replace site elements when they become deteriorated and coordinate the selection of new elements with remaining features and building facades to produce a unified appearance.

Antiterrorism

Replace oversized, utilitarian style bollards with more human scale types that complement the front entry area of the PX.

5.6 BARRACKS VISUAL ZONE

5.6.1 Visual Character

The Barracks Visual Zone contains an interrelated system of soldier quarters, operations buildings, dining facilities, classrooms, community and retail services and recreation facilities. The large linear parcel between Wilson and Gulick avenues has a dominant influence on the visual image of Fort Stewart. The area northeast of the Headquarters Visual Zone, between Harmon and Bultman avenues, also contributes to this image.

5.6.2 Visual Analysis Map

Map 5.4 shows the Barracks Visual Zone with symbols identifying the most significant visual elements located in it.

5.6.3 Assets

Site Planning

Barracks, operations and support facilities are efficiently integrated, with appropriate relationships to each other and to adjoining industrial and green space land uses (Fig. 5.27).



Fig. 5.27 – Unit operations facilities adjoin barracks for efficient access.

Open space is available close to the barracks for recreation and company level training (Fig. 5.28).



Fig. 5.28 – Open space adjoining barracks is used for training and recreation.

Buildings

The architectural style and color of the exterior building materials makes this visual zone easily recognizable. The use of consistent colors and forms presents an orderly image (Fig. 5.29).



Fig. 5.29 – Most barracks and unit operations buildings are of similar architectural style and materials.

Circulation

Streets and parking lots interconnect to simplify vehicle circulation and reduce conflicts between parking lot traffic and street traffic.

Pedestrian access is encouraged and accommodated in a large portion of this visual zone by centrally located walkways (Fig. 5.30).



Fig. 5.30 – Walkways connect parking to barracks and adjacent barracks complexes to each other.

Plant Material

The northern portion of this visual zone has a comfortable and pleasing environment due to the preservation of native pine trees (Fig. 5.31).



Fig. 5.31 – Stands of native pine trees are preserved to enhance the barracks complexes.

Site Elements

The spaces between the barracks buildings have a variety of site furnishings and other elements that give the complexes a pleasing human scale (Fig. 5.32).



Fig. 5.32 – Lighting, signs and other site elements are concentrated inside the barracks courtyards.

Antiterrorism

Some buildings have the minimum standoff distance required from roads and parking lots.

5.6.4 Liabilities

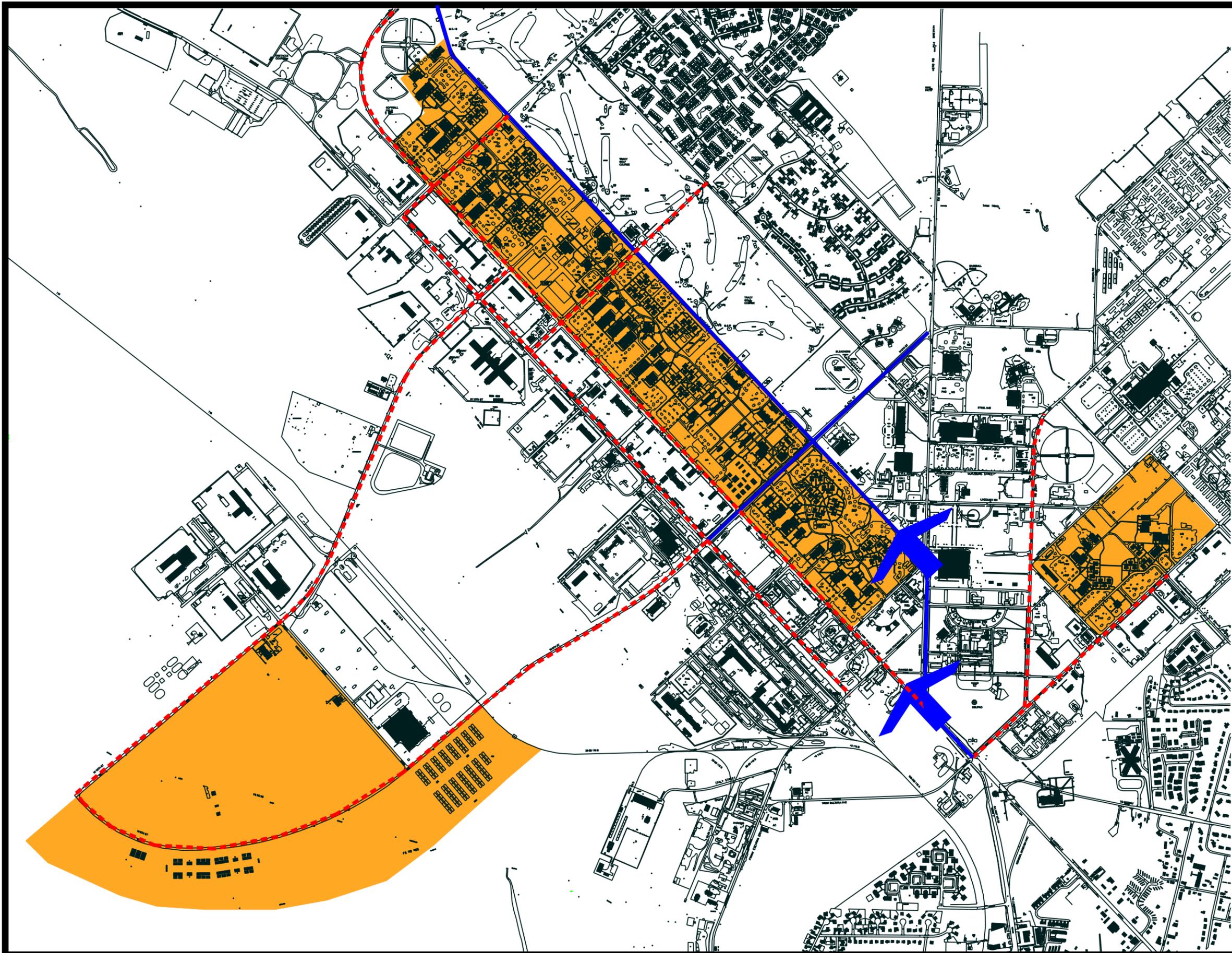
Site Planning

Some barracks courtyards appear stark, cold and visually unappealing. Many are highly visible from the adjacent streets, a condition that reduces privacy for resident soldiers (Fig. 5.33).

The relationships between some buildings and site facilities are undesirable in that the utility and service areas of one building are oriented toward the entry area of an adjacent one.



Fig. 5.33 – Some courtyards and activity areas are wide open to view from parking and roadways.



KEY MAP



LEGEND:

-  BARRACKS VISUAL ZONE
-  MAIN ENTRANCE
-  PRIMARY ROAD
-  SECONDARY ROAD



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**BARRACKS
VISUAL ZONE**

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MAP 5.4

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

Buildings

The site and building designs of the older barracks (Buildings 20-23) in block 600 are inconsistent. The site is void of plantings and other elements to create interesting personal spaces. The buildings are long plain structures lacking detail or interest (Fig. 5.34).



Fig. 5.34 – The two rolling pin barracks stand out as dull and uninviting.

The entries to some barracks are exposed to roadways and lack courtyards with amenities such as seating, landscaping and pedestrian lighting (Fig. 5.35).



Fig. 5.35 – Some barracks entrances lack site elements and landscaping.

Circulation

Some buildings are awkwardly oriented to roadways. These conditions result in vehicle maneuvering conflicts and in negative views of the area from roadways (Fig. 5.36).



Fig. 5.36 – Parking for one building conflicts with loading for another.

Plant Material

Several areas have erosion problems. Corrective measures must be implemented (Fig. 5.37).

There is a lack of shade trees in many areas between the buildings where soldiers could congregate to enjoy a cool, comfortable environment.



Fig. 5.37 – Eroded areas detract from the appearance of the barracks and adjacent open space.

Unscreened parking creates a visually negative impression of some of the barracks complexes (Fig. 5.38).



Fig. 5.38 – Unscreened and uncontrolled parking detracts from the otherwise orderly appearance of some barracks complexes.

Site Elements

A number of static displays have poor siting and lack an appropriate setting and backdrop (Fig. 5.39).



Fig. 5.39 – Parking and dumpsters detract from numerous static displays.

Loading facilities, dumpsters and above ground utility structures are often visible from building entries and major roadways. There are inadequate screens or buffers between recreation facilities and adjacent parking areas and roadways (Fig 5.40).



Fig. 5.40 – Dumpsters detract from the visual appeal of a barracks complex.

Antiterrorism

Standoff distances are not consistently applied to parking and vehicle access around barracks and unit operations buildings (Fig. 5.41).



Fig. 5.41 – Some roadways and parking areas allow vehicles to approach closer than 82 feet from occupied buildings.

5.6.5 Recommendations

Site Planning

Plant vegetative and other screening along roadways to restrict visibility into barracks complexes.

Reconfigure access to loading docks and other utilitarian areas that conflict with internal circulation or roadway traffic.

Buildings

Plant tall trees along the exterior of the rolling-pin barracks to break up views of the long facades.

Provide accent plantings and colorful entry features to improve the appearance of the buildings and to further diversify the facades.

Circulation

Reorganize parking and driveways to reduce conflicts between vehicles and entrances to adjacent buildings.

Plant Material

Reduce the grades and reseed areas where steep slopes contribute to soil erosion problems. Alternatively, plant rugged groundcover plants to stabilize the eroded areas.

Provide gathering areas in the courtyards between the barracks and plant trees for shade and visual interest.

Provide additional screening of parking lots from adjacent roadways. This screening should be in groups so that selected views into the parking lots and barracks complexes are retained.

Site Elements

Plant shrubs and trees to provide backdrops for static displays around the barracks. Alternatively, relocate the displays to places where blank building walls can be used to provide the backdrop.

Screen loading facilities to limit visibility from adjacent roadways. Group dumpsters where they will be less visible from roadways, building entries and other important locations. Enclose grouped dumpsters with masonry walls. Plant or construct screening elements to obscure other undesirable views and to provide visual separation between incompatible features and activity areas.

Exercise greater review and approval authority over incidental and self-help projects.

Antiterrorism

Provide additional standoff distance where appropriate or introduce barriers to increase antiterrorism compliance.

5.7 INSTALLATION SUPPORT VISUAL ZONE

5.7.1 Visual Character

The Installation Support Visual Zone is comprised of Tactical Equipment Maintenance Facilities (TEMF), storage facilities, the utility systems and the power plant. It also includes cantonment area expansion along the western end of 15th Street.

Architecturally, the zone consists of large-scale industrial buildings most of which have metal panel and concrete block exteriors and clerestory glass inserts.

Large expanses between these facilities are paved for storage and maintenance of vehicles, outdoor materials storage and open work areas. This visual zone is located in a well-defined land use area separate from housing, administration and community facilities.

5.7.2 Visual Analysis Map

Map 5.5 shows the Installation Support Visual Zone with symbols identifying the most significant visual elements located in it.

5.7.3 Assets

Site Planning

The large areas of hardstand are provided for installation support activities and they are intensively used (Fig. 5.42).



Fig. 5.42 – Extensive paved areas have multiple uses.

The orderly appearance of parked military vehicles and materiel storage creates an appropriate military image (Fig. 5.43).



Fig. 5.43 – Parked military vehicles present a striking image.



LEGEND:

-  INSTALLATION SUPPORT VISUAL ZONE
-  MAIN ENTRANCE
-  SECONDARY ROAD
-  FOCAL POINT / LANDMARK
-  SIGNIFICANT ARCHITECTURE
-  GOOD VIEWS



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VISUAL ZONE**

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MAP 5.5

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

Buildings

The utilitarian appearance of most of the buildings clearly communicates the industrial nature of the zone (Fig. 5.44).



Fig. 5.44 – The TEMF are typical buildings in this visual zone.

The light colors of most of the buildings visually unify the installation support areas and allow small areas of brighter colors to stand out as accents (Fig. 5.45).



Fig. 5.45 – Signs and architectural accents stand out against the consistent colors of buildings.

Circulation

Circulation within the large compounds allows for minimum use of roadways for support vehicles (Fig. 5.46).



Fig. 5.46 – Tactical vehicles often circulate on special roadways.

Plant Material

Trees and shrubs are sometimes combined with fencing to visually screen hardstand, outdoor storage and industrial buildings (Fig. 5.47).



Fig. 5.47 – Vegetative screening effectively obscures buildings and hardstand.

Site Elements

Many installation support areas have area lighting to accommodate nighttime work and to increase security (Fig. 5.48).



Fig. 5.48 – Lighting at the fuel farm permits round-the-clock operations.

Antiterrorism

Most industrial facilities are sited away from roadways and inside fenced compounds (Fig. 5.49).



Fig. 5.49 – Standoff distances and security fencing provide substantial antiterrorism protection.

5.7.4 Liabilities

Site Planning

Many areas of the adjacent Barracks, Headquarters and Green Space visual zones have excessive visibility of the industrial areas in the Installation Support Visual Zone (Fig. 5.50).

Industrial facilities are fully visible to vehicles entering the installation from the north or west.



Fig. 5.50 – Views into the Installation Support Visual Zone across Wilson Avenue are unobstructed.

Buildings

Buildings generally lack architectural interest and are unrelated to other installation or regional architectural styles (Fig. 5.51).



Fig. 5.51 – Bland metal and concrete buildings dominate the visual zone.

Some of the older buildings are in disrepair creating a poor visual image (Fig. 5.52).



Fig. 5.52 – It is difficult to maintain the exterior appearance of the old wooden warehouses.

Circulation

Some installation support facilities have direct access to the roadways, creating conflicts between industrial traffic and normal circulation (Fig. 5.53).



Fig. 5.53 – Trucks backing trailers to this loading dock maneuver in the travel lanes of McFarland Avenue.

There is inadequate parking for privately owned vehicles (POV) adjacent to many of the compounds, forcing personnel to park on the roadways and grass (Fig. 5.54).



Fig. 5.54 – POV parking directly on McFarland Avenue is common.

Plant Material

There is very little vegetation remaining within this visual zone so views of pavement and industrial buildings are extensive and there is no relief from the intense sun (Fig. 5.55).



Fig. 5.55 – Extensive paved areas unbroken by shade are the norm.

Site Elements

The storm drainage ditches along the roadways are visually undesirable and do not allow for plantings to screen or break up views (Fig. 5.56).



Fig. 5.56 – Open ditches flank many roads in the visual zone.

Antiterrorism

Security-related components, such as metal window grills, fencing, barbed wire and concertina wire are unattractive (Fig. 5.57).



Fig. 5.57 – View of typical security fence around support site.

5.7.5 Recommendations

Site Planning

Provide street tree plantings along the roadways that bound the Installation Support Visual Zone to soften the views across expansive pavement as well as adding character and identity to the roadways.

Buildings

Paint especially large and bland buildings with limited areas of accent colors to enrich their appearance.

Provide uniform maintenance practices to building exteriors so they all maintain a consistent, well-kept appearance.

Circulation

Provide additional access points to allow industrial vehicles to minimize use of roadways when moving between compounds.

Expand POV parking areas and maximize parking area use by centrally locating parking lots to be shared by adjacent uses.

Plant Material

Plant shade trees along roadways, in POV parking lots and in employee break areas. Also, plant shrubs and hedges to provide screening between compounds to break up expansive views of pavement.

Site Elements

Place drainage in underground pipes so ditches along roadways can support vegetation. Prioritize this improvement with street tree plantings along the perimeter of the zone and then along roadways within the zone.

Antiterrorism

Revise and visually screen security measures so the overall appearance is less severe.

5.8 NATIONAL GUARD VISUAL ZONE

5.8.1 Visual Character

The eastern portion of the cantonment area contains the distinct troop housing facilities of the National Guard Visual Zone. This area is treated separately due to the periodic, short-term use of its unique, permanent facilities.

The single-story, concrete masonry barracks are extremely uniform in appearance and function, with repetitive architecture and site improvements. They are intensively used during short, infrequent time periods. This pattern creates unique needs and requirements for the facilities including a simple circulation system, identifiable unit areas and provisions for setting up temporary equipment. During periods of inactivity, the area is mostly vacant and there is a lesser need for services and maintenance.

5.8.2 Visual Analysis Map

Map 5.6 shows the National Guard Visual Zone with symbols identifying the most significant visual elements located in it.

5.8.3 Assets

Site Planning

The linear site design produces an image of discipline, organization and efficiency (Fig. 5.58).

Open space between barracks and the central location of Parade Field minimizes vehicular travel for some company and battalion level drills (Fig. 5.58).

Buildings

The simple, functional architecture is appropriate for its intended periodic use (Fig. 5.59).

The simple architectural style provides a neutral background against which special buildings can stand out and provide identity to a specific area (Fig. 5.60).



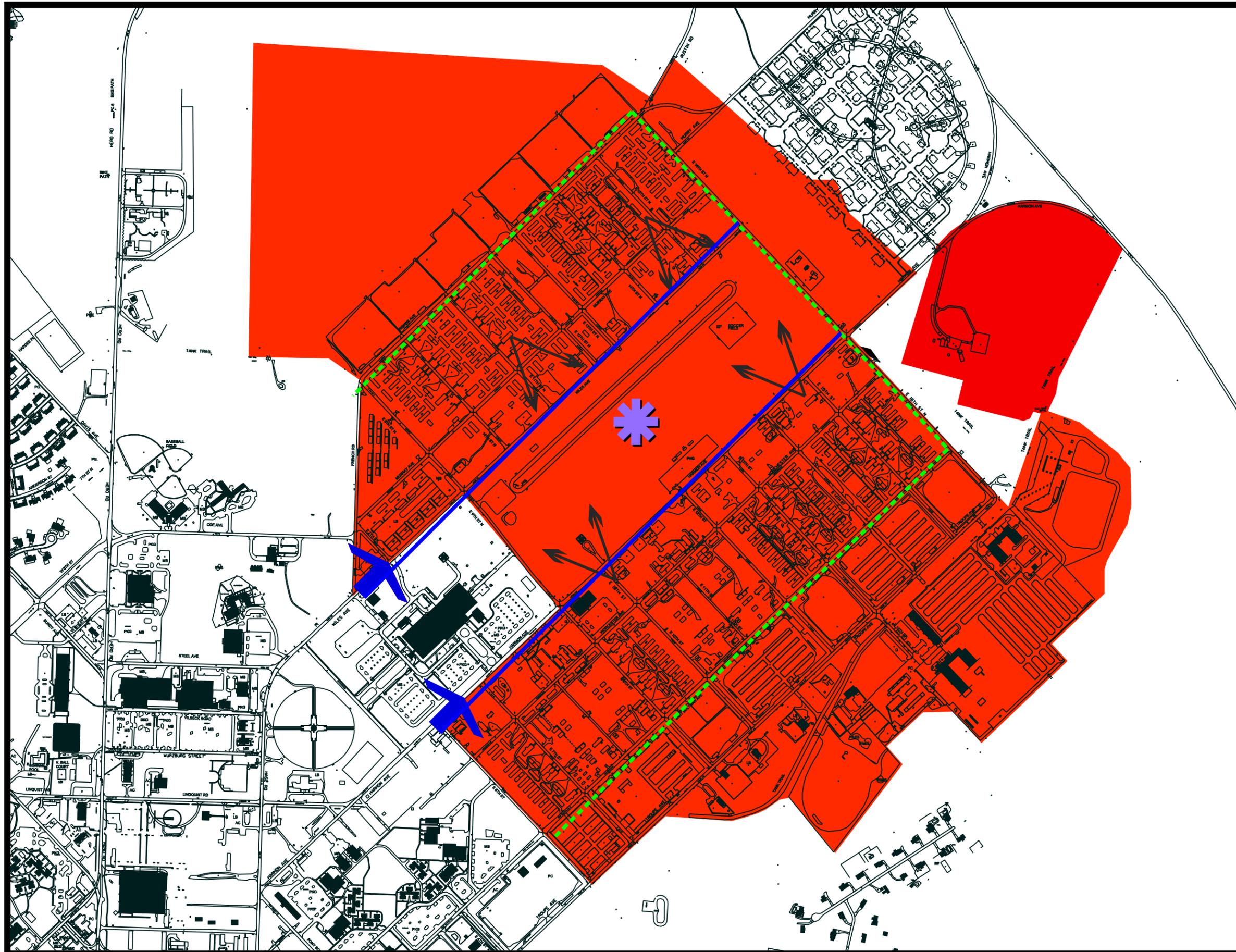
Fig. 5.58 – A view between barracks in the National Guard Visual Zone.



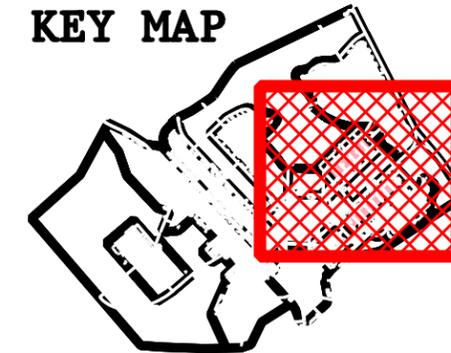
Fig. 5.59 – Certain buildings, such as dining facilities are painted light colors to indicate their use.



Fig. 5.60 – The Bachelor Officer Quarters (BOQ) stands out as the most striking building in the zone.



KEY MAP



LEGEND:

-  NATIONAL GUARD VISUAL ZONE
-  MAIN ENTRANCE
-  PRIMARY ROAD
-  SECONDARY ROAD
-  FOCAL POINT / LANDMARK
-  GOOD VIEWS



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**NATIONAL GUARD
VISUAL ZONE**

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MAP 5.6

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

Circulation

With the exception of through traffic on adjacent major roadways, the area is isolated from active installation facilities during normal duty hours.

Parallel streets flanking the north and south areas provide ample access to the buildings with limited conflicts with troop pedestrian circulation (Fig. 5.61).



Fig. 5.61 – Ricker Avenue flanks the barracks area on the North.

Plant Material

Existing trees help reduce the stark appearance of the area and give it a rustic and camp-like feeling (Fig. 5.62).



Fig. 5.62 – Plentiful pine trees provide a pleasant and natural appearance.

Mature trees occur at random throughout the area and stands of mature pines provide a backdrop for some views of the buildings (Fig. 5.63).



Fig. 5.63 – Stands of tall pines dominate most views in the National Guard Visual Zone.

Site Elements

Signs and barriers prevent entry of vehicles between many of the buildings.

Antiterrorism

The National Guard Visual Zone is within the installation controlled perimeter.

5.8.4 Liabilities

Site Planning

No liabilities noted.

Buildings

The repetitive nature of the architecture and the monochromatic gray color scheme lack interest and provide few visual clues to assist in orientation (Fig. 5.64).



Fig. 5.64 – The extensive area of similar buildings has a strong but boring image.

Circulation

A primary pedestrian system does not exist. There are no linkages provided for interaction between units or for access to nearby industrial, training and community facilities (Fig. 5.65).



Fig. 5.65 – Crosswalks or dedicated walkways don't interconnect areas of the National Guard Visual Zone.

Plant Material

No liabilities noted.

Site Elements

Provisions for special temporary facilities and site uses (truck parking, equipment storage, site furnishings, lighting and signs) are inadequate (Fig. 5.66).



Fig. 5.66 – Outside the buildings there are few site features or elements.

Antiterrorism

There are few buildings that have the minimum standoff distance required between parking or roadways and occupied buildings (Fig. 5.67).



Fig. 5.67 – In some areas pavement abuts the barracks.

5.8.5 Recommendations

Site Planning

No recommendations.

Buildings

Where applicable, apply accents with trim and paint to identify buildings with specific uses, such as barracks, dining facilities, company operations, etc.

Provide intermittent vegetative screening along the outside perimeter of this visual zone to break up especially long views of the repetitive buildings.

Circulation

Develop pedestrian paths to interconnect adjacent use areas and to connect the National Guard facilities with the Town Center Visual Zone.

Plant Material

Continue to protect and preserve existing tree stands and plant additional shade trees and accent landscaping in key locations.

Site Elements

Provide lighting and appropriate signage for the pedestrian system as it is developed. Also, provide paving and vehicle barriers for parking areas. Provide site furniture in areas used by personnel for breaks and recreation.

Antiterrorism

Define new parking areas at the appropriate standoff distances from occupied buildings.

5.9 HOUSING VISUAL ZONE

5.9.1 Visual Character

The Housing Visual Zone contains numerous neighborhoods north of the cantonment area. Visual perceptions of the district are generally positive because of the variety of housing types, styles and densities. Schools, parks and other neighborhood facilities are located among heavily wooded open space, adding to the positive perception.

The older housing area is adjacent to the installation's golf course. The arrangement of streets and buildings is primarily linear, bisected by a school and a sports field. The newer family housing areas are located adjacent to the northern boundary of the cantonment area. Family housing buildings range from one to two-story in height with one to six units per building.

Materials used throughout the visual zone include brick, split-face block and vinyl siding with stucco as accent or trim. Building colors are predominantly natural earth tones. A significant element in the overall image of the zone is the repetition of the gable roof configuration. This contributes to the cohesiveness and provides a sense of architectural continuity.

5.9.2 Visual Analysis Map

Map 5.7 shows the Housing Visual Zone with symbols identifying the most significant visual elements located in it.

5.9.3 Assets

Site Planning

Neighborhoods are conveniently located near schools and community facilities and separated from mission-related training and administrative operations.

The variety of neighborhoods with different densities and site layouts enhances the interest of the visual zone and provides a sense of identity within the Fort Stewart community.

Neighborhood parks and open spaces offer residents an easily accessible area for play and relaxation (Fig 5.68).

Buildings

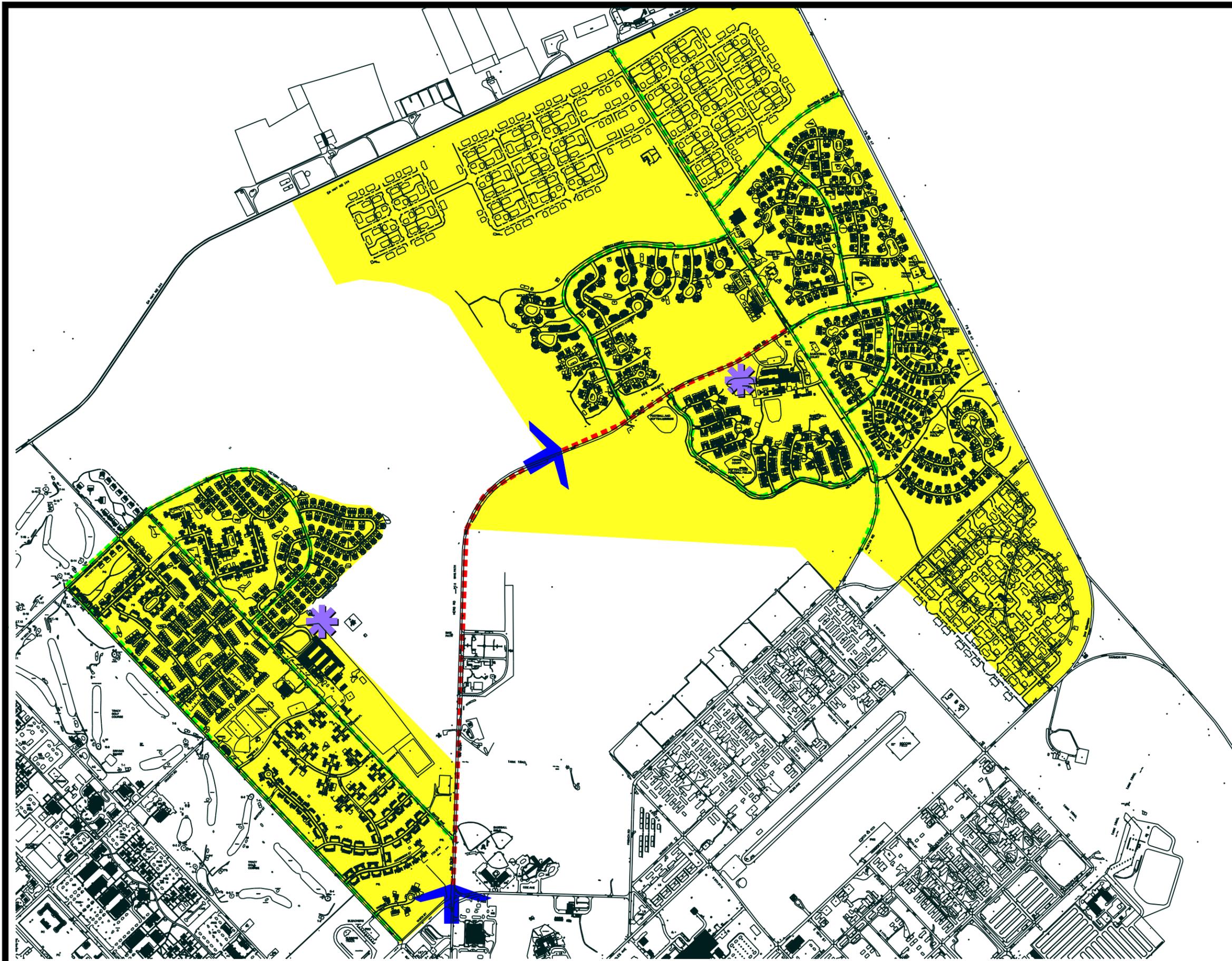
Architectural features are effective in creating variety and reducing the scale of the repetitive buildings. The variety of neighborhoods with traditional architectural styles enhances the interest and provides a sense of identity. Brick and aluminum siding are used



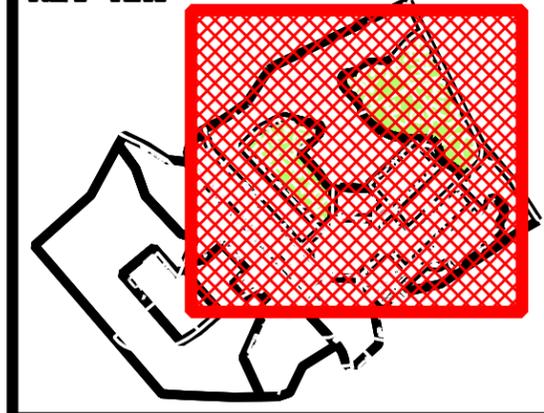
Fig. 5.68 – Several playgrounds have new play equipment.



Fig. 5.69 – New housing incorporates architectural detailing to provide variety and neighborhood identity.



KEY MAP



LEGEND:

-  HOUSING VISUAL ZONE
-  MAIN ENTRANCE
-  SECONDARY ROAD
-  LOCAL ROAD
-  FOCAL POINT / LANDMARK



U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

FORT STEWART, GEORGIA
INSTALLATION DESIGN GUIDE

**HOUSING
VISUAL ZONE**

GREENHORNE & O'MARA, INC
CONSULTING ENGINEERS

MAP 5.7

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

for building exteriors throughout the visual zone to provide for low maintenance (Fig 5.69).

Circulation

Curvilinear road alignment and short cul-de-sacs reduce long, repetitive views of housing units (Fig. 5.70).



Fig. 5.70 – Short views along streets reduce the scale of the neighborhoods.

Bicycle and pedestrian pathways provide linkage between housing areas and offer a safe alternative to roadways for walking or jogging (Fig. 5.71).



Fig. 5.71 – A walking and bicycle trail connects adjacent housing areas and parks.

Plant Material

Native vegetation retained in the Housing Visual Zone provides a natural, low maintenance amenity. Large stands of pine trees help to define neighborhoods and create a feeling of permanence (Fig. 5.72).



Fig. 5.72 – A stand of trees preserved by a curve in the street.

Site Elements

Where street signs, mailboxes, bus shelters and landscaping are well-maintained they contribute to a sense of order and pride (Fig. 5.73).



Fig. 5.73 – Landscaping and lighting at this residence set the tone for the neighborhood.

Antiterrorism

Minimization of through traffic on neighborhood streets decreases vehicle speeds and diminishes entry of uninvited visitors (Fig. 5.74).



Fig. 5.74 – The network of streets is not accommodating to unintended visitors.

5.9.4 Liabilities

Site Planning

Unscreened views of the backsides of houses diminish the visual image of some neighborhoods. Several neighborhoods have insufficient storage, resulting in yards cluttered with tools and recreational equipment (Fig. 5.75).



Fig. 5.75 – An unscreened yard that fronts on a street can detract from the neighborhood.

Buildings

In the older neighborhoods, carports and driveway parking dominate the visual streetscape because of their consistent location in the front of dwellings (Fig. 5.76).



Fig. 5.76 – Street frontage dominated by driveways detracts from the attractiveness of the neighborhood.

Circulation

The pedestrian walkway system in some neighborhoods is not fully developed.

Plant Material

Native vegetation has not been adequately supplemented with additional trees and smaller plantings to define roadways, highlight building entries and define outdoor activity areas (Fig. 5.77).



Fig. 5.77 – Some units have no landscaping.

Site Elements

The design of some enclosed shelters lacks ventilation and visibility for the comfort and personal safety of those waiting inside (Fig. 5.78).

Antiterrorism

No liabilities noted.



Fig. 5.78 – Bus shelters should be open so the waiting people are comfortable and visible.

5.9.5 Recommendations

Site Planning

Orient housing in new neighborhoods so the side and rear yards are less visible from the streets.

Buildings

During renovations and in new housing provide enclosed garages and place carports and driveway parking between units rather than in front.

Circulation

Complete the pedestrian walkway system and connect the system in each neighborhood to the overall system that leads to schools, nearby community services and to the Town Center and Green Space visual zones.

Plant Material

Add landscaped areas at neighborhood entrances, along the pedestrian system, at recreations areas and between lots to better define open spaces and to enrich the overall appearance of the housing areas.

Site Elements

As shelters and other elements are replaced follow a consistent style within each housing area so that all elements support a unified appearance.

Antiterrorism

Continue to enhance physical security for housing areas.

5.10 GREEN SPACE VISUAL ZONE

5.10.1 Visual Character

Recreation facilities, buffer areas, ranges, undeveloped native pine forests, training areas and wetlands comprise the Green Space Visual Zone at Fort Stewart. While geographically much larger than the other visual zones, only small portions of it are commonly visible to the general installation population.

Much of the visible green space is located along roadways in undeveloped areas of the installation, including along Georgia Highway 144, the golf course and in the recreation and parade fields. These areas are important visual buffers that add significantly to the overall visual quality of the installation.

There are several important green spaces within the cantonment area. These spaces significantly influence the visual character of the installation. Expansion of the cantonment area will necessarily involve conversion of portions of the Green Space Visual Zone to other visual zones because the existing cantonment area is fully developed.

5.10.2 Visual Analysis Map

Map 5.8 shows the Green Space Visual Zone with symbols identifying the most significant visual elements located in it.

5.10.3 Assets

Site Planning

Open space at Fort Stewart tends to be green space. These areas help establish a positive visual image of the installation. The principle open spaces within the cantonment area are in the vicinity of the Main Gate, at the golf course, at Cottrell and Donovan parade fields and in the family housing areas (Fig. 5.79).

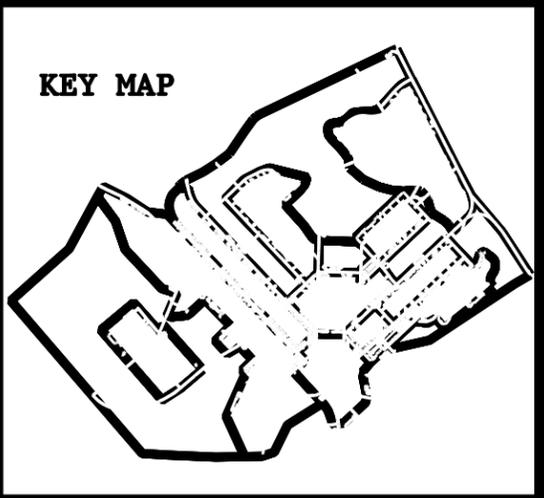
Much of the green and open areas are interconnected with the larger green areas that surround the cantonment area (Fig. 5.80).



Fig. 5.79 – The golf course provides open views for abutting areas.



Fig. 5.80 – Green areas are plentiful in the Barracks, Town Center, Housing and Headquarters visual zones.



LEGEND:

-  GREEN SPACE VISUAL ZONE
-  MAIN ENTRANCE
-  PRIMARY ROAD
-  SECONDARY ROAD
-  FOCAL POINT / LANDMARK



U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

FORT STEWART, GEORGIA
INSTALLATION DESIGN GUIDE

**GREEN SPACE
VISUAL ZONE**

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CONSULTING ENGINEERS

MAP 5.8

SOURCE: Directorate of Public Works, Office of Master Planning, Visual Districts Map 11/22/04

Buildings

The buildings in the Green Space Visual Zone are primarily picnic shelters and other recreation structures which visually contribute to the rustic and natural character (Fig. 5.81).



Fig. 5.81 – Newer picnic shelters are lightweight and very open.

Circulation

Pedestrian and bicycle paths supplement roadways passing through the Green Space Visual Zone (Fig. 5.82).



Fig. 5.82 – A pedestrian and bicycle path parallels the roadway.

The bicycle and pedestrian trail system being developed is well-received and is a very important feature for recreation and accessibility (Fig. 5.83).



Fig. 5.83 – A pedestrian and bicycle path separates from the roadway to cross open space.

Plant Material

Green spaces have been preserved and well-maintained, forming a buffer at the edge of the cantonment area. This buffer provides a sense of enclosure for the cantonment area and appears as a backdrop for the buildings and other facilities within it (Fig. 5.84).



Fig. 5.84 – Stands of native trees in the Green Space Visual Zone are visible beyond the adjoining developed areas.

Mature and established communities of vegetation occupy most of the green areas (Fig. 5.85).



Fig. 5.85 – Much of the Green Space Visual Zone is occupied by native woods.

Site Elements

The areas of the Green Space Visual Zone that are closest to the Barracks, Town Center and Housing visual zones include amenities for active and passive uses (Fig. 5.86).



Fig. 5.86 – Warrior's Walk is located at Cottrell Field.

Antiterrorism

Open space and recreation assets are within the controlled perimeter of Fort Stewart.

5.10.4 Liabilities

Site Planning

As the need for expansion of facilities increases, new development encroaches upon the Green Space Visual Zone (Fig. 5.87).



Fig. 5.87 – Temporary facilities and new development for three brigade combat teams require expansion of the Barracks and Installation Support visual zones into the Green Space Visual Zone.

Buildings

No liabilities noted.

Circulation

No liabilities noted.

Plant Material

No liabilities noted.

Site Elements

Some deteriorated outdoor equipment and fencing in this visual zone projects a poor impression (Fig. 5.88).



Fig. 5.88 – Wood benches and fencing at the Donovan Parade Field are deteriorated.

Antiterrorism

No liabilities noted.

5.10.5 Recommendations

Site Planning

Provide definition to large open green spaces by planting specimen trees in groups and along the edge. These trees will mature and produce a more varied and interesting view.

Minimize the conversion of green space to new expansion by ensuring that all redevelopment options are exercised and by designing new projects for the greatest efficiency in the use of land area.

Buildings

Continue to construct buildings that visually blend into the natural environment and are made from sustainable.

Circulation

Avoid providing vehicular circulation access to green and open space areas where it is not needed for maintenance or programmed recreation activities.

Plant Material

Continue to preserve wooded areas, open fields and wetlands for their visual and environmental benefits.

Site Elements

Renew needed site furnishings and other elements in the green spaces before they become deteriorated and remove those that are deteriorated and for which there is no longer a use.

Antiterrorism

Continue to provide physical security in the Green Space Visual Zone.

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SECTION 6 **IMPROVEMENT PROJECTS**

6.1 INTRODUCTION

6.1.1 Section 6 consists of projects generated from the recommendations presented in the visual zone analysis in [Section 5](#). Improvement projects may consist of enhancement of a single visual element or improvement of an area that includes a variety of visual elements. Depending on the project scope and cost, the projects could include: Military construction (MILCON), Non-Appropriated-funded (NAF), Other Procurement, Army (OPA), maintenance and repair, local minor construction and self-help. Each improvement project is described and cost-estimated in enough detail to place each project within the appropriate project list or annual work plan, in an appropriate Fiscal Year, within the statutorily correct funding program. Projects require a Capital Investment Strategy.

6.1.2 The paragraphs below discuss each project at length and includes existing conditions, project description, design concept, cost estimate, primary and alternate recommended funding sources, photographs, sketches and maintenance impact as applicable.

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SECTION 7 SITE PLANNING DESIGN STANDARDS

7.1 INTRODUCTION

7.1.1 Site Planning is the process of arranging an external physical environment in complete detail to include the structures, circulation patterns and other elements that form the built environment. The site planning and design process is used to develop a project that fulfills facility requirements and creates the optimal relationship with the natural site. See [Unified Facilities Criteria \(UFC\) 3-210-06FA, Design: Site Planning and Design](#) for detailed guidance on site planning to include program analysis, site analysis, site verification and concept development. This technical manual (TM) also discusses site design guidelines, describes the steps in the site planning process and contains examples of various sketches/diagrams developed in support of these steps. Also see [TI 800-01, Design Criteria, Chp. 3, Site Planning and Design Criteria](#). Environmental documentation will be prepared prior to site selection to support the construction activity in accordance [AR 200-2, Environmental Effects of Army Actions](#).

7.1.2 This section on site planning addresses the issues and criteria involved in the determination of how facilities are to be arranged on developed sites within the installation (Fig. 7.1). The installation master plan provides information that forms the foundation for site planning. The master plan is a mechanism for ensuring that individual projects are sited to meet overall installation requirements. [AR 210-20, Master Planning for Army Installations](#) provides additional information concerning the master plan.



Fig. 7.1 – Site planning establishes the arrangement of facilities on a development site.

7.1.3 The other five design sections are dependent upon site planning to establish the basic relationships between buildings, buildings and supporting facilities, supporting facilities and roads, etc. Links to these other sections are provided below:

- [Section 8 - Buildings Design Standards](#)
- [Section 9 - Circulation Design Standards](#)
- [Section 10 - Landscape Design Standards](#)
- [Section 11 - Site Elements Design Standards](#)
- [Section 12 - Antiterrorism Design Standards](#)

7.2 SITE PLANNING OBJECTIVES

7.2.1 The goal of site planning for the installation is to produce attractive, sustainable development. Sustainability requires the built environment to be designed and constructed to preserve and enhance the natural environment. Manmade facilities are designed as a part of the environment and to minimize negative environmental impacts. General site planning techniques resulting in sustainable development are cost efficient because they conserve energy and reduce construction and maintenance cost.

Typical site planning objectives include the following:

- Balance the multiple relationships that occur between a site and project requirements including function, use, traffic, utilities, existing structures soil suitability, land availability and development on surrounding sites.
- Preserve natural site features such as topography, hydrology, vegetation and tree cover.
- Locate facilities with consideration of climatic conditions such as wind, solar orientation and microclimate.
- Preserve the natural site by molding development to fill around existing land forms and features. This development approach minimizes extensive earthwork, preserves existing drainage patterns and preserves existing vegetation.
- Plan for facilities to be clustered to preserve land and reduce construction cost. Clustering should occur on the flattest land areas. Room for expansion should be provided for both buildings and parking areas.
- Cluster barracks informally in a free-form pattern to present a more open setting, while minimizing the lengths of roads, power lines, water lines and sewer lines required to serve the development. Barracks complexes will be

designed with winding sidewalks, trees, landscaping and other site features to provide a residential atmosphere.

- Organize company operations facilities formally in a “dress-right-dress” layout to present an image of precision and order, to reflect the nature of the installation.
- Consider antiterrorism measures carefully in the organization and layout of facilities.
- Incorporate appropriate stormwater management measures into each project to adequately control post-development runoff. All measures shall be in accordance with the requirements of the Environmental Protection Division (GA EPD) of the Georgia Department of Natural Resources. Where stormwater retention/detention is required, designers should limit their designs to include dry detention basins only. A dry detention basin is a surface storage basin or facility designed to provide water quantity control through detention and/or extended detention of stormwater runoff (Fig. 7.2).
- Consider the use of underground detention in underground vaults or tanks designed to provide water quantity control. As stated in Section 3.4 of the Georgia Stormwater Management Manual “Detention vaults are box-shaped underground stormwater storage facilities typically constructed with reinforced concrete. Detention tanks are underground storage facilities typically constructed with large diameter plastic pipe (Fig. 7.3). Both serve as an alternative to surface dry detention for stormwater quantity control, particularly for space-limited areas where there is not adequate land for a dry detention basin or multi-purpose detention area.”
 - Underground detention vaults and tanks are not intended for water quality treatment and must be used in a treatment train approach with other structural controls. This will prevent the underground vault or tank from becoming clogged with trash or sediment and significantly reduces the maintenance requirements for an underground detention system.
 - Prefabricated concrete vaults are available from commercial vendors. In addition, several pipe manufacturers have developed packaged detention systems.



Fig. 7.2 - View of a Dry Detention Basin consistent with Section 3.4, GA Stormwater Management Manual

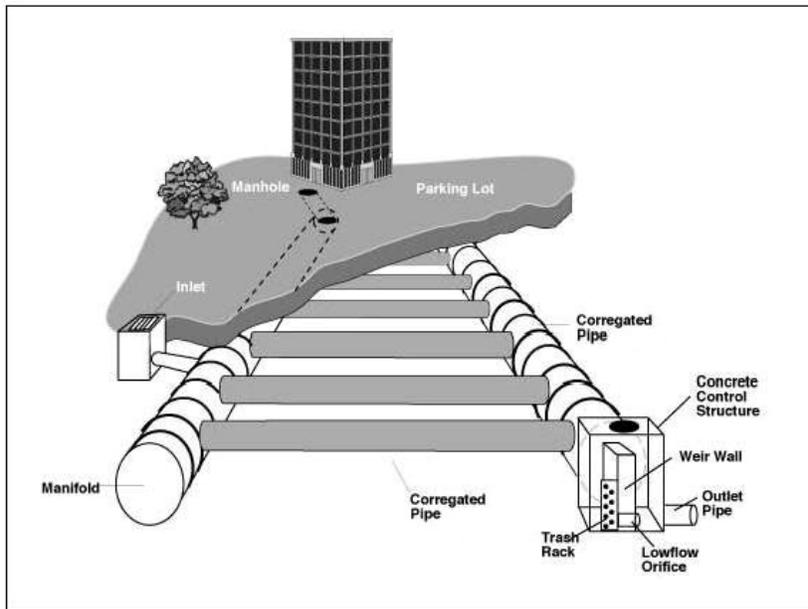


Fig. 7.3 - Diagram of an underground detention tank system adapted from Section 3.4, Georgia Stormwater Management Manual.

7.3 SITE PLANNING CONSIDERATIONS

7.3.1 The fit of new facilities to their environment is developed by a thorough site analysis followed by careful site planning. The primary issues that determine the basic location and organization of buildings and facilities on a site are identified and evaluated during the site planning. The results of evaluation are commonly displayed on a map that depicts the opportunities and constraints for the proposed development (Fig. 7.4).

7.3.2 Any building or facility used only by able-bodied personnel need not be accessible to the disabled. Nevertheless, when feasible and appropriate, seek to incorporate accessibility measures into the design since the facility use may change over time (the military exclusion is provided by [UFAS 4.1.4 \(2\)](#)). All other structures or facilities must meet the standards of the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and the [Uniform Federal Accessibility Standards \(UFAS\)](#), with the most stringent standards applied in the event of conflicting guidelines. (See [AR 420-70](#), Chapter 2, Para 2.8). This includes the use of curb cuts, ramps, handrails and grade-level entrances to avoid site barriers. Provide designated handicapped parking spaces in all major parking lots and drop-off zones for persons with mobility impairments. Modify existing structures for handicapped

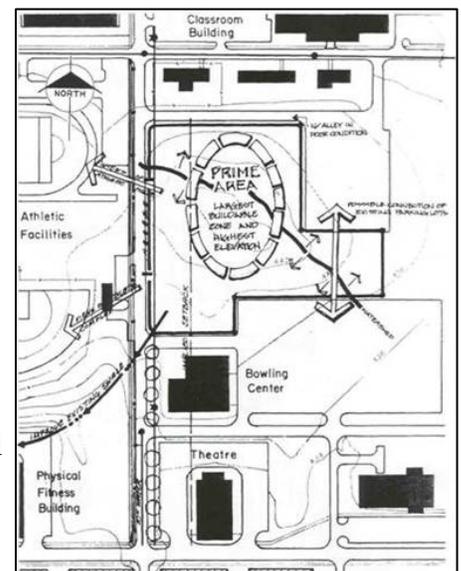


Fig. 7.4 – Sample map of site opportunities and constraints.

accessibility whenever possible, especially community facilities that are most likely to be used by families, veterans or visitors.

7.3.3 Environmental issues to consider in the preparation of a site plan include any action or proposal that has a detrimental affect on land, water, air, cultural and biological resources. The location of facilities on land that results in minimal disturbance to the existing topography, vegetation and drainage patterns greatly reduces negative impact on the environment. It is the Garrison Commander's responsibility to ensure that all National Environmental Policy Act (NEPA) documentation is started before the site selection process, as this process feeds the 1391 process.

NEPA Process

NEPA requires that an Environmental Impact Statement (EIS) be submitted to the U.S. Environmental Protection Agency (EPA) for major projects that may result in significant effect to the environment. The EPA reviews and responds to filed impact statements. Information pertaining to EISs and their submission can be found at the following EPA websites:

- [Environmental Impact Statement \(EIS\)](#)
- [Submitting Environmental Impact Statements \(EISs\)](#)

Rivers and Harbors Act Review

Federal law requires that prior to the undertaking of activities which affect the nation's waterways a permit must be acquired. In the law, waterways are described as "navigable waters of the United States" and "waters of the United States." The law includes wetlands in these designations. Information regarding statutory, administrative and judicial matters, including general regulatory policy, definitions of "waters of the United States" and "navigable waters" and processing of permits can be obtained at the following Corps of Engineers website:

- [Statutory, Administrative and Judicial Materials](#)

Impact Mitigation

Include procedures for mitigating environmental concerns in the early stages of project development. To the maximum extent possible, avoid siting development or individual buildings in environmentally sensitive areas. The installation master plan environmental overlay should be reviewed prior to the development for areas designated as habitat for threatened and endangered species.

7.4 SITE PLANNING DESIGN CRITERIA

7.4.1 The site planning component of installation design comes first in the design process and determines the general location of the other components. Consequently, site planning must consider the criteria for architectural design, circulation, landscape architecture, site elements and antiterrorism. Site planning criteria is divided into two categories, natural conditions and manmade conditions. Each is discussed separately in the following paragraphs. These criteria are to be utilized for the assessment of the visual and spatial impacts of site planning.

7.5 NATURAL CONDITIONS

7.5.1 The natural terrain is a major determinant of the layout and form of the installation. The following guidelines should be used to maintain the natural topography of the installation.

- Maintain natural ground slopes and elevations.
- Align roadways and buildings along topographic lines.
- Locate facilities that have expansive ground coverage on relatively flat terrain.
- Use moderately sloping areas for buildings with less ground coverage area.
- Avoid development in natural drainage ways and floodplains.
- Provide a reasonable balance of cut and fill. Earthwork calculations should take into account the various adjustments required to achieve a reasonable balance (approximately 5% to 10% excess suitable material after adjustments).
- Adjust earthwork calculations to account for:
 - Topsoil stripping and reuse
 - Pavement and subgrade excavation
 - Root mat removal
 - Compaction
 - Related earthwork items

7.5.2 The site planning team will consider hydrologic concerns for natural drainage corridors, floodplains and waterways during the site planning process. The issues to be considered include, but are not limited to the following:

- Preserve and maintain natural drainage areas and floodplains.

- Limit development in floodplains to open spaces and recreational uses.
- Preserve rivers, lakes, streams, or other waterways and incorporate them into the design layout.
- Incorporate a 25-foot stream buffer in accordance with the Georgia EPD requirements for State Waters (Fig. 7.5). The need for stream buffers is determined on a case-by-case basis.

7.5.3 New and redeveloped facilities will be designed in response to local climatic conditions to provide a more comfortable environment and reduce the demands for heating and cooling (Fig. 7.6).

Temperate Regions

Building design and site development will be designed to balance the effects of seasonal thermal variations. Winter warming and summer cooling must be maximized by building orientation to sun angles and prevailing winds.

Hot Humid Regions

Building design and site development will be designed to minimize solar heat gain and to promote air movement and cross-ventilation.

7.5.4 New development will be designed to preserve and enhance scenic and other attractive views and vistas and to screen unattractive views and vistas. Visual extensions through open spaces will be incorporated as much as practicable to provide a sense of orientation, relief and enjoyment.

7.5.5 New development and additions will be designed to protect and preserve existing native vegetation. This preservation reduces maintenance and enhances sustainability. The preferred plants are listed in [Appendix O, Plant Palette](#). Also, see [Section 10, Landscape Design Standards](#).

7.6 MANMADE SITE CONDITIONS

7.6.1 The site plan provides the locations of the manmade development that will occur on site. It establishes the spatial relationships as well as the relationships between manmade and existing natural features. Manmade site conditions include all development on the installation to include buildings, roadways, parking lots, walkways, walls, fences, utilities and other facilities. Buildings, roadways, parking lots and above ground utilities are the primary manmade visual determinants.

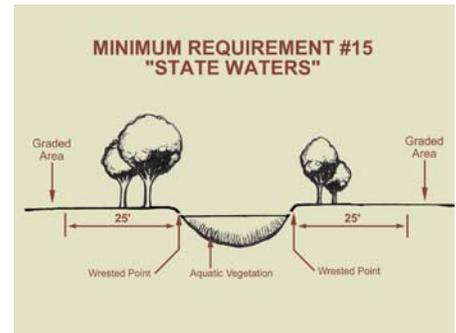


Fig. 7.5 – State Waters Stream Buffer diagram from the GA EPD.

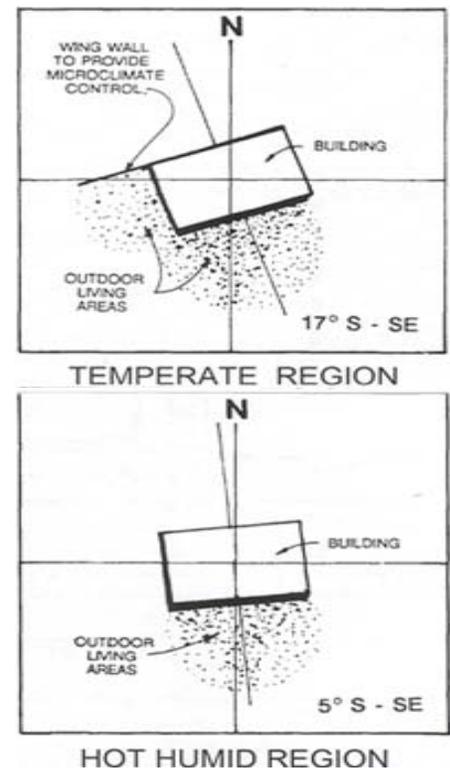


Fig. 7.6 - Building orientations for passive solar heating at Fort Stewart would be for the temperate or hot humid region.

7.6.2 The following site planning guidelines will be used in the visual and spatial review of the installation:

- Cluster buildings to reduce impact on the natural environment and reduce roadways and utility corridors needed to serve the development, at the same time, however, giving full consideration to antiterrorism requirements.
- Locate large buildings in relatively flat areas oriented to the existing topography to reduce the cut and fill and preserve the natural vegetation and drainage (Fig. 7.7).
- Minimize solar heat gain for cooling and maximize solar heat gain and retention for heating.
- Site buildings with consideration for the microclimate conditions of the site that result in variances in wind or light because of adjacent land forms, structures, or trees.
- Orient outdoor pedestrian areas to provide the most comfortable exposure.
- Utilize lighter colored building surfaces exposed to the sun and darker colors on recessed surfaces to absorb radiation.
- Orient windows according to impact of climatic conditions.
- Locate development on the leeward side of hills.
- Design and locate roads to provide a hierarchy of traffic carrying capacities.
- Locate roads to blend with topography and vegetation.
- Design and locate parking lots to minimize the visual impact of broad expanses of pavement and vehicles. These types of parking areas are visually and climatically undesirable and should be reduced when possible by preserving existing vegetation and by enhancing with new plantings in the medians.
- Allow adequate space for future expansion of parking lots where large concentrations of soldiers will be located.
- Design and locate pedestrian walkways and bicycle paths to fit the physical environment and to provide a comfortable pedestrian experience, limiting conflicts with vehicular traffic.
- Locate trees and shrubs to buffer harsh natural conditions such as in parking lots and large paved areas. Hedges and street trees, evergreen buffers and earthen berms are useful in creating these buffers (Fig. 7.8).

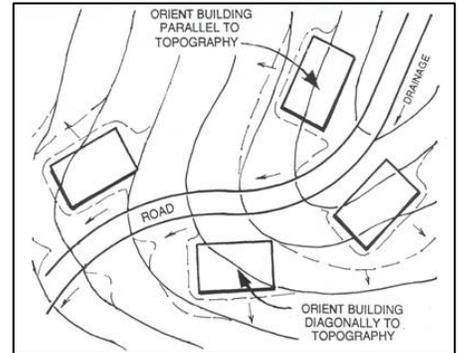


Fig. 7.7 - Orient buildings and roads to topography to minimize earthwork.

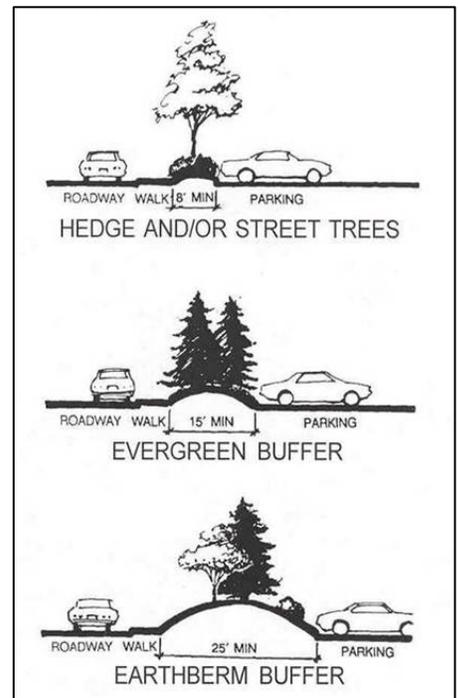


Fig. 7.8 – Vegetation is preferred for parking lot screening; low berms may be approved on a case-by-case basis.

- Utilize deciduous material to provide for sun in the winter and shade in the summer. Utilize evergreen material to provide windbreaks for cold north winds.
- Design and locate site elements to blend with and enhance the physical environment.
- Design and locate required antiterrorism measures to blend with the physical environment.

7.7 ARMY STANDARDS

7.7.1 The cited Army Standards shall be met.

- [Unified Facilities Criteria \(UFC\) 3-210-06FA, Design: Site Planning and Design](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)

7.8 REFERENCES

7.8.1 The following references are provided for guidance.

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 7](#)
- [Unified Facilities Criteria \(UFC\) 3-400-01, Design: Energy Conservation](#)
- [Unified Facilities Criteria \(UFC\) 3-210-01A Design: Area Planning, Site Planning, and Design](#)
- [Unified Facilities Criteria \(UFC\) 3-230-15FA, Design: Subsurface Drainage Facilities for Airfields and Heliports](#)
- [Unified Facilities Criteria \(UFC\) 3-230-16FA, Design: Drainage and Erosion Control Structures for Airfields and Heliports](#)
- [Unified Facilities Criteria \(UFC\) 3-230-17FA , Design: Drainage for Areas Other than Airfields](#)
- [Unified Facilities Criteria \(UFC\) 3-250-18FA, Design: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas](#)

- [Unified Facilities Criteria \(UFC\) 3-260-02, Design: Pavement Design for Airfields](#)
- [Unified Facilities Criteria \(UFC\) 3-250-01FA, Design: Pavement Design for Roads, Streets, Walks and Open Storage Areas](#)
- [Army Regulation \(AR\) 200-2, Environmental Effects of Army Actions](#)
- [Technical Instructions \(TI\) 800-01, Design Criteria](#)
- [Technical Instructions \(TI\) 801-02, Family Housing](#)
- [Whole Building Design](#)
- [Environmental Protection Division, Georgia DNR](#)

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SECTION 8 **BUILDINGS DESIGN STANDARDS**

8.1 INTRODUCTION

8.1.1 Fort Stewart was established as a typical World War II (WWII) training camp, which is evident today by the triangular or “V” or chevron layout of streets in the center of the cantonment area. Upon entering WWII, the United States undertook a military build-up that included constructing many new buildings on Fort Stewart. While a few of the semi-permanent and temporary WWII buildings remain in use today (Fig. 8.1) most have been replaced with new facilities constructed since the 1970s.

8.1.2 Fort Stewart is currently implementing an architectural design theme called “Southern Living Station of Choice,” implying that the installation has all the amenities that would cause a military service member to request being stationed at Fort Stewart. The architectural characteristics of this theme are reminiscent of the Southern Colonial Revival style. It incorporates specific architectural features such as porticos, verandas, columns, low-pitched hip or gable roofs and regular patterns of fenestration. Building materials such as brick, concrete masonry units, metal siding and stucco are used and the range of colors is limited to emphasize earth tones and white. When properly combined, these elements create an architectural image which expresses continuity with Georgia architectural traditions.

Fort Stewart has a strong visual identity that incorporates new construction into the existing fabric of the installation. This is partly accomplished through the use of similar building materials and scale, but site planning is also important. New buildings are



Fig. 8.1 – Building T52 is a typical remaining temporary WWII building.



Fig. 8.2 – Axial view of Command and Control Facility from Hero Road.

sited and oriented to relate formally to each other and to key streets and open spaces that abut their sites (Fig. 8.2).

8.1.3 Design Components

The Southern Living Station of Choice theme is achieved through use of design components that are reminiscent of the Southern Colonial Revival architectural style. Key components include:

- Porticos
- Verandas
- Columns
- Low-pitched roofs
- Regular fenestration (Fig. 8.3).

Additionally, building materials such as brick, concrete masonry units, metal siding and stucco are required for the exteriors of all new buildings.

Design aesthetics for new buildings are related to the building type and the visual district in which it is to be sited. [Section 5, Visual Themes and Zones](#) describes the specific visual zones that have been identified at Fort Stewart. Each visual zone has a limited selection of materials and colors that may be used and it is generally expected that architectural features will be used to create a feeling of human scale (Fig. 8.4).

8.1.4 Visual Analysis

Architects undertaking projects at Fort Stewart are expected to analyze the setting into which the new structure is to be placed and to adapt their design to reinforce the visual assets that relate to it. The visual analysis includes consideration of the appropriate use of construction materials, the placement of entrances, the use of outdoor space and efficiency of maintenance (Fig. 8.5).

Exterior building materials to be used varies somewhat between the visual zones, as do the colors of walls, roofs, doors and windows. Typically, primary entrances for buildings are dominant features, commonly flanked with columns supporting a portico with a pitched roof (Fig. 8.6).

Additions to buildings are not common, but they must be visually compatible with the existing building. Compatibility is achieved by skillfully proportioning the addition and relating the exterior materials and details to the facades of the existing building.



Fig. 8.3 – The Troop and Family Care Medical Clinic (Bldg. 412) exhibits several of the design components characteristic of the architecture on Fort Stewart.



Fig. 8.4 – A combination of materials and a varying roofline emphasize the human scale of the barracks.



Fig. 8.5 – Approaching this barracks (Bldg. 213) is a positive visual experience.



Fig. 8.6 – Portico entrance with columns at the Military Police Battalion Headquarters (Bldg. 258).

The need for outdoor spaces varies between building types, but courtyards and green areas are to be integrated with the building design using walls, paving and landscaping.

8.2 BUILDING OBJECTIVES

8.2.1 Sustainable Design

Sustainable design reduces construction and maintenance costs and conserves energy through proper construction and materials selection. The following is a list of sustainable design objectives as stated by the Department of the Army:

- Reduce the consumption of energy, land, materials, water, and other non-renewable resources;
- Minimize the waste of energy, land, materials, water, and other limited resources;
- Protect the natural environment that is the source of all resources; and
- Create livable, healthy, and fiscally productive manmade environments for existing and future generations.

These objectives, along with sustainable design principles, are found in [Appendix D, Sustainable Design](#). Fort Stewart requires the practice of sustainable design in the development of new facilities.

8.2.2 Building Design Objectives

Building design objectives for Fort Stewart incorporate architectural design elements compatible with the Southern Living Station of Choice theme. Additional objectives include:

- Accommodate natural site conditions (Fig. 8.7);
- Use sustainable construction materials and practices;
- Design facades with regular patterns of fenestration;
- Adapt buildings to natural site conditions;
- Preserve land by reusing former building sites when possible; and
- Maximize architectural compatibility between new and existing facilities. An example of compatibility is the newly constructed officer billeting added to the National Guard training area (Fig. 8.8)



Fig. 8.7 – The Family Readiness Center (Bldg. 87) was sited around existing pine trees.



Fig. 8.8 – The Officer/SNCO quarters fit well into the National Guard Visual Zone (Bldgs. 13305 and 13304).

8.3 STRUCTURAL CHARACTER

8.3.1 Structural Character of Fort Stewart

Fort Stewart has had three major building periods in its history and is currently in its fourth. As a result, architectural styles and materials vary but are compatible throughout the cantonment area.

The first major building period was during World War II, when dozens of buildings were constructed between 1941 and 1945 for the war effort. Permanent and semi-permanent buildings of utilitarian design and of brick, concrete block or terra cotta tile construction were built for the general utility and storage purposes. World War II-era temporary buildings were rectangular in plan and of wood frame construction, with wood siding exteriors painted white or ivory and low-pitched gable roofs. Fort Stewart's temporary buildings include mess halls, administration buildings, Tactical Equipment Maintenance Facilities (TEMFs), barracks and warehouses (Figs. 8.9 and 8.10).

The next major building period at Fort Stewart was largely for the construction of the National Guard Training Area. The Army leased an area of Fort Stewart to the National Guard in 1960. The majority of the construction occurred from 1959 to the early 1960s, but continued through 1977. The National Guard built barracks, mess halls, latrines, and administration and storage buildings. Most buildings are rectangular with low-pitched gable roofs and of brick-sized concrete block construction (Fig. 8.11).

The structural character of Fort Stewart shifted somewhat during a major building period in the second half of the Cold War-era. In the 1970s and 1980s, Fort Stewart expanded considerably with the completion of new barracks; company, battalion and brigade headquarters; administration, community and storage buildings; and motor pools. Although still functional in design, these buildings display a wider variety of building forms (square, rectangular and irregular building plans with flat or low-pitched gable roofs) and materials (brick, concrete block, clay tile block and metal), probably because of the broad range of building uses and functions (Figs. 8.12 and 8.13).

In the current period of construction, a number of buildings are completed or under construction, and more are planned. These include the Command and Control Facility (Bldg. 001), the Army Education Center, the Soldier Service Center (Bldg. 253), the Troop and Family Care Medical Clinic (Bldg. 412), the Military Police Headquarters (Bldg. 258), the Post Chapel (Bldg. 500), the entrance gates and the new Brigade Combat Team (BCT) area.



Fig. 8.9 – A World War II-era barracks now used for administration (Bldg. T55).



Fig. 8.10 – A World War II-era warehouse (Bldg. 1002).



Fig. 8.11 – A typical barracks in the National Guard training area (Bldg. 12618).



Fig. 8.12 – Barracks (Bldg. 501).

They are brick with metal low-pitched hip or gable roofs and feature simple, classical-style columns (Fig. 8.14).

8.3.2 Consistencies in Structural Character

Regardless of use or period of construction, the majority of Fort Stewart's buildings and structures share a number of attributes in common. The following architectural features are present in older and newer facilities:

- Low-pitched hip or gable roofs
- One- to three-story building heights
- Rectangular plan
- Masonry (brick, concrete block) exteriors
- Regular pattern of fenestration

8.3.3 Incompatibilities in Structural Character

Incompatibilities in character on Fort Stewart are primarily evident between buildings in adjacent visual zones. The incompatibilities or inconsistencies in structural character are primarily the result of the age differences between buildings. For instance, contrasts in building forms, roof types and colors is evident on buildings from different eras in the adjacent visual zones of Headquarters, Barracks (Fig. 8.15) and Installation Support in the vicinity of the Main Gate.

Fort Stewart contains two buildings that vary considerably from the dominant structural character. The variances are a result of the period in which they were built, and their styles and materials may also reflect the preferences of their respective designers. They include the Winn Army Community Hospital (Bldg. 302) (Fig. 8.16) and the Marne Lanes bowling alley (Bldg. 402) (Fig. 8.17).

8.3.4 Design Techniques for Consistent Structural Character

Fort Stewart seeks to further achieve consistency in design throughout the visual zones by applying the design preferences of the Southern Living Station of Choice theme. Development of consistent character provides a coherent 'sense of order' and 'sense of place.' This relationship of design comes from using compatible scale, massing, form, color, texture, materials and fenestration. These design principles are explained in the following paragraphs:

Scale

Scale refers to the size of a building façade in relation to humans. Buildings with predominant vertical façades, which dwarf the individual, are defined as monumental in scale. Buildings with



Fig. 8.13 – Brigade Headquarters (Bldg. 614).



Fig. 8.14 – The Army Education Center.



Fig. 8.15 – Some differing building forms, colors, and massing are visible in adjacent visual zones.



Fig. 8.16 – Winn Army Community Hospital (Bldg. 302).

more horizontal façades, designed to relate to the size of the human figure, are defined as human scale (Fig. 8.18). Most buildings on Fort Stewart are and should be human rather than monumental scale. Monumental architectural design is typically utilized for more prominent or ceremonial buildings, such as headquarters complexes and worship facilities. These types of buildings make use of large, glazed areas at entrances and oversized fenestration to create a more dominant scale. The new Post Chapel (Bldg. 500) is an example of a monumental-scale building (Fig. 8.19).

All new construction on Fort Stewart should be compatible in scale with adjacent buildings. Relief should be provided through roof form, fenestration, building projections, and landscape plantings. Creation of human-scaled buildings on Fort Stewart will be achieved by limiting the height of buildings to no more than three stories, terminating buildings with low-pitched (between 3:12 and 5:12 pitch) hipped or gabled roofs with dormers or gables, and designing buildings with regular fenestration patterns.

Massing

Massing refers to the overall bulk or volume of a building. The size and proportion of individual buildings should be designed to be proportionally compatible with adjacent buildings (Fig. 8.20). The massing of the majority of buildings and structures on Fort Stewart is broken up by complex roof configurations, gabled entrance porticos, projecting bays or piers or alternating window and wall bays.

Form

The form of a building is determined by its size, mass, shape, and proportions. The use of similar building forms provides continuity to the installation architecture. The result is a more aesthetically pleasing environment. Low-scale, rectangular building forms are repeated throughout Fort Stewart.

Color

The use of a color scheme that is consistent throughout the installation results in continuity of buildings and contributes to a sense of place. However, color schemes throughout the installation often vary according to the visual zone and visual theme in which the structure is located. Fort Stewart has broadly-defined color schemes for each visual zone in the cantonment area (see Section 8.14). For instance, the preferred colors (and materials) of buildings in the Headquarters Visual Zone is red (brick) walls and patina green (sheet metal) roofs (Figs. 8.21 and 8.22). New



Fig. 8.17 – Marne Lanes (Bldg. 402).

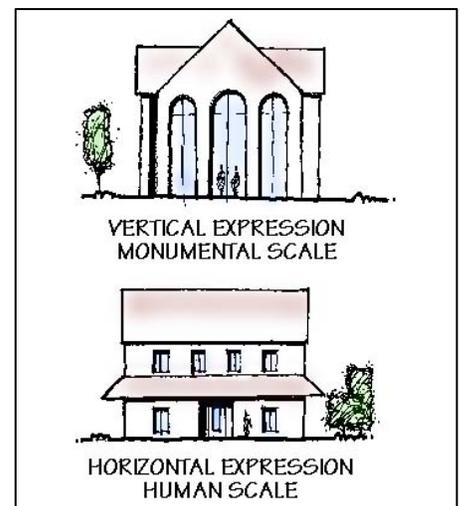


Fig. 8.18 – Illustrations that contrast monumental and human scales in buildings.



Fig. 8.19 – An illustration depicting the monumental scale of the new Post Chapel (under construction).

construction on Fort Stewart must adhere to the defined color schemes.

Texture

The use of materials with similar texture in buildings helps to provide visual continuity for the installation.

Materials

The use of the same materials in the exterior finish and trim of buildings helps provide visual continuity. Fort Stewart has identified the primary and secondary building materials for walls, wall openings, and roofs for each visual zone (see Section 8.14). For instance, the preferred materials (and color) of buildings in the Headquarters Visual Zone are brick walls (red) and sheet metal roofs (patina green) [Figs. 8.21 and 8.22]. Designs for new buildings or structures on Fort Stewart should use the materials listed in Appendix K.

Fenestration

Fenestration is the design and arrangement of windows in the walls of a building. Windows should be similar in design, size, and proportion for architectural compatibility and visual consistency (Fig. 8.20). A regular fenestration pattern and avoidance of continuous bands of windows across entire facades are two of the design preferences for buildings on Fort Stewart.

8.4 BUILDING ENTRANCES

Fort Stewart has emphasized prominent building entrances for new construction. This design emphasis creates a definitive sense of entry appropriate to the size or importance of the building. Evidence of this can be seen at both the Soldier Service Center and the Post Exchange (Figs. 8.23 and 8.24). This trend should continue.

8.4.1 Building Entrance Design

Building entrances are designed to conform to the following guidelines:

- The entrance to a building should be in a prominent location and should be oriented toward the primary adjacent public spaces, such as a courtyard, lawn, parking lot, or street.
- The preferred configuration of a primary entrance for a building of large size or importance is a double-door entry under a full-height, front-gabled portico supported by classical-style columns (Fig. 8.23). For other types of

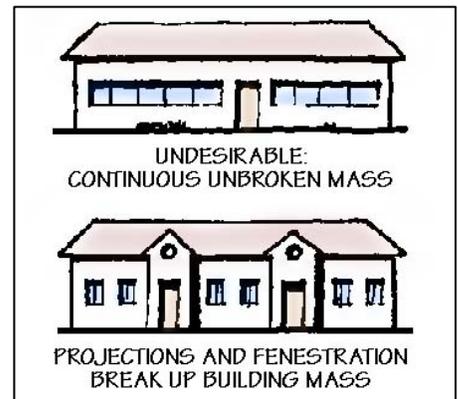


Fig. 8.20 – Illustrations showing options in building massing and fenestration.



Fig. 8.21 – An illustration of the Command and Control Facility (Bldg. 001) showing the preferred materials and color scheme of buildings in the Headquarters Visual Zone.



Fig. 8.22 – The Visitors Center (Bldg. 102) at the main gate demonstrates the preferred materials and color scheme of buildings in the Headquarters Visual Zone.

buildings, the main entrance should consist of a small gabled portico or gabled hood over a double-door or recessed entry (Fig. 8.25). An entrance should not be barrel-vaulted.

- The details of an entrance should be designed to provide continuity with other entrances to the building and the entrances of adjacent buildings (Fig. 8.25).

8.5 SERVICE AREAS

Service areas for loading docks, trash dumpsters and mechanical systems should be screened from the views of primary use areas, such as entrances, courtyards, gathering areas, streets and parking lots. Fort Stewart is concentrating on screening service areas around their company operations facilities, community support facilities and barracks.

8.5.1 Service Area Design

Service areas should be screened as an enclosure by using brick walls capped either by metal, brick or concrete. The front of the enclosure should have a black metal gate. Screen walls should be between six and eight feet tall and should be in harmony with the adjacent building (Fig. 8.26).

8.5.2 Service Area Placement

Service areas should be placed at the rear or the side of a building. Service areas must be sited in accordance with antiterrorism requirements ([UFC 4-010-01](#), Table B-1).

8.6 BUILDING ACCESSIBILITY

All structures or facilities, other than the exceptions mentioned below, must meet the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and the [Uniform Federal Accessibility Standards \(UFAS\)](#). The more stringent standards apply in the event of conflicting guidelines.

8.6.1 Exceptions to Building Accessibility

Any building or facility that is specifically restricted by occupancy classification for use by only able-bodied personnel during the expected useful life of the building or facility need not be accessible (military exclusion is provided by [UFAS 4.1.4 \[2\]](#)), but accessibility is recommended since the intended use of the facility may change over time. Accessibility also is recommended to accommodate visitors, instructors and contractors who may be present and need accessible facilities.



Fig. 8.23 – Detail view of the primary entrance to the Soldier Service Center (Bldg. 253).



Fig. 8.24 – Changes in the roof and building materials delineate the entrance to the PX.



Fig. 8.25 – Front-gabled primary and secondary entrances to the Army Community Service Center (Bldg. 86).



Fig. 8.26 – An example of a well-designed service area enclosure.

8.6.2 Handicap Access Design Guidelines

In addition to meeting ADAAG and UFAS guidelines, the following guidelines are also recommended in consideration of the structural character of Fort Stewart's architecture:

- Where possible, place or install new ramps or lifts so as to not obscure character-defining architectural features of a building.
- Match protective hand and guard rails on ramps and lifts to existing exterior stair railings.

8.7 SEISMIC POLICY

Fort Stewart is in Seismic Zone 1, a seismic hazard zone with a low level of risk. The seismic design of buildings and other structures built on Fort Stewart will be in accordance with the design criteria set forth in [TI 809-04, *Seismic Design for Buildings*](#).

The minimum performance objective for Army facilities is Substantial Life-Safety. To ensure compliance, seismic evaluations and mitigation of unacceptable seismic risks shall be performed. Higher levels of seismic protection for mission essential facilities will be considered in the evaluation.

8.7.1 Seismic Evaluation

Guidance for the seismic evaluation of existing facilities is given in [TI 809-05, *Seismic Design Evaluation and Rehabilitation for Buildings*](#). Buildings will have a seismic evaluation performed when:

- A change in the building's use causes a change in the occupancy category, as defined in [TI 809-04, *Seismic Design for Buildings*](#), to a category of greater importance (lower category number).
- A project is planned that would cause the capacity of the structural system or components to be reduced to 90 percent or less of original stability and strength.
- A project will significantly extend the facility's useful life or will significantly increase the facility's value and the cost exceeds 50 percent of the current replacement value.
- A facility is damaged or is deemed to be an exceptionally high risk to occupants or to the public.

8.7.2 Exemptions to Seismic Evaluations

Existing facilities are exempt from seismic evaluation if:

- The original design was done according to the provisions of the 1982 or later edition of [TM 5-809-10](#), or the 1988 or later edition of TM 5-809-1.
- Replacement is scheduled within 5 years.
- The facility is intended only for minimal human occupancy and is occupied by persons for a total of less than 2 hours a day.
- The gross area is less than 3,000 square feet (275 square meters).

8.7.3 Mitigation of Unacceptable Seismic Risks

If the seismic evaluation determines that the facility does not meet Substantial Life-Safety or higher performance standards, as appropriate, unacceptable seismic risks will be mitigated.

Rehabilitation will be performed in accordance with [TI 809-05](#).

8.7.4 New Facilities or Additions or Extension of Existing Facilities

New facilities and additions or extension of existing facilities will be designed to provide the level of seismic protection required by [TI 809-04](#).

8.8 HISTORIC ARCHITECTURE

The integrity of historic buildings or districts on Fort Stewart will be preserved and protected when practicable within the installation's primary mission of defense. The Army's management of historic properties is pursuant to the duties and responsibilities established by Congress under the National Historic Preservation Act (NHPA) of 1966, as amended. The NHPA also created the NHRP as the official listing of the nation's historic properties considered worthy of preservation. When working with historic properties the Army uses the following three categories:

- *Historic Buildings or Structures*. These are buildings or structures that are listed in or eligible for listing in the NHRP.
- *Historic Districts*. These are distinct concentrations of buildings, structures, sites, or objects linked historically or architecturally that are listed in or eligible for listing in the NHRP.

- *National Historic Landmarks.* These are buildings, structures, sites, objects, or districts listed in the NHRP and also designated as National Historic Landmarks in recognition of their national significance. National Historic Landmark designation is the highest recognition of a historic property.

Fort Stewart has no National Historic Landmarks and no buildings, structures or districts in the cantonment area that are listed in or eligible for listing in the National Register of Historic Places. The eligibility of individual buildings and structures is examined when they become 50 years old. The evaluation should use the NHPA implementing regulations, [Protection of Historic Properties \(36 CFR Part 800\)](#) and the guidance below.

8.8.2 Further Guidance on Historic Properties Management

For further guidance on managing historic properties use [Army Regulation 200-4, Cultural Resources Management](#) and [Department of the Army Pamphlet 200-4, Cultural Resources Management](#). Specific requirements and recommendations for the treatment of historic properties are available in the National Park Service’s *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. A working awareness of historic preservation policies and procedures followed by the Army Corp of Engineers can be found in the [Technical Instruction \(TI\) 800-01, Design Criteria, Chap. 16, Preservation of Historic Structures](#).

8.8.3 Historic Preservation Guidelines

[Appendix M, Historic Preservation Guidelines](#) contains information on federal agency and Army regulations and guidelines on the management and treatment of historic properties.

8.9 RENOVATIONS AND ADDITIONS

Renovations to buildings on Fort Stewart typically consist of changes to building interiors or replacement of roofs. Additions to existing buildings are not commonly undertaken. When existing buildings are renovated or additions are constructed, the architectural character of the renovation or addition should consider the materials, colors, and architectural elements within the design preferences of the Southern Living Station of Choice theme. For instance, any roof replacement is to comprise a metal low-pitched hip or gable roof; flat roofs are prohibited.



Fig. 8.27 – An illustration comparing compatible and incompatible additions.

Building additions should also complement the scale, massing, form, materials and fenestration of the existing structure (Fig. 8.27). However, a renovation or addition to an older building should be designed to differentiate between what is historical and what is new.

8.10 COURTYARDS AND GREEN AREAS

Fort Stewart incorporates courtyards and green areas into its construction (Fig. 8.28). The new Command and Control Facility and Post Chapel will each feature landscaped green areas at the primary entrance.

Courtyards can be located as part of the primary entrance to a building, or as an extension of non-primary entrance areas to the outside (Fig. 8.28). Courtyards and gathering areas should be incorporated into the design of the layout of barracks areas. In new BCT areas, the free-form layout of barracks within a grove of pine trees will provide green areas around the buildings (Fig. 8.29). Green areas within the cantonment area also include parade grounds, physical fitness/athletic fields and the golf course (Fig. 8.30).

8.11 BUILDING MAINTENANCE

Buildings designed and constructed to incorporate sustainable design criteria should minimize life cycle, energy, and maintenance costs through proper selection of forms, materials, and construction details.

8.12 EXTERIOR BUILDING MATERIALS AND COLOR

8.12.1 Building Materials

Building materials make a major contribution to the scale, color, texture, and character of a military installation. Fort Stewart personnel have created color palettes of durable, low maintenance materials, which encourage a variety of expressions and provide a cohesive and consistent architectural character throughout the installation and within each visual zone. The materials reflect colors from a variety of earth tones. The color schemes identify the function of a building and its hierarchy within the installation.

8.12.2 Building Materials Guidelines

Use the following guidelines when selecting exterior building materials (Figs. 8.31 and 8.32):



Fig. 8.28 – An informal courtyard with trees, seating area, and meandering paths created from the layout of a group of barracks.



Fig. 8.29 – Green areas surround the barracks in the BCT area.



Fig. 8.30 – A view of Donovan Parade Field.



Fig. 8.31 – Example of the use of pre-finished materials in installation standard colors.

- Choose materials for their longevity and maintenance characteristics.
- Use materials with integral colors - avoid painting exterior colors.
- Use installation standard colors for exterior walls. Add accent colors sparingly. Accent colors can be used in recesses and to accent certain portions of a building's façade.
- Use pre-finished materials where possible - gutters, window frames, doorframes, etc.
- Use blended colors on pitched roofs.



Fig. 8.32 – Example of the uses of spare accent color, materials with integral colors, and pre-finished materials.

8.12.3 Exterior Materials Charts

[Appendix K, Exterior Materials Charts](#) list the building materials and colors applicable to the following visual zones.

- Headquarters Visual Zone (Fig. 8.33)
- Town Center Visual Zone
- Barracks Visual Zone (Fig. 8.34)
- Installation Support Visual Zone
- National Guard Visual Zone
- Housing Visual Zone
- Green Space Visual Zone

The locations of these visual zones are found in [Section 5, Visual Themes and Zones](#), of this Installation Design Guide.

8.12.4 Exterior Building Color

Color is closely linked to the appropriate selection of exterior building materials and is a critical design element in relating adjacent buildings and creating a compatible visual environment within an installation. Fort Stewart color charts for specific geographical areas give consideration to climate, geography, culture, facility function, context, architectural character, etc. They have implemented color changes during normally scheduled maintenance cycles. The actual color chart found in Appendix L of the Army's Installation Design Standard was used as a guide in modifying Appendix K. Earth tones with white accents are identified for use in the Southeast region (Fig. 8.35).



Fig. 8.33 – Detail of the Soldier Service Center (Bldg. 253) that shows typical building materials and colors for the Headquarters Visual Zone.



Fig. 8.34 – The new barracks in the BCT area feature the primary building materials and colors of the Barracks Visual Zone.

8.13 KEY FACILITY TYPES STANDARDIZATION

The Assistant Chief of Staff for Installation Management (ACSIM) establishes Army facility standards and approves deviations from the standards.

8.13.1 Residential Communities Initiative

The intent of the Residential Communities Initiative (RCI) is to improve the housing for military families by providing quality housing that is built in attractive neighborhoods.

The Military Housing Privatization Initiative (MHPI) legislation allows developers to build housing to local standards. In those areas where local standards do not meet the quality of life requirements of soldiers, the Community Development and Management Plan (CDMP) process allows a negotiated determination of those standards. To ensure a uniform level of quality throughout RCI, Headquarters, Department of the Army has developed a ["Quality Standards for New and Replacement Residential Communities Initiative \(RCI\) Family Housing"](#) to be used as reference points during CDMP preparation.

Fort Stewart has partnered with GMH Housing to improve the military family housing community and to privatize family housing at the post. GMH Housing is responsible for developing, renovating, constructing, maintaining, and managing Fort Stewart's family housing, including the grounds, infrastructure, and roads in each housing community. GMH Housing is committed to creating a Southern Living Station of Choice. On Fort Stewart, the architectural design of this slogan is simple, Southern Colonial Revival-style architecture (Fig. 8.36).

8.13.2 Department of the Army (DA), Facilities Standardization Program

Under the DA Facilities Standardization program, standard design packages are developed for facility types that are repetitively designed and constructed at Army installations. These design packages are developed to the definitive design level (10–15 percent) and once approved are mandatory for Military Construction (MILCON), Army.

Currently, there are 31 DA standard design packages. Headquarters, U.S. Army Corps of Engineers has established 8 Centers of Standardization to develop and maintain the definitive and design packages. See [Appendix P, DA Facilities](#)



Fig. 8.35 – Example of earth tone exterior colors with white accents.



Fig. 8.36 – Example of military family housing on Fort Stewart.

[Standardization Program Centers of Standardization](#) for a list of the various centers and the facility type assigned to each center.

8.13.3 Unaccompanied Personnel Housing (Army Barracks Modernization Program)

The Army's Barracks Modernization Program is based upon a whole community approach providing modernized private living and sleeping areas for soldiers as well as a more functional work environment. This is being realized with the construction and renovation of barracks and associated Company Operations Facilities (COF), Battalion Headquarters (BN HQ) and Brigade Headquarters (BDE HQ), and Dining Facilities (DFAC). For a detailed discussion of the Army Barracks Modernization Program see the [Army Barracks Master Plan](#). The Army Barracks Master Plan only includes requirements for activity duty permanent party soldiers' barracks (Fig. 8.37).

8.13.4 Army Barracks Standards

The Army Barracks Modernization Program design criteria give commanders and contractors the direction to incorporate best business practices around a modular floor plan. The [Army Barracks Master Plan, Appendix I, Army Barracks Standards](#), promotes barracks with an appropriate balance between private and common areas. The Vice Chief of Staff of the Army (VCSA) specified the "New Army Barracks Construction Criteria" in his [Memorandum Subject: New Barracks Construction Criteria, dated 11 July 2002](#) in which he strongly endorsed the new standards. The criteria were further revised in [Memorandum Subject: Revised Barracks Construction Criteria, dated 1 May 2003](#), which makes the following four changes to the Army Barracks Standards:

- Establishes the two-bedroom/one bath module as the standard module;
- Requires installation of a stove or cook top;
- Requires laundries in the barracks; and
- Eliminates the separate soldier community building.

See the above memoranda for detailed guidance.

8.13.5 Furnishings

Acquisition of new furnishings is planned and accomplished in concert with the facility design and construction schedule so that delivery of the new furnishings coincides with the beneficial occupancy date (BOD).



Fig. 8.37 – A typical new barracks building in the BCT area.

The U.S. Army Interior Design Manual (IDM) for Single Soldiers provides guidance to help furniture managers prepare order packages. The manual uses standard Army furniture specifications; i.e., medium oak wood furnishings or acceptable wood/steel alternatives, construction and fabric specification, and specific information for authorized items of furniture. The manual also contains standard living/sleeping room arrangements and plans with color schemes. The manual includes information on waiver requirements, the procurement process, order forms, and final inspection checklist.

Construction design criteria for COFs, BN HQ buildings, BDE HQ buildings, and DFAC facilities can be viewed on the web at [ProjNet](#).

8.13.6 Army Lodging

The Army Lodging Standards promote economies in serving the Army traveler, but not at the expense of quality or service. The standards define the facilities and the level of service the Army traveler should expect. The level of service should be consistent from installation to installation. The following documents provide the service, operations, and facilities standards for Army Lodging.

- [Army Lodging Standards for Service](#)
- [Army Lodging Standards for Operations](#)
- [Army Lodging Standards for Facilities](#)

8.13.7 Morale, Welfare and Recreation (MWR) Branded Theme Operations

The Army Community and Family Readiness Center (CFRC), through its Theme Operations, offers comprehensive theme packages pertaining to restaurants and entertainment centers located on an installation (Figs. 8.38 and 8.39). These packages are customized to the installation.

CFRC will conduct an assessment for market viability and provide architectural designs and other promotional items. Information on the CFRC Branded Theme Operations, including how to get a theme operation, management support, and food service support, is located on the CFRC website at the [Army Brand Theme Operations Home Page](#).



Fig. 8.38 – The Army Community Service Center (Bldg. 86).



Fig. 8.39 – The Family Readiness Center (Bldg. 87).

8.14 PHYSICAL SECURITY REQUIREMENTS

To assure that the required physical security measures are met, the installation Physical Security Officer will be coordinated with during the planning, design, and construction of all construction projects ([AR 190-13, *The Army Physical Security Program*](#), Para 1-26) [Fig. 8.40]. (See also [Section 12, *Antiterrorism Design Standards*](#) for a detailed discussion regarding Antiterrorism measures.)

8.15 ARMY STANDARDS

The following cited Standards shall be met:

- [Army Regulation \(AR\) 420-70, *Buildings and Structures*](#)
- [Unified Facilities Criteria \(UFC\) 3-520-01, *Interior Electrical Systems*](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Secretary of the Interior's Standards for the Treatment of Historic Properties](#)
- [Army Barracks Master Plan, Appendix I, Army Barracks Standards](#)
- [Memorandum Subject: Revised Barracks Construction Criteria, dated 1 May 2003](#)
- [Quality Standards for New and Replacement Residential Communities Initiative \(RCI\) Family Housing](#)
- [Army Lodging Standards](#)

8.16 REFERENCES

The following references are provided for guidance.

- [Army Regulation \(AR\) 190-13, *The Army Physical Security Program*](#)
- [Army Regulation \(AR\) 200-1, *Environmental Protection and Enhancement*](#)
- [Army Regulation \(AR\) 200-2, *Environmental Effects of Army Actions*](#)
- [Army Regulation \(AR\) 200-4, *Cultural Resources Management*](#)
- [Army Regulation \(AR\) 405-45, *Real Property Inventory Management*](#)
- [Army Regulation \(AR\) 405-70, *Utilization of Real Property*](#)
- [Army Regulation \(AR\) 420-1, *Army Facilities Management \(Draft\)*](#)
- [Unified Facilities Criteria \(UFC\) 2-600-01, *Installation Design, Chap 8*](#)
- [Unified Facilities Criteria \(UFC\) 1-200-01, *Design: General Building Requirements, 31 July 2002*](#)
- [Unified Facilities Criteria \(UFC\) 4-510-01, *Design: Medical Military Facilities*](#)
- [Unified Facilities Criteria \(UFC\) 3-400-01, *Design: Energy Conservation*](#)
- [Engineering Regulation \(ER\) 1110-345-122, *Engineering and Design, Interior Design*](#)
- [Department of the Army Pamphlet \(DA PAM\) 200-4, *Cultural Resources Management*](#)
- [U.S. Army Corps of Engineers, Design Guide \(DG\) 1110-3-122, *Design Guide for Interiors*](#)

- [Department of Defense \(DoD\) Interior Design Website](#)
- [Technical Instructions \(TI\) 800-01, *Design Criteria*](#)
- [Technical Instructions \(TI\) 809-04, *Seismic Design for Buildings*](#)
- [Technical Instructions \(TI\) 809-05, *Seismic Design Evaluation and Rehabilitation for Buildings*](#)
- [Technical Instructions \(TI\) 811-16, *Lighting Design*](#)
- [Technical Manual \(TM\) 5-683, *Electrical Interior Facilities*](#)
- [Technical Manual \(TM\) 5-688, *Foreign Voltage and Frequencies Guide*](#)
- [Technical Manual \(TM\) 5-809-10/Navy NAVFAC P-355/Air Force AFM 88-3, Chap 13, *Seismic Design for Buildings*](#)
- [Technical Manual \(TM\) 5-809-10-2/Navy NAVFAC P-355.2/Air Force AFM 88-3, Chap 13, Sec B, *Seismic Design Guidelines for Upgrading Existing Buildings*](#)
- [Army Barracks Master Plan](#)
- [Air Force Sustainable Facilities Guide](#)
- [Air Force Interior Design Guides](#)
- Office of the Assistant Secretary of the Army for Financial Management and Comptroller (OASA (FM&C)) [Sales and Out lease of Army Assets - Installation Guide](#)
- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#)
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#)

- [Whole Building Design Guide](#)
- Unified Facilities Guide Specifications (UFGS), "Division 12 - Furnishings", [Construction Criteria Base](#)
- [Engineering and Construction Bulletins](#)

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SECTION 9 **CIRCULATION DESIGN STANDARDS**

9.1 INTRODUCTION

9.1.1 The image of Fort Stewart is significantly affected by the design and location of roadways, walkways, entrances and parking lots. The primary roadway system and parking lots occupy considerable amounts of land and are visually dominant features. Objectives and criteria for locating the primary circulation system are presented in [Section 7, Site Planning Design Standards](#). This section discusses the details of circulation system design and their impacts.

9.1.2 The circulation system provides a primary vantage point from which the installation is viewed. Safe and efficient vehicular movement results in better orientation and contributes to the development of a positive environment for personnel and visitors. This section is focused on the features that comprise the circulation system to identify specific characteristics that contribute to the appearance of the visual zone.

9.1.3 Roadways, pedestrian walkways and bicycle trails are designed to provide a hierarchy of circulation and carrying capacity. Functionally, a hierarchical network is created to separate incompatible types of traffic. This separation of traffic promotes sustainability because it results in more efficient energy consumption.

9.1.4 Visually, the circulation hierarchy can be reinforced through design, planting, signage and lighting to promote a more attractive visual experience and promote a sense of orientation.



Fig. 9.1 – Bicycles and pedestrians use this path separated from the street in a family housing area.

9.2 CIRCULATION OBJECTIVES

The goal for the circulation system on Fort Stewart is to establish a sustainable system that promotes aesthetic appeal, environmental preservation and energy conservation, while providing safe and efficient circulation. The objectives below describe the design principles that are followed to achieve this sustainable circulation system:

- Provide circulation that meets antiterrorism and security requirements and promotes and enhances public health and safety.
- Provide a system of circulation that includes all forms of vehicular and pedestrian circulation in the Housing Visual Zone (Fig. 9.1).
- Provide a system that separates vehicles and pedestrians in all other visual zones (Fig. 9.2).
- Blend the circulation system with the natural conditions of the site to create attractive views (Fig. 9.3).
- Improve the existing circulation network for expansion, safety, way finding and appearance.
- Promote maintenance and repair of existing and proposed circulation systems.



Fig. 9.2 – Pedestrians and vehicles, including bicycles, use separate routes outside the family housing areas.



Fig. 9.3 – Adapt and blend circulation routes to the topography to minimize grading.

9.3 ROADWAY HIERARCHY

9.3.1 The roadway network on Fort Stewart functionally and visually reflects a logical hierarchy of traffic circulation. The network separates types of traffic by function and volume, ranging from through traffic to local traffic. The visual character of each segment of the network appropriately conveys its role and function within the overall network. The basic network is classified by the following terms describing the type, character and appearance of the roads (Fig. 9.4).

Highways

Highways provide primary high-speed traffic access to, around and through Fort Stewart. Georgia 144 is a highway that runs across the northern edge of the cantonment area providing access to Guilick Avenue at Gate 5. Design characteristics of highways include the following:

- Continuous, relatively straight or large radii curvilinear alignments that carry high-speed through-traffic movement between major activity centers within a region.

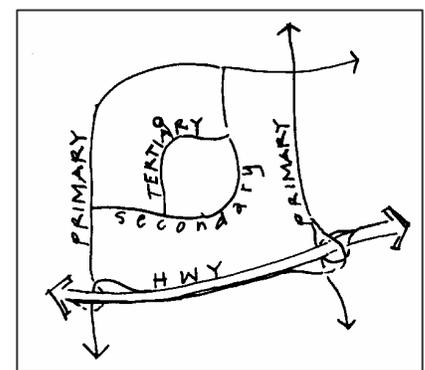


Fig. 9.4 – The roadway hierarchy includes highways and primary, secondary and tertiary roads.

- A minimum of two lanes in each direction typically divided by a median or median divider.
- Alignments that border land use areas rather than bisect them and green space buffers exist between the road and adjacent uses.
- Controlled access onto the road.
- Either grade-separated or at-grade channelized intersections with traffic signal controls.
- Shoulders for emergency stopping but strict prohibition of on-street parking.
- Street signing, lighting and planting that reflects the high-speed nature of traffic movement.

Primary Roadways

These are the arterial routes that connect major activity centers, provide the primary access through the installation and provide the means by which most people view Fort Stewart (Fig. 9.5). Primary roadways traverse the entire cantonment area and carry the heaviest volume of traffic. Direct access to these roads is restricted and crossing is only permitted at major intersections. Primary roadways are divided in places with a median. Design characteristics of primary roadways include the following:

- Continuous, through-traffic alignment that is relatively straight to accommodate moderate to heavy traffic.
- Alignments that form boundaries between different land use areas.
- Two or more moving lanes in each direction typically divided by a median.
- Controlled access and a minimum of curb cuts limited to entranceways to major facilities or building groups.
- At-grade intersections with stop signs at cross streets, or signal controls at major intersections.
- On-street parking is prohibited.
- Medians, street lighting, signing and planting that enforces the moderate speed and importance of the road.
- Curbs, gutters and sidewalks are provided within the cantonment area.

Secondary Roadways

Secondary roadways serve as connectors between primary roads and tertiary roads and typically connect primary roads to adjacent land use zones (Fig. 9.6). Secondary roads accommodate moderate



Fig. 9.5 – Hero Road is a primary roadway leading from the Main Gate..



Fig. 9.6 – Hase Road is a secondary roadway.

to slow traffic speeds with one moving lane in each direction. On-street parking is prohibited and left-turn lanes provided at intersections with primary roads. Design characteristics include:

- Continuous through-traffic alignment between primary roads, either straight or curvilinear based upon the design speed topography and land pattern.
- Direct access to abutting property.
- A maximum of two moving traffic lanes in each direction, either undivided or a boulevard with planted median.
- On-street parking generally prohibited.
- Sidewalk separated from the road by a planting strip.
- Street lighting, signing and planting that reflects the moderate-to-slow speed nature of traffic and the character of the land use area they are in.
- Curbs, gutters and sidewalks provided in the cantonment area and residential areas with densities greater than two dwelling units per acre.

Tertiary Roadways

Tertiary roadways provide access to individual facilities, parking and service areas. They are designed to handle low speed and low volumes of traffic, with one lane in each direction. Tertiary roadways have T intersections and cul-de-sacs to reduce through traffic, promote safety and limit noise impacts from truck traffic (Fig. 9.7). Design characteristics include:

- Alignments designed to discourage through-traffic.
- Alignments are relatively short and straight or curvilinear in keeping with topography, land use and the slow speed nature of traffic.
- Generally a maximum of two moving traffic lanes, one in each direction.
- On-street parking is generally prohibited.
- Curbs, gutters and sidewalks provided in the cantonment area and residential areas with densities greater than two dwelling units per acre.
- Sidewalks may be limited to only one side, depending upon need.
- Street lighting, signing and planting in character with the slow speed nature of traffic and the land use areas where the road is located.



Fig. 9.7 – Sixth Street Extension is a tertiary roadway.

Cul-de-sacs.

Cul-de-sacs are short dead-end tertiary roadways located primarily in housing areas (Fig. 9.8). They connect at one end to a tertiary or secondary roadway and have a turnaround at the other end, providing direct access to abutting property while preventing through traffic. Design characteristics include:

- Short, straight, or curvilinear alignment to serve abutting property.
- Generally a maximum of two traffic lanes, one in each direction.
- Generally a maximum length of 600 feet, or less, except in areas where terrain and low density justify a longer length.
- Turnaround with a diameter large enough to accommodate fire and garbage trucks.
- Turnaround, either symmetrical or offset.
- Turnaround center planting islands to reduce the expanse of paved area.
- Overflow parking provided in parking bays along the roadway or in the center of turnaround planting islands.
- Sidewalks, if any, generally limited to one side of the road.
- Street lighting, signing and planting in character with the slow speed nature of traffic and the land use area being served.

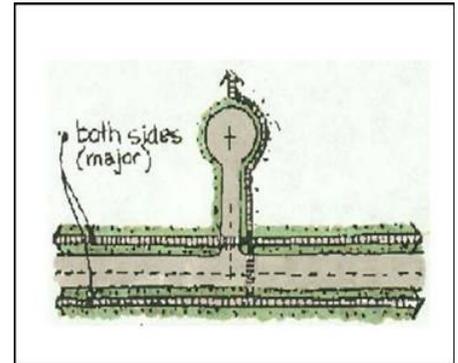


Fig. 9.8 – Plan view sketch of a cul-de-sac street.



Fig. 9.9 – View of a concrete tactical vehicle trail.

Tactical Vehicle Trails

Tactical vehicle trails provide alternative access for armored and other vehicles used in combat readiness training. These trails provide one and two lane access for vehicles between TEMF and maneuver areas. Heavily used routes are surfaced with concrete as are turning areas and intersections between unsurfaced trails (Fig. 9.9). Tactical vehicle trails are be routed to provide direct access while minimizing crossings with primary, secondary and tertiary roads. All crossings with the other roadway systems are paved with concrete to support the weight of the vehicles and clearly marked with signage.

9.4 BUILDING STANDOFF DISTANCES FROM ROADWAYS

Department of Defense antiterrorism standards (Fig. 9.10) state that all inhabited buildings within a controlled perimeter will be setback a minimum of 10 meters (33 feet) from roadways, and that troop billeting and primary gathering spaces shall be setback a

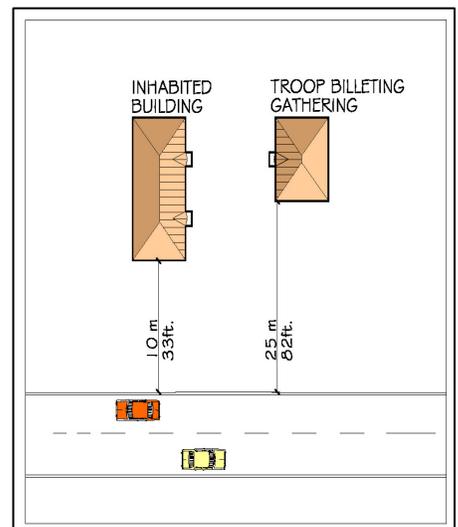


Fig. 9.10 - Diagram of minimum building standoff distances from roadways to meet DoD antiterrorism standards.

minimum of 25 meters (82 feet) from roadways. For inhabited buildings not within a controlled perimeter, the minimum setback distance is 25 meters (82 feet) and for primary gathering places and troop facilities the minimum distance is 45 meters (148 feet). (See, [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#), Table B-1).

9.5 ROADWAY SYSTEM DESIGN

9.5.1 New roadways and improvements to existing routes will be aligned and designed to promote sustainability. They will minimize impacts, relieve driver monotony and provide a positive visual experience for the user, without compromising safety (Fig. 9.11). The following design techniques should be applied to circulation system design:

9.5.2 Blend Circulation with Natural Landform

The horizontal and vertical alignment of roads, walkways and bikeways should minimize landform disturbance and blend with the natural setting (Fig. 9.12):

- Minimize cut and fill by avoiding steep terrain and aligning roadway, walkway and bicycle routes to cross slopes diagonally or parallel to the contours rather than perpendicular to the contours.
- Contour cut and fill slopes to blend with the natural landform.
- Blend road drainage ditches, swales, or channels into the natural landform.
- Use cluster development wherever possible to limit the lengths and required intersections of roadway and other circulation system elements and to preserve land.
- Minimize pedestrian, railroad and bikeway crossings of highways, primary roads and secondary roads.

9.5.3 Adapt Circulation to Preserve Vegetation

Design roads, walkways and bike paths to minimize disturbance to existing vegetation, encourage revegetation in disturbed areas and reduce the visual impact of landscape disturbance (Fig. 9.13). The following principles are applied to accomplish this:

- Align roads through open areas rather than forested areas.
- Minimize cut and fill to reduce the area of trees that must be cleared.



Fig. 9.11 – Gulick Avenue is a well-designed roadway that contributes to a positive image.



Fig. 9.12 – Hero Road is aligned to blend smoothly with natural features.

- Clear only for sight distances rather than uniform right-of-way clearing.
- Utilize tree wells or retaining walls to preserve specimen trees or significant vegetation areas.
- Provide optimum conditions for revegetation by following proper planting and maintenance techniques.
- Restore vegetation to disturbed areas using naturalistic plantings of native plant material.

9.5.4 Minimize Adverse Impacts on Adjacent Land Uses

Air Pollution

Locate roadway alignments to minimize the impact of traffic-emitted pollutants on adjacent development. This can be accomplished by the following measures:

- Locate roads adjacent to land uses that are minimally affected by traffic-emitted air pollutants.
- Reduce the impact of traffic-emitted pollutants on more sensitive land use areas by locating the roadways downwind and/or providing planted buffers.
- Harden surfaces of tactical vehicle trails to reduce dust pollution.

Noise Pollution

Design and locate roadways to reduce the impact of traffic noise on adjacent development. This can be accomplished by the following measures:

- Roads should be physically separated from sensitive land uses including residential, medical, educational, recreational, administrative, religious, library, community, or child care facilities.
- Use noise abatement techniques such as berms, sound barrier walls and plant material to reduce noise levels (Fig. 9.14).
- Reroute truck and tank traffic to roadways adjacent to less noise sensitive land uses. Tracked vehicle traffic is routed to a system of tactical vehicle trails that are separate from corridors used by wheeled vehicles.

9.6 INTERSECTIONS

Intersections are the most dangerous areas of the circulation system. New and improved intersections are planned to provide safe and efficient traffic flow for pedestrian as well as vehicular

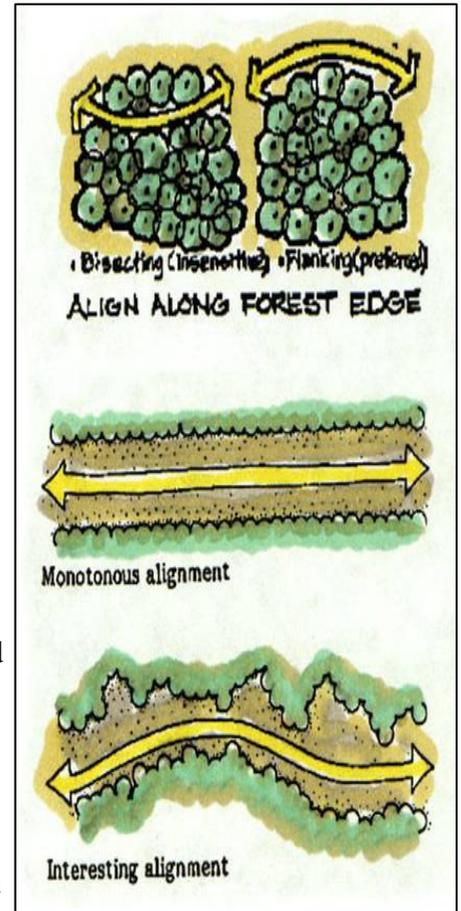


Fig. 9.13 – Examples of roadway and trail alignments to preserve trees and provide visual interest.



Fig. 9.14 – Landscaping and setback buffer this walkway from traffic noise.

traffic. The following design techniques are used to plan or improve intersections (Fig. 9.15):

- Align roadways to intersect at 90 degrees (85-95 degrees is acceptable).
- Avoid dangerous, complex intersections of more than two streets intersecting at one point.
- Eliminate intersections that are in close proximity to one another. They should be no closer than a minimum distance of 100 feet (30 meters).
- Modify existing intersections in conjunction with development projects on adjacent sites or that increase traffic at nearby intersections.
- Use T-intersections for tertiary road intersections with secondary or primary roads to reduce conflict and promote safety.
- Provide turning lanes at all intersections along primary roads to eliminate interference with through traffic flow.
- Minimize intersections along primary roads to reduce points of conflict and increase safety. Existing intersections with secondary and tertiary streets can be eliminated by the use of cul-de-sacs, with traffic routed along parallel streets to primary and secondary streets.
- Include adequate sight distances to meet minimum standard requirements at all intersections. The location from where the driver is waiting to cross or enter a traffic lane to a point 75 feet (23 meters) down the centerline to the right and the left forms the sight triangle.
- Minimize pedestrian and bicycle intersections with primary streets.
- Provide crosswalks at all intersections where pedestrians might cross. Crosswalks are marked with paint or vinyl strips, or identified with a different paving surface.
- Provide pedestrian access to persons with disabilities in accordance with the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and the [Uniform Federal Accessibility Standards \(UFAS\)](#). In the event of a conflict the most stringent standards will be applied.
- Create local service drives or access roads parallel with highways and primary roads to provide access to properties fronting the primary road and avoid a direct curb cut from the primary road to each individual property.

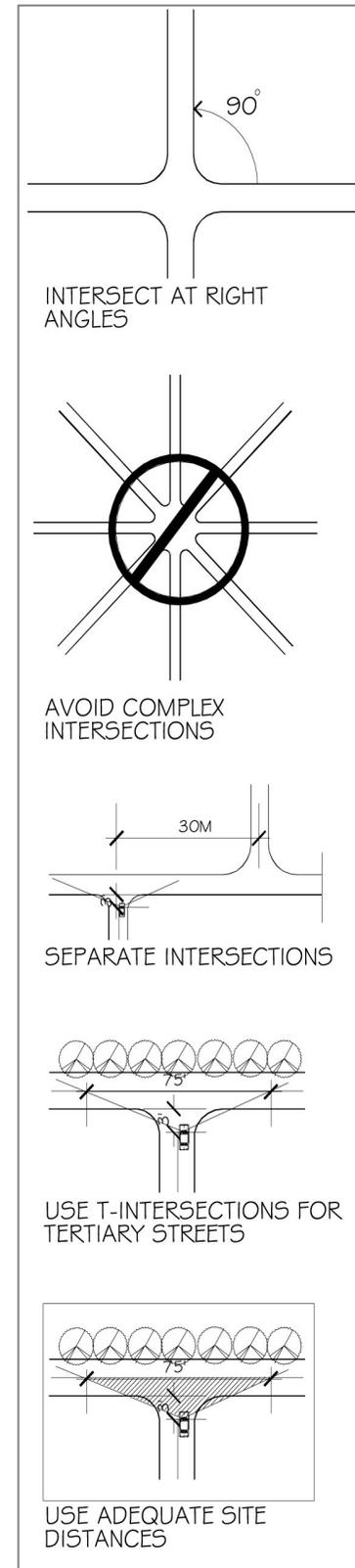


Fig. 9.15 – Illustrations of design techniques for intersections.

- Install signals at intersections between railroad tracks and high-speed roads. Rail crossings must be well-marked and have a smooth transition. All non-signalized railroad crossings must be well marked and have a clear line of sight down the tracks.

9.7 ENTRANCE GATES

Entry gates, or access control points (ACPs) are primary components of the Fort Stewart circulation system. ACPs must be functional, while providing security protection for the installation and for personnel and others waiting off-post to be admitted. ACPs are designed as a visual amenity to provide an aesthetically pleasing entrance to and exit from the installation. See [Section 12.7](#) for information on the design standards for installation gates.

9.8 PARKING REQUIREMENTS

9.8.1 The total quantity of parking in any one location will vary with the needs of the facility. The following items are general considerations to be used in developing parking requirements for a project:

- Minimum parking allowances for non-organizational vehicles are generally based on the current *Architectural and Engineering Instruction*. Higher parking allowances for individual facilities are permitted if the increase is demonstrated by a parking study.
- All parking lots will be designed to be accessible to persons with disabilities in accordance with the requirements of the [UFAS, paragraph 4.1.1\(5\)\(a\)](#). If parking spaces are provided for employees or visitors, or both, then accessible spaces shall be provided in conformance with the required minimum number of accessible spaces shown in Figure 9.16.
- For initial planning and programming, allocate 400 square feet of parking lot area per car. The total provides adequate minimum space for the parking spaces, access drives and planting islands that make up a parking lot. This allocation does not allow for including tactical military vehicles in a parking lot.
- Minimize parking space requirements of a facility by selecting a site that will allow the sharing of parking with adjacent activities.

Total Spaces in Parking Area	Required Minimum Number of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of Total Spaces
1001 and up	20 plus 1 for each 100 spaces over 1000

Fig. 9.16 - Required minimum number of accessible parking spaces.

- Small parking lots are generally preferable to large lots because they enhance the visual environment by increasing the percent of landscaped area to paved area.
- The monotony of large parking areas can be altered by the use of designs such as curvilinear parking or the introduction of large planting islands and green strips.
- Alternative means of access to facilities, such as walkways and bikeways, are encouraged to reduce dependence on vehicular circulation between nearby buildings.

9.9 PARKING LOT LOCATION AND DESIGN

9.9.1 Parking areas are designed and enhanced to provide more pleasing visual effects and a more comfortable physical experience for parking lot users. The following design techniques are suggested to create more aesthetically pleasing, physically comfortable parking lots:

- Locate parking lots between and behind buildings to reduce the visual impact from the circulation system.
- Locate parking lots on relatively level areas to avoid excessive cut and fill.
- Design parking lots to be efficient in the design and placement of access drives and parking spaces. All drives providing direct access to parking spaces should provide spaces on both sides of the drive.
- Provide planting areas at the ends of all rows of parking spaces and grade them to permit stormwater to infiltrate. Plant deciduous trees in the islands to soften the visual expanse of the parking lot and to provide shade (Fig. 9.17).
- Use natural topography and existing trees to visually screen parking areas from adjacent facilities, roadways and other parking lots.
- Design parking lots to preserve significant existing trees. Provide a planting area around the tree that is large enough to allow water to the root system.
- Pave parking lots with concrete, asphalt, or other durable material.
- Provide greater below grade and above grade parking capacity in densely developed areas. Parking structures are expensive, but they provide a number of benefits including efficient land use, reduced visual impact and protection of

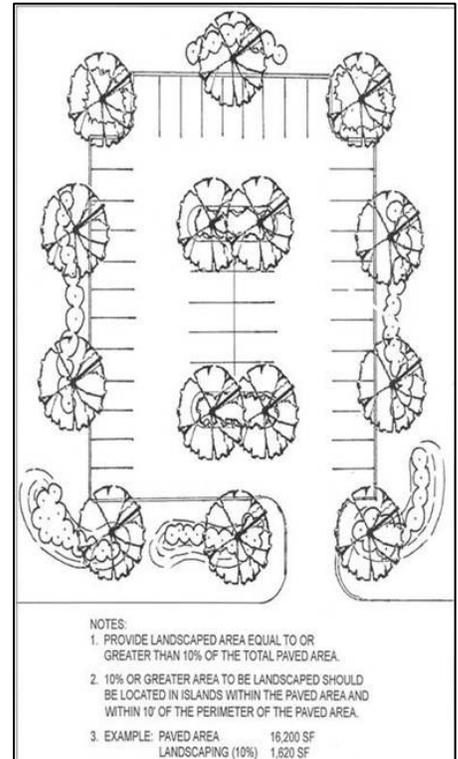


Fig. 9.17 – Guidelines for tree planting in parking lots.

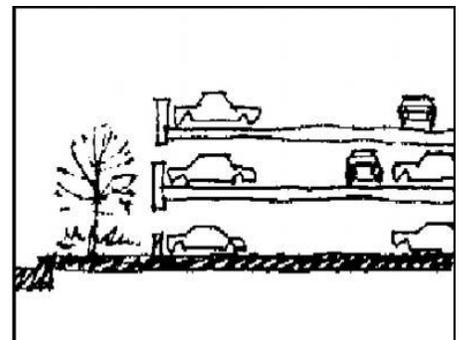


Fig. 9.18 - Parking structures reduce the paved area needed for parking, but are expensive and highly visible.

vehicles from inclement weather (Fig. 9.18). Parking structures must be designed to meet antiterrorism requirements.

9.9.2 A comprehensive parking area design guide that includes siting, parking area types, geometry (parallel, perpendicular, angled), access and maintenance consideration is located at the following website: [U. S. Air Force Landscape Design Guide, Section 14, Parking Areas.](#)

9.9.3 Antiterrorism Setback Requirements

Parking lots within a controlled perimeter shall be located a minimum of 33 feet (10 meters) from inhabited structures and 82 feet (25 meters) from troop billeting and primary gathering structures. Parking lots outside a controlled perimeter shall be located a minimum of 82 feet (25 meters) from inhabited structures and 148 feet (45 meters) from troop billeting and primary gathering areas ([UFC 4-010-01](#), Table B-1). Designated parking for family housing located within secured perimeters with access control is excluded from the 82 feet (25 meters) setback requirement.

9.10 SERVICE AREAS

Most buildings require a service area to accommodate trash and recycling dumpsters. Facilities that require pickup and delivery of bulk supplies should include a service area that allows for easy access to a loading dock. Service areas should be designed according to the following guidelines:

- Service areas are designed to provide direct, easy access and adequate turning space for larger vehicles (Fig. 9.19).
- Access routes to loading docks should be reserved for service and emergency vehicles. POV and organizational vehicle parking should not be included in the service areas or access drives.
- Conflicts between truck loading docks and railroad operations should be avoided.
- Service areas should be screened from public view to reduce negative visual impacts (Fig. 9.20).
- Service areas shall meet all antiterrorism requirements.

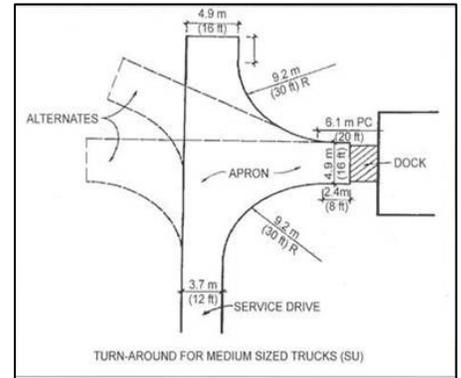


Fig. 9.19 – Dimensions needed for maneuvering trucks to a loading dock.



Fig. 9.20 – Landscaping is usually adequate to visually screen a service area.

9.11 DROP-OFF AREAS

Generally, drop-off areas are discouraged at Fort Stewart, but if a drop-off area is needed the following guidelines should be used:

- Facilities that include a high percentage of persons arriving as passengers may include a passenger drop-off area. Included are buildings such as headquarters, child development centers, schools, dining facilities and clubs.
- A drop-off area will provide adequate space for vehicles to pull off the access drive to avoid interference with moving vehicles and will include appropriate accessibility features (Fig. 9.21).
- The paved vehicle portion of a drop-off area may be no closer to a building than the minimum standoff distance prescribed by antiterrorism standards.
- The access drive must be clearly defined and marked to prohibit parking of other vehicles in the drop-off area.
- Physical barriers must be used to separate the vehicular part of the area from the pedestrian part. These barriers may include curbing, planters, or other barriers together with signage to identify and restrict access.
- The driveway must be configured so that vehicles can be restricted during times of high alert.
- Access to the driveway shall be located outside the required standoff area with the initial approach parallel to the building, or a barrier must be directed to prevent direct vehicular movement toward the building.

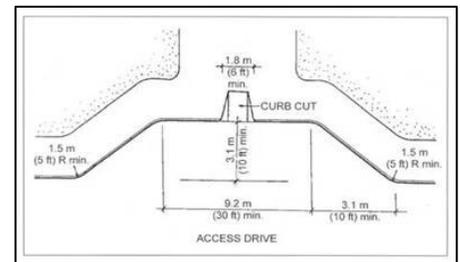


Fig. 9.21 - Typical dimensions of a passenger drop-off area.



Fig. 9.22 – Walkways promote walking and use of bicycles in place of driving for short trips.

9.12 WALKWAYS AND PEDESTRIAN CIRCULATION

9.12.1 Walkways provide connections for pedestrians between buildings and supporting facilities and adjacent buildings. Well-designed and located pedestrian walkways provide a desirable alternative to driving from place to place (Fig. 9.22).

9.12.2 To encourage the use of walkways as an alternative to driving, pedestrian walkways should be designed and located to provide a comfortable, enjoyable experience. The use of walkways on Fort Stewart promotes development sustainability by conserving energy, reducing air pollution and decreasing the land requirement for parking. By accommodating walking the pedestrian circulation system can increase the physical fitness of residents and visitors.

9.12.3 To develop the walkway system the following guidelines are applied to new construction and renovation projects:

- Provide safe and secure pedestrian facilities that are appropriately separated from vehicular routes.
- Provide links between major attractions and generators of pedestrian traffic.
- Provide walkways in areas where “pathways” or short cuts have been created by pedestrians going through grass and other non paved areas.
- Provide information on the locations of walkways where pedestrians are likely to see it.
- Design walkways to be comfortable and pleasant to use.
- Provide amenities for pedestrians such as lighting, benches and shade trees.
- Provide accessibility to all users, including physically impaired or challenged persons.
- Furnish all street and driveway crossings with proper markings and signs. Make them accessible to persons with disabilities in accordance with requirements of the UFAS (Fig. 9.23). See the following UFAS paragraphs for the respective standards: [Curb Ramps, paragraph 4.7](#); [Ramps, paragraph 4.8](#); [Stairs, paragraph 4.9](#).
- Provide design consistency throughout segments of the walkway system.
- Ensure that walkways are properly drained to avoid puddles.

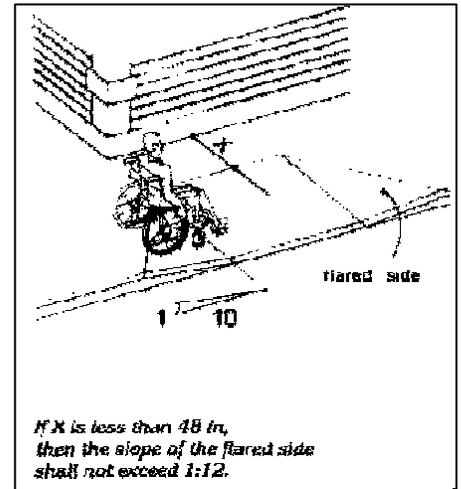


Fig. 9.23 - Ramps must be provided in accordance with UFAS Standards.



Fig. 9.24 – Typical primary walkway.

9.12.4 Walkway Network Hierarchy

Sidewalks are classified to conform to the hierarchy roadway system. They are classified as primary walkways, secondary walkways and tertiary walkways. Walkways that are not oriented to roadways should be sized and placed where people will use them rather than create worn “shortcut” paths. Railroad track crossings should be avoided, but where necessary, they should be well marked and have a good line of sight in each direction. Walkways crossing areas of railroad ballast are composed of small, well-drained rock for a safer, more comfortable footing.

Primary Walkways

Primary walkways are routed along primary roadways within the cantonment area (Fig. 9.24). These walkways are also used for high volume pedestrian routes between major destinations. They are designed to be significant features in the landscape and to visually

relate to the facilities they serve. They should be paved with concrete, brick, or other pavers. Primary walkways should be sized to accommodate anticipated pedestrian use. They should have a minimum width of 6 feet (1.8 meters) and a maximum width of 10-12 feet (3-3.5 meters) in high use areas (Fig. 9.25).

Secondary Walkways

Secondary walkways are provided along secondary and tertiary streets (Fig. 9.26). These walkways are also used for moderate volumes pedestrian routes between activity centers and housing areas. They should provide access to building entrances, plaza areas, or streets. They should be paved with concrete, brick, or other pavers. These walkways should be sized to accommodate anticipated pedestrian use, but not less than 4 feet (1.2 meters) and a maximum of 10 - 12 feet (3-3.5 meters) in high use areas (Fig. 9.25).

Tertiary Walkways

Tertiary walkways provide pedestrian walkways in recreational and scenic areas for exercise and hiking (Fig. 9.27). They can be paved with concrete or bituminous asphalt or constructed with woodchips. Tertiary walkways have a meandering and curvilinear alignment. Paved walkways have a minimum width of 4 feet (1.2 meters). Wood chip trails should have a minimum width of 3 feet (1 meter) (Fig. 9.25). Where paths are designated for use by bicyclists and pedestrians, the widths are increased an additional three feet for each bike lane.

9.12.5 Site Amenities at Walkways

Select and locate site furnishings to reinforce the walkway system hierarchy. Provide directional and informational signage, where appropriate. Locate site furnishings, such as benches, tables, waste receptacles, drinking fountains and signage in response to travel distance and traffic volume. Place site furnishings at regular intervals along walkways, parallel to the walk and facing the flow of pedestrian traffic.

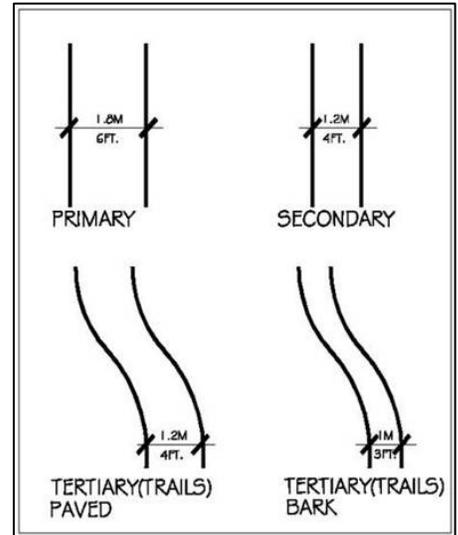


Fig. 9.25 – Fort Stewart minimum width for walkways.



Fig. 9.26 – Typical secondary walkway.



Fig. 9.27 – Typical tertiary walkway.

9.12.6 Landscaping at Walkways

Use a combination of canopy and ornamental trees along sidewalks to provide shade, define the path, provide visual interest and discourage the creation of “shortcuts” (Fig. 9.28). Plant an evergreen buffer to screen harsh winds and undesirable views. Discourage the use of flowering and fruit bearing trees and shrubs along walkways because of the threat of insects or debris problems.

9.13 BIKEWAYS

9.13.1 Bicycles are used as alternatives to automobiles by some Fort Stewart personnel. Cycling is a popular recreational activity that is enhanced by the availability of a safe and well-planned system of bikeways.

9.13.2 The Fort Stewart bikeway system follows designated routes along the roadway system and provides direct routes between a number of primary and secondary destinations. As new projects are completed, continuous improvement of the system is made to minimize conflicts between bikes, pedestrians and vehicles.

9.13.3 Provide bicycle storage racks in areas that can be visually supervised and in close proximity to building entrances, high activity areas, major workplaces and recreational facilities, while avoiding conflicts with pedestrian circulation. A rack or other structure is provided so bicycles may be locked and at least two feet should be allowed between bicycles (Fig. 9.29).

9.13.4 Roadway lights and building exterior lights also serve as bikeway lights. Maximum use is made of multi-purpose lighting systems. Paragraph 10.4 of [Technical Manual \(TM\) 5-811-1, Electric Power Supply and Distribution](#) directs the following bikeway lighting standards.

Intensities

Values are dependent upon whether walkways and bikeways are adjacent to roadways or are isolated from vehicular traffic.

Roadways

Bikeways are illuminated to not less than one-half the maintained illumination required for adjacent roadways. Areas varying in grade, such as stairs and ramps, will require special treatment. Crosswalks in the middle of the block will be illuminated to one and one-half to two times the normal roadway lighting level.

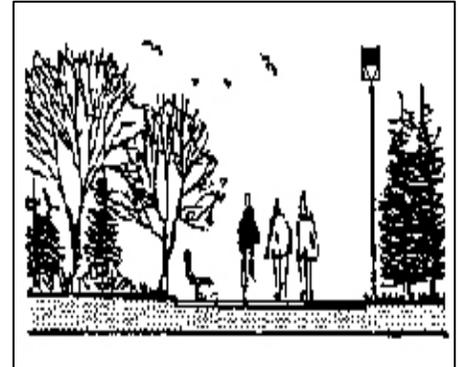


Fig. 9.28 – Place landscaping and site furnishings along walkways to increase their attractiveness and use.

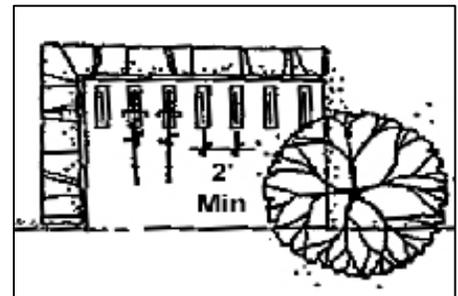


Fig. 9.29 - Two-foot spacing provides for easy access to each bicycle.

Remote from Roadways

Bikeways remote from roadways will have a minimum of 5 lux (0.5 foot-candle) average illumination. Tunnels will have 40 lux (4.0 foot-candles), ramps will have 6 lux (0.6 foot-candles) and overpasses will have 3 lux (0.3 foot-candles) illumination.

Pole Design

Where pole mounted lights illuminate only a bikeway, shorter poles are most suitable, but luminaire height will not be less than 10 feet. Construction will be such as to minimize vandalism by use of break-resistant lenses, tamperproof screws and sturdy poles.

9.13.5 The federal Manual of Uniform Traffic Control Devices (MUTCD) provides standards signs and markings for bicycle lanes and related bicycle facilities. See the [MUTCD, Chapter 9](#) and any applicable amendments for traffic controls for bicycle facilities standards.

9.14 ARMY STANDARDS

9.14.1 The cited Army Standards shall be met.

- [Army Regulation \(AR\) 420-72, Transportation Infrastructure and Dams](#)
- [Unified Facilities Criteria \(UFC\) 3-210-02, Design: POV Site Circulation and Parking](#)
- [Unified Facilities Criteria \(UFC\) 3-250-18FA, Design: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas](#)
- [Unified Facilities Criteria \(UFC\) 3-260-02, Design: Pavement Design for Airfields](#)
- [Technical Manual \(TM\) 5-811-1/Air Force AFJMAN 32-1080, Electric Power Supply and Distribution](#)
- [Technical Manual \(TM\) 5-850-2/Air Force AFJMAN 32-1046, Railroad Design and Rehabilitation](#)
- [Manual For Railway Engineering](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)

- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Manual of Uniform Traffic Control Devices \(MUTCD\)](#)

9.15 REFERENCES

9.15.1 The following references are provided for guidance.

- [Unified Facilities Criteria \(UFC\) 2-600-01, *Installation Design, Chap 9*](#)
- [U.S. Air Force, Landscape Design Guide, Parking Area](#)
- [U.S. Air Force, Landscape Design Guide, Walkways and Bikeways](#) (Provides a comprehensive walkway and bikeway planning guide including sections on paving materials and gradients and curvature data).
- [Chicago's Bike Lane Design Manual](#) (Provides a comprehensive series of technical drawings and design specifications for bike lanes).

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SECTION 10 **LANDSCAPE DESIGN STANDARDS**

10.1 INTRODUCTION

10.1.1 Landscape Design Standards include the selection, placement and maintenance of plant material on Fort Stewart. Landscape plantings provide a simple and cost effective enhancement to the general appearance of the installation.

10.1.2 The visual image conveyed by Fort Stewart is defined not just by architectural character and site organization, but also by attractive and well-designed landscape plantings. The presence of abundant plant material greatly enhances the visual character and environmental quality of the installation.

10.1.3 Landscape plantings add an element of human scale to open spaces and can be used functionally to screen undesirable views, buffer winds, visually reinforce the hierarchy of the circulation system and provide a visual transition between dissimilar land uses. Landscape plantings, in combination with stands of native vegetation, provide habitat for wildlife and shade and other environmental benefits for residents, employees and visitors.

10.2 LANDSCAPE OBJECTIVES

10.2.1 The overall purpose of the use of plant material at Fort Stewart is to improve the physical and psychological well-being of the people who live and work on the installation (Fig. 10.1). This is achieved by accomplishing the following objectives:



Fig. 10.1 – Well-designed landscaping improves the visual environment for residents and employees.

- Enhance soldier living and working areas, community services areas, the circulation system, family housing, command and administration areas and recreation facilities.
- Improve the overall visual quality of the installation by using landscape planting to:
 - Blend the built environment with the natural environment.
 - Provide scale and comfort to pedestrian environments.
 - Reinforce the hierarchy of the circulation system (Fig. 10.2).
 - Screen unsightly views or elements.
 - Buffer incompatible land uses.
 - Enhance antiterrorism capabilities.
- Emphasize the use of native plant varieties because many of them require less maintenance than introduced varieties. They also visually blend developed areas with the surrounding natural environment (Fig. 10.3).



Fig. 10.2 - Landscaping reinforces the circulation hierarchy.



Fig. 10.3 - Native plants are used to visually relate developed areas to the natural environment.

10.3 PRINCIPLES OF LANDSCAPE DEVELOPMENT

10.3.1 Landscape design is based on the following principles:

Unity

The selection and placement of plant material is used to blend, screen and soften incompatible architectural or other unattractive visual impacts. Plant material is used as a unifying element in front of a building or view to frame and enhance its visual effects. Repetition of a single plant type in a line or mass produces a strong visual line or volume in the landscape (Fig. 10.4).



Fig. 10.4 – Landscape design is used to unify complexes that include a variety of buildings.

Balance

Plant material is selected and placed to provide visual balance using either a symmetrical or an asymmetrical plant arrangement. Symmetrical plantings are generally used to produce a more formal appearance while asymmetrical plantings are used for informal or naturalistic designs (Fig. 10.5).



Fig. 10.5 – Trees are used to reinforce the balance of architectural forms.

Contrast

Plant material is selected and placed to provide variety in size and shape to add interest to the environment. Contrast can be expressed in the plants themselves when taller plants are located to provide a backdrop for lower plants, such as with placement of a hedge behind a bed of annuals or perennials. Contrast can also be a function of the creation of alternating shade and sunlit areas (Fig. 10.6).



Fig. 10.6 - Shaded areas for passive recreation contrasts with the sunlit area for active play.

Rhythm

Various sizes and shapes of plants planted in repeating sequences produce rhythm in the landscape. Rhythm is used to visually draw attention to specific elements in the landscape by leading the eye to the object with variations in height, shape, color and texture (Fig. 10.7).



Fig. 10.7 – Rhythm is shown in rows of shrubs that lead the eye to trees near the building entrance.

Color and Texture

Plants are selected and placed according to their color and texture to provide visual interest (Fig 10.8). Colors are classified as either warm (red, orange, yellow) or cool (violet, blue, green). Textures are classified by degree, from coarse to fine.



Fig. 10.8 – Variety in color and texture in groupings of plants adds interest.

Simplicity

Landscape designs generally should be simple in form to limit the need for extensive maintenance (Fig. 10.9). Plant material in lawn areas should be grouped in beds with regular edges to facilitate mowing. Small turf areas should be avoided because of the difficulty of mowing. Because of the high maintenance required, planting of annual and perennial plants in beds should be limited in favor of flowering shrubs.



Fig. 10.9 – A simple design can provide interest and variety, but requires only limited maintenance.

Ultimate Effect

Landscape plans should be prepared with consideration for the mature size of all plants. The initial placement of plants should be based on nursery industry standards for expected mature height as well as spread. The relationship of the ultimate height of the plants to windows and other features should also be anticipated.

Spatial Articulation

Plants are selected and placed to create enclosed outdoor spaces or to separate adjacent spaces. They are also used to guide people as they move through the environment. The degree of visual enclosure, physical separation, or movement is influenced by the density, form and type of plants used.

10.4 SUSTAINABLE LANDSCAPE DEVELOPMENT

10.4.1 The use of plant material on Fort Stewart promotes the sustainability of existing and new development (Fig. 10.10). In addition to aesthetic appeal, trees, shrubs, groundcover and vines:

- Provide habitat for wildlife
- Conserve energy
- Moderate climatic conditions
- Control erosion
- Purify the atmosphere
- Abate noise

10.4.2 Plant selection, installation and maintenance are to be accomplished following currently available sustainability guidance. In general, one of the key aspects governing sustainability is low maintenance. The following principles apply to landscape design, planting and grounds maintenance projects at Fort Stewart:

- Plant selection for low maintenance first involves determining which of the plants listed in [Appendix O, Plant Palette](#) are appropriate for a particular application. Second, the short list of potentially useful plants is analyzed relative to the particular circumstances of the project for which they will be used. From the short list, only the plants that would have the lowest requirements for water, pruning, pest control and cultivation may be specified and used on the project.
- Planting bed preparation specifications and practices, including any need for soil amendments, is to be evaluated for adherence to sustainability guidelines prior to bid or execution. The guiding principles to be followed are that a

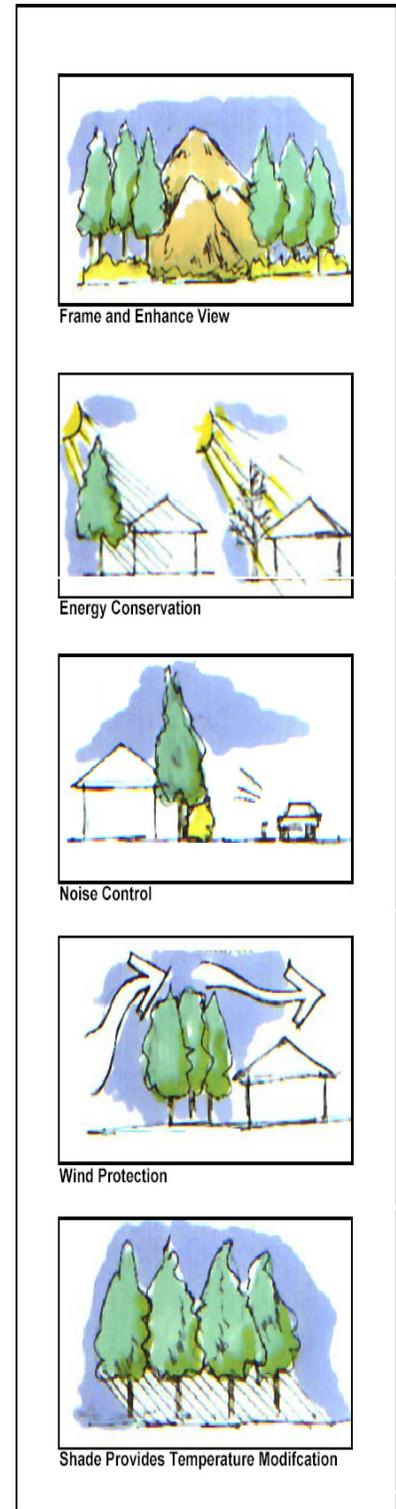


Fig. 10.10 - Landscape planting promotes sustainability.

minimum of disturbance to existing vegetation occurs and minimal amounts of chemicals are added to the soil. To ensure that the soil conditions are fully known in advance, a soil analysis will be undertaken sufficiently in advance to permit thorough consideration of sustainable approaches to improving soil conditions before planting.

- Landscape maintenance practices (including pruning, watering, fertilization, mowing, etc.) will be specified and carried out only after full consideration is given to the relative sustainability of the various practices available. The option of not conducting maintenance, although it is normally the least cost alternative in the short-term, must be cautiously applied because in most cases cost and time requirements for deferred maintenance are disproportionately high.
- Integrated pest management is the preferred approach to be specified and implemented at Fort Stewart. This is a sustainable practice involving the use of continuous monitoring, minimal intervention and environmentally benign agents to control destructive peaks in pest populations.

10.5 LANDSCAPE DESIGN GUIDELINES

10.5.1 Proposed planting designs must be reviewed to ensure that site conditions (soil, topography, adjacent uses and architecture) and climatic criteria (sun, shade and moisture requirements) have been properly considered. The appropriateness of the landscape layout and the selection of plants must also take into account how the area will be used and who will use it. The design concept must also complement adjacent buildings, define outdoor space and control views. Landscape planting plans must be prepared by qualified personnel to provide quality assurance and promote design consistency within each visual zone.

10.5.2 The following paragraphs present landscaping guidelines for typical locations and uses of landscape planting:

Foundation Planting

Foundation planting helps to integrate the building with its surroundings by introducing a bold visual element along the line where the building meets the ground. Normally composed of shrubs and small trees, this planting provides a green background for additional accent plantings in the foreground. Foundation

planting is designed to add scale and character to the building, to help create a sense of arrival and to screen HVAC and other utilities. When developing plans for foundation planting, consideration should be given to antiterrorism criteria and to the following design considerations:

- Focal and seasonal planting should be located at building entries for pedestrian interest (Fig. 10.11).
- The planting design and selection of plants should complement and reinforce the best architectural qualities of the building.
- Plants should not block windows and views from interior spaces.
- Trees should be setback from the building walls to provide space for mature growth and to prevent the root systems from damaging the foundation.
- Generally, symmetrical foundation planting design should be used for symmetrical buildings and asymmetrical designs should be used for asymmetrical buildings.
- Placement of flowering shrubs near building entrances should be avoided to minimize the possibility of insect problems (bee stings, etc.).

Screening

Screening plantings commonly incorporate evergreen shrubs and trees that branch to the ground. They are used for a variety of applications including the following:

- A combination of evergreen and deciduous trees can be used to provide protection from prevailing winds. Windbreak plantings should be irregular in form, rather than straight and evenly spaced, in order to provide more effective wind control and to visually blend with the natural areas of the installation.
- Masonry walls and fences that screen dumpsters may be further enhanced by shrubs of medium height and spread around the perimeter (Fig. 10.12). Dumpsters not screened by a fence or wall should be screened with taller and more dense shrubs so views of the dumpster are fully obscured.

Buffer Planting

Buffer plantings using a mixture of evergreen and deciduous trees and shrubs should be used to visually separate incompatible land uses and to strengthen the visual separation between the Housing, Barracks, Town Center, National Guard and Installation Support visual zones (Fig. 10.13).



Fig. 10.11 – Accent planting highlights the hospital entrance.

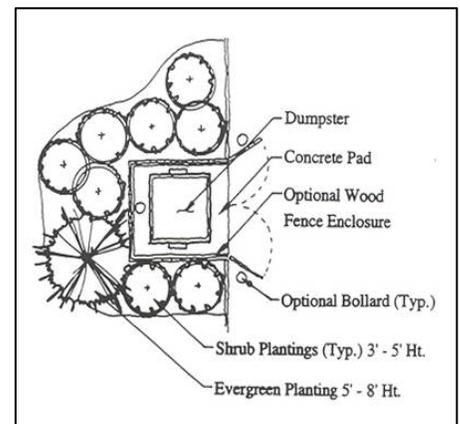


Fig. 10.12 – Planting around a dumpster reduces its negative effects.

Open Space Planting

Open space areas are enhanced with planting to produce visual variety along the edges and to provide accent at specific locations within the space. Generally, evergreen trees are used around the perimeter to enclose the open space. Flowering trees and shrubs are planted inside and against the perimeter to add visual interest. Accent trees and shrubs are used in plantings within the open space to draw attention to specific features. Accent plants are placed in groups to increase their visual effect (Fig. 10.14).

Street Trees

Overall, street trees are used to provide visual containment along streets and shade for the pavement, cars and pedestrians. Street tree varieties are selected for specific streets to visually reinforce the identity of the street within the hierarchy of the roadway system. Street trees, in combination with screening along parking lots, reduce the visual dominance of vehicles (Fig. 10.15). The following guidelines are used at Fort Stewart to ensure that street trees are properly selected and located for maximum effect:

- Plant deciduous street trees in single rows, along both sides of streets. Select large street trees for primary and secondary streets and medium street trees for tertiary routes. Use regularly spaced and uniformly shaped trees to provide a regimented appearance.
- Set trees 3 to 6 feet from the back of curbs. Spacing may be interrupted by driveways but the overall appearance should be as uniform as possible. New trees are spaced to conform to existing trees in a given block and to align with trees on the opposite side of the street when feasible.
- Coordinate street tree spacing with the layout of proposed street lighting so that light distribution will not be blocked as the tree grows.
- Locate trees at distances from intersections that will avoid blocking views of oncoming cross-traffic. The appropriate distance is determined using the sight distance triangle shown in Figure 10.16.
- Use approved deciduous street trees that have been selected to be resistant to salt damage, do not lift pavement and have 10-foot to 12-foot clearance to the lowest branches. Approved trees are identified in [Appendix O, Plant Palette](#). Weeping trees, trees with low branches and shrubs should not be planted in locations near intersections or driveways where they may block visibility of cross traffic or vehicles entering streets.



Fig. 10.13 – A stand of trees separates incompatible land uses.



Fig. 10.14 – Accent tree plantings create a dramatic environment for Warrior's Walk.



Fig. 10.15 – View of street trees and parking lot shade trees at the hospital.

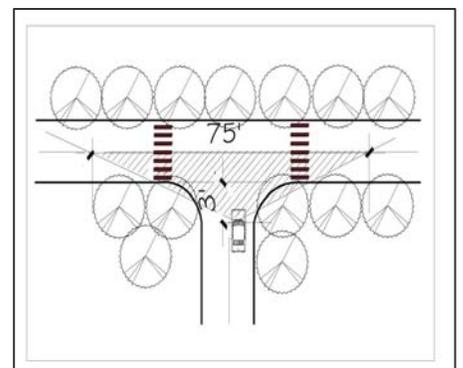


Fig. 10.16 – Keeping the sight distance triangle clear of obstructions enables intersecting drivers to see each other.

Parking Lot Planting

Parking lots are planted with trees and vegetative screening along the perimeter to improve their appearance, to help define circulation and to reduce heat gain during summer months (Fig. 10.17). The following guidelines are used at Fort Stewart in the design of landscaping for parking lots:

- Shade trees are planted in and around parking lots to provide shade, reduce glare and moderate ambient air temperatures. Optimum spacing of parking lot shade trees is 35 to 40 feet on center. Shade trees should be located with respect to the path of the sun so the maximum shade is cast on the pavement.
- Trees and shrubs are selected for their limited requirements for maintenance and their light-weight leaves that are not difficult to collect in the fall. Plants that produce fruit, nuts and other debris are avoided.
- Safe sight distances near entrances, exits and other circulation points must be considered when locating plants in a parking lot.
- Select trees, shrubs and ground covers that can withstand harsher conditions, such as sun, glare, heat and reduced water supply.
- Evergreen trees and shrubs may be mixed with deciduous plants to visually screen parking areas from adjacent uses.

Environmental Control Planting

Landscape plantings can provide environmental benefits, as well as addressing visual concerns. The following guidelines are used at Fort Stewart in the design of landscaping to achieve environmental control:

- Use deciduous trees and shrubs in courtyards, around building entrances and at places where people gather to provide shade, moderate temperatures and reduce glare (Fig. 10.18). The loss of leaves from these plants in the winter allows for these locations to be warmed by the sun.
- Use deciduous trees and shrubs on the southeast and southwest sides of buildings to shade the walls in the summer and open them to the sun in winter.
- Use mixed plantings of deciduous shrubs and evergreen trees and shrubs to provide sound and dust control along primary and secondary roads.

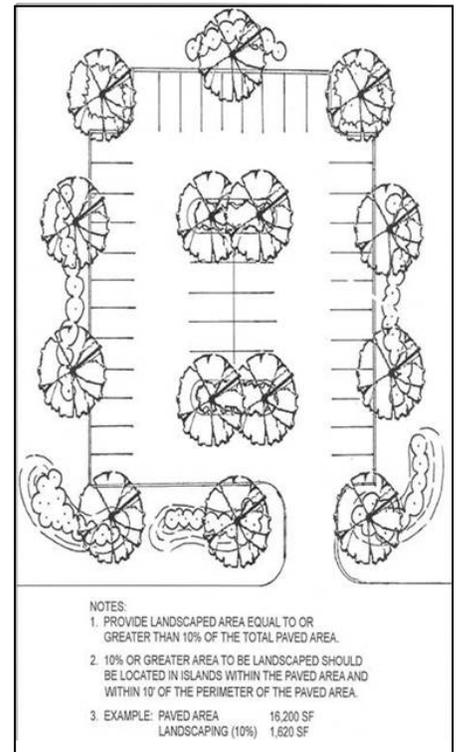


Fig. 10.17 - Provide parking lot planting to reduce heat gain.



Fig. 10.18 – Shade trees shelter as well as visually accent building entrances.

Image Planting

The image of Fort Stewart is formed by the visual impressions that are created by the landscape and buildings on the installation (Fig. 10.19). The most highly visible locations that contribute to the image of the installation are the main gate and Headquarters area, the primary circulation routes and activity nodes such as the PX and Soldier Service Center. Features like static displays and signs that contribute to the installation image are improved by the incorporation of supporting landscape planting.

Entrances to the Installation

The landscape near entrances and the streetscape along entry roadways develop a strong visual image of the installation. The installation sign and the immediate areas around the Visitor Center and access control points (ACP) are landscaped and highlighted with accent plants to provide year-round visual interest. The following guidelines apply to landscaping at the gateways to Fort Stewart:

- The landscape design is integrated with the antiterrorism requirements of [Section 12, Antiterrorism Design Standards](#).
- Low shrubs, groundcover, annual/perennial plants and canopy trees provide seasonal interest as well as maintain views required to ensure force protection measures.
- Large evergreen trees are not placed near the ACPs to avoid obstructing sightlines in the area and off the installation. Adequate lines of sight must be maintained for guard personnel to observe vehicular and pedestrian traffic approaching the gate.

Xeriscape

Xeriscape, conservation of water and energy through creative and adaptive landscape design, is encouraged at Fort Stewart. Xeriscape landscaping provides attractive solutions that save money, water and maintenance. The following websites provide guidance on specific design principles of the xeriscape design process and design application:

- [University of Georgia, Cooperative Extension Service-Xeriscape, A Guide to Developing a Water-Wise Landscape](#)
- [USAF Landscape Design Guide, Xeriscape](#).



Fig. 10.19 – The landscape image of Fort Stewart is created by views of buildings set amid mature vegetation.

Zeroscape

Zeroscape landscaping, without plants, is not used at Fort Stewart because all areas that can be vegetated are, to compensate for the environmental impacts of the substantial areas that must be paved.

Irrigation

Irrigation is generally discouraged at Fort Stewart on the basis that landscaping, once established, should be able to thrive on the naturally available precipitation. Special circumstances where irrigation may be justified will be considered during project planning and design for new projects. No retrofit of landscaping with irrigation is permitted without prior approval through the maintenance and self-help project review process.

10.6 PLANT MATERIAL SELECTION

10.6.1 Trees, shrubs, ground cover and turf are the major elements in a planting composition. Systematic use of plant selection criteria helps to create a unified composition; identify native plants; ensure low maintenance and sustainability; avoid incompatible colors, textures and forms; and match the appropriate plant to the land use and site conditions.

10.6.2 The ability of plant material to provide lasting benefit is dependent upon the survivability of the plants and their appropriateness to the site and use. Major factors affecting plant hardiness are soil type and organic content, temperature, moisture and light. These microclimatic conditions can be modified somewhat by the landscape design to create more favorable conditions to help the plants thrive.

10.6.3 The arrangement of plants in a composition to provide a specific display of form, color, texture, variety and accent over time depends upon an accurate understanding of how the available plants will relate to each other as they mature (Fig. 10.20). At the most basic level, there are five ways that plants are used as forms:

- Canopy
- Barrier (solid)
- Screen (less than solid)
- Groundcover
- Accent



Fig. 10.20 – Space plants according to their sizes when they mature.

10.7 PLANT CATEGORIES AND PLANT SELECTION LIST

10.7.1 The plant categories and plant selection list are designed to help the designer choose the best plant for project specific design requirements. The plants that appear on the list are selected for their ability to thrive in the Coastal Georgia geographical area and are approved for use at Fort Stewart. To use this information effectively, the design conditions of the specific project site must be thoroughly understood.

The Plant Categories

A select group of plant materials has been divided into the following six categories:

- Shade Trees
- Intermediate Trees
- Evergreen Trees
- Deciduous Shrubs
- Evergreen Shrubs
- Groundcover and Vines
- Grasses

Plant Selection List

The Plant Selection List is provided in a matrix format in [Appendix O, Plant Palette](#). The plants are listed in alphabetical order by category. Their botanical and common names are provided followed by a number of design characteristics, environmental requirements and functional uses.

10.8 PLANT MATERIAL INSTALLATION

10.8.1 A key step in assuring successful planting is to select plants of the highest quality. Plant material must comply with *American Standard for Nursery Stock (ANSI Z60.1)* which stipulates the appropriate relationships between plant characteristics such as height to spread, height to caliper of trunk, number of trunks for multi-stemmed plants, etc.

10.8.2 During design, locations of existing utility lines must be reviewed with DPW to ensure that conflicts during construction between excavations for plants and underground utilities are avoided.

10.8.3 The planting and establishment of trees, shrubs, ground covers, vines and turf are detailed in [TM 5-803-13](#), Chapter 3.

10.8.4 The following are key steps in the successful planting of trees and shrubs:

- At planting time, thin plants by removing one-third of the vegetative material.
- Spray all evergreens with an antidesiccant within 24 hours of planting.
- Water all plants thoroughly during the first 24-hour period after planting.
- Site all plants and stakes plumb.

10.8.5 Additional information on installation techniques for turf is detailed in [Unified Facilities Criteria \(UFC\) 3-210-05FA, Design: Landscape Design and Planting Criteria](#), Chapter 4. The details cover the following topics:

- Site Evaluation
- Site Preparation
- Selection of Turf
- Maintenance Requirements

10.9 MAINTENANCE OF PLANT MATERIAL

10.9.1 Ease of maintenance should be one of the primary goals when developing planting designs for Fort Stewart.

10.9.2 Pruning is an important aspect of plant maintenance. In general plant material should be allowed to conform to its natural shape. This practice allows the plant to mature in a healthy manner and saves the time and energy required for trimming. The pruning of trees and shrubs is done to maintain plant health, direct plant growth, maintain a desired shape and increase flower or fruit development.

Pruning of Shrubs

The following principles apply to the pruning of shrubs:

- Do not prune shrubs flat across the top.
- Prune branches yearly on thick-branched shrubs and prune at the base of the shrub.
- Prune deciduous shrub stems as close to the ground as possible and branches as close to the stem as possible.
- When thinning out deciduous shrubs prune about one-third of all branches where they meet their main stem.

Pruning Trees

The following guidelines apply to the pruning of trees:

- Remove a large limb by making three cuts as described below. The first two cuts are necessary to remove the weight of the branch to allow the final cut to be clean, without ripping the bark (Fig. 10.21).
 - Make the first cut at the bottom of the branch 12-24 inches from the branch attachment (Cut A, Fig 10.21).
 - Make the second cut on the top of the branch within 1-inch of the undercut (Cut B, Fig 10.21).
 - Make the final cut just beyond the outer portion of the branch collar (Cut C, Fig 10.21).
- Never cut the central leader of the tree.
- Prune coniferous evergreens trees, during the spring, by snipping off new growth. Avoid geometrically shaping plant material when pruning.

10.9.3 Mulch around the base of plants provides for greater moisture and helps inhibit the growth of weeds and grasses (Fig. 10.22). Mulching is done as follows:

- Mulch should be maintained at a depth of two to four inches.
- Mulch in the late spring, the best time for water conservation.
- Apply mulch immediately to new fall plantings.

10.9.4 Ground cover plants do not require pruning, but they may be dug up in the spring or fall for propagation and to prevent overcrowding in their beds.

10.9.5 Landscape maintenance is best managed according to a carefully planned schedule. The general objective of a landscape maintenance schedule is to ensure an orderly and efficient care of the grounds. The landscape maintenance schedule in [Appendix F, Landscape Maintenance Schedule](#) identifies times throughout the year when specified maintenance should be undertaken. Use of the landscape maintenance schedule will improve all aspects of landscape on the installation. It will help organize the timely ordering of materials and supplies and the anticipation of manpower needs.

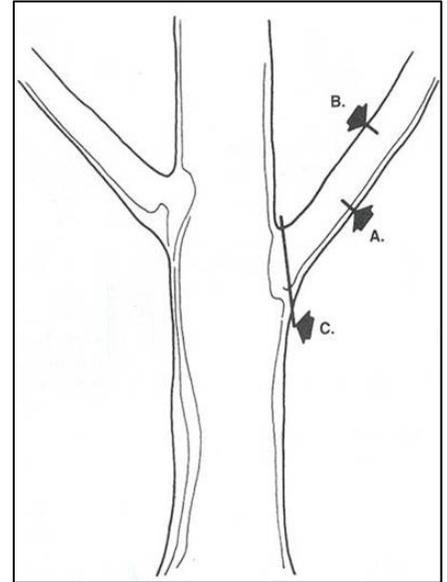


Fig. 10.21 – Three cuts are needed to cleanly prune a tree branch.

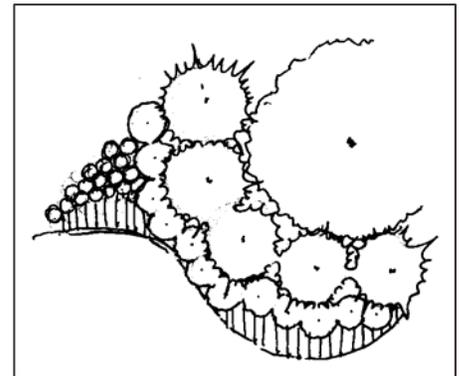


Fig. 10.22 – Group plants in mulched beds to reduce maintenance.

10.10 TREE PROTECTION AND PRESERVATION

10.10.1 Existing trees and forest stands must be preserved if they are in good health. Construction must be planned to provide for the preservation of significant individual trees and groups of trees.

10.10.2 During the clearing and construction process, trees must be protected from damage. Construction barricades are erected to protect existing trees to be preserved. The barricades are located no closer to the trunk of the tree than the outer limits of the branches, or drip line (Fig. 10.23). In general, no excavation, filling, or storage of construction materials or vehicles is permitted inside the barrier. Existing trees that cannot be preserved may be transplanted to a different location on-site or on a different site.

10.10.3 Changes in the grade of the soil around trees can cause extensive root damage and eventually death of the tree. To prevent damage to the tree, it is important to maintain the existing grade for at least the size of the tree canopy, within the drip line.

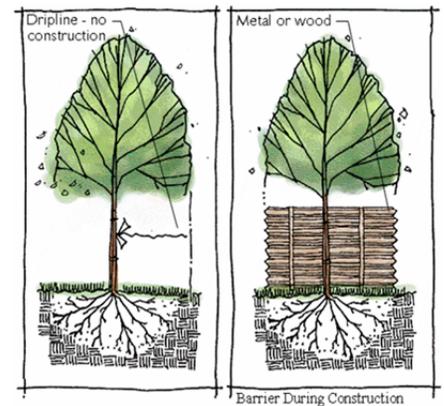


Fig 10.23 – Install a rigid barrier at the drip line to protect the tree and roots during construction.

10.11 ANTITERRORISM CONSIDERATIONS

10.11.1 The presence of vegetation on an installation can have both beneficial and detrimental impacts on security. The selection and placement of landscape plant material on Fort Stewart is an integral element in the provision of protective measures to reduce the threat of terrorism.

10.11.2 Proper selection and placement of trees and shrubs is undertaken to provide visual screening without creating concealment for covert activity. The landscape architect responsible for tree placement should work closely with the Fort Stewart antiterrorism officer to design a landscape plan that provides visual screening without compromising antiterrorism measures (Fig. 10.24).

10.11.3 The plant material must allow building occupants to see out, but must not allow outside forces to monitor interior activity. To accomplish this, the landscape architect should incorporate the following aspects into the design:

- Avoid conditions within 33 feet (10 meters) of inhabited structures that permit concealment of aggressors or obscure the view of objects or packages 6 inches (150-millimeters) in height from the view of security personnel. This results in the placement of shrubs and trees that are loose rather than dense in growth habit and possess multiple small

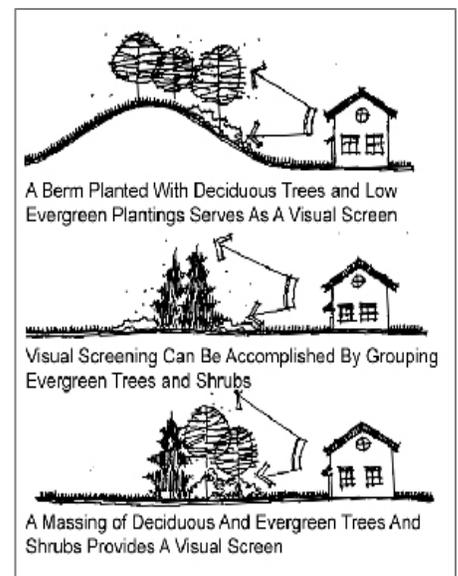


Fig. 10.24 –Tree buffers planted to obscure sight lines improve antiterrorism preparation.

stems rather than a single trunk that will obscure a 6 inch (150 mm) package.

- Plant material selection and placement shall minimize potential hiding places for bombs and aggressors.
- Provide vegetation screens for play areas and outdoor recreation areas to obscure from off-installation view.
- Use trees to obscure sight lines of on-installation buildings from off-installation buildings.
- Design vegetation groupings properly to reduce blast effect.

10.12 ARMY STANDARDS

10.12.1 The following cited Army Standards shall be met.

- [Army Regulation \(AR\) 420-70, *Buildings and Structures*](#)
- [Unified Facilities Criteria \(UFC\) 3-210-05FA, *Design: Landscape Design and Planting Criteria*](#)
- [Technical Manual \(TM\) 5-630, *Natural Resources Land Management*](#)
- American Standard for Nursery Stock, ANSI Z60.1

10.13 REFERENCES

10.13.1 The following references are provided for guidance.

- [Unified Facilities Criteria \(UFC\) 2-600-01, *Installation Design, Chap 10*](#)
- [USAF Landscape Design Guide](#)
- C. Brickell and D. Joyce. *Pruning and Training*, 1996.

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SECTION 11 SITE ELEMENTS DESIGN STANDARDS

11.1 INTRODUCTION

11.1.1 Site elements at Fort Stewart include all visible exterior elements that are considered utilitarian in use (Fig. 11.1). This section presents guidelines for approved site elements. The discussion about specific site elements below is organized under four categories:

- Site Furnishings
- Signs
- Lighting
- Utilities

11.1.2 Site elements selected for installation must be consistent with Fort Stewart design standards in order to reinforce the Southern Living Station of Choice theme. Proper selection of site elements will also include consideration for ease of maintenance and sustainability.

11.2 SITE ELEMENT OBJECTIVES

11.2.1 Site elements are selected to effectively function as intended, enhance the visual quality of Fort Stewart and contribute to the sustainability of the installation. To accomplish these purposes site elements must meet the following objectives:

- Conform to established plans for the locations and types of site elements at Fort Stewart.

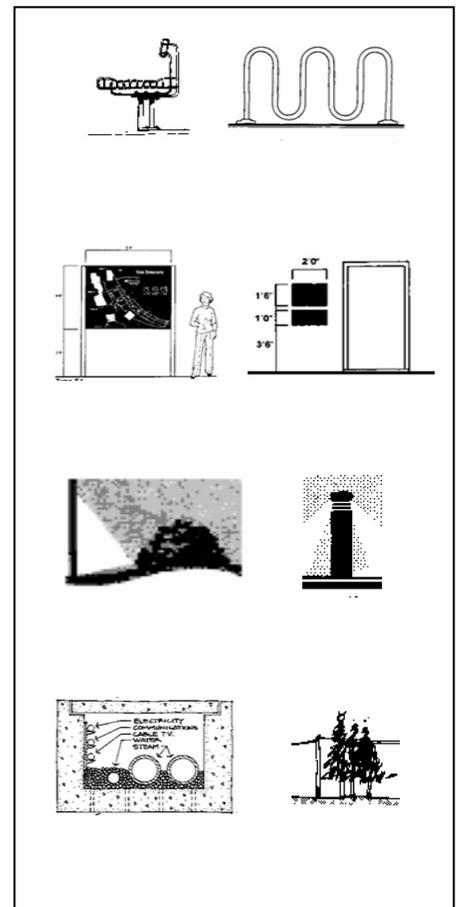


Fig. 11.1 – A sampling of common site elements.

- Design site elements to support the image, character and scale of the Southern Living Station of Choice theme.
- Locate and design site elements to meet antiterrorism requirements.
- Design site elements to provide multiple uses (Fig. 11.2)
- Use recycled and salvaged materials wherever possible.
- Minimize maintenance and repair through the use of efficient products that are vandal-proof.
- Minimize negative visual and environmental impacts of utility systems.

11.3 SITE FURNISHINGS

11.3.1 The term site furnishings refers to all of the utilitarian outdoor amenities found at Fort Stewart. These outdoor furnishings are provided to produce attractive places for outdoor activity and relaxation. All furnishings shall be accessible to, and usable by, persons with disabilities, in accordance with the requirements of the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and the [Uniform Federal Accessibility Standards \(UFAS\)](#), with the most stringent standards to apply in the event of conflicts.

11.3.2 The Site Furnishings category includes the following sub-groups of elements which are discussed in detail below:

- Seating
- Tables
- Telephone Booths
- Shelters (Fig. 11.3)
- Kiosks
- Walls and Fences
- Trash Receptacles
- Dumpsters
- Flagpoles
- Planters
- Bicycle Racks
- Tree Grates
- Bollards
- Play Equipment

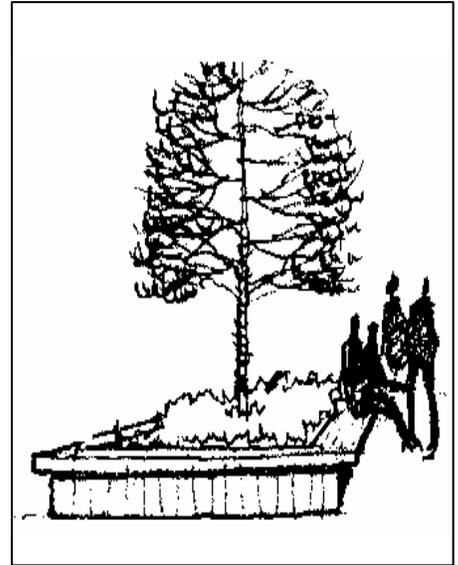


Fig. 11.2 - A planter can readily serve as bench and a vehicle barrier.



Fig. 11.3 – This attractive shelter provides shade and shelter from rain.

- Mailboxes
- Monuments, Memorials, Military Equipment Static Displays (Fig. 11.4)
- Drinking Fountains

11.3.3 Seating. Seating includes benches and walls, as well as tables and movable chairs.

Benches.

- Bench Locations. Benches are to be located in areas of concentrated pedestrian use and arranged to encourage socialization within a pleasant outdoor setting. Ideal locations include intersections of walkways, major building entryways and courtyards and bus stops. Orient benches to give those sitting the best available view of the surroundings.
- Bench Installation. Benches are mounted on paved pads adjacent to walkways. Provide minimum clearance between the bench and edge of pad of two feet from adjacent sidewalks and five feet between the front of the bench and any stationary obstacle. Provide appropriate planting treatment for visual definition and seasonal shade.
- Bench Design. Benches with backs are used in areas where gathering, resting, eating and waiting are predominant uses. Benches without backs are used in recreation areas for players and spectators. For comfort and durability, the seats and backs should be made of wood or metal slats (Fig. 11.5). The standard bench length is six feet long but longer benches may be used for specific applications. Bench dimensions should meet specifications presented in the [Technical Manual \(TM\) 5-803-5, Installation Design Manual](#), Fig. 2.5, page 8. Wall mounted benches should be similar in style and color to free standing benches. Supports are aluminum or stainless steel painted to match or complement the color of the seat.

Seating Walls.

- Seating Wall Location. Seating is incorporated into planter boxes or retaining walls, particularly at building entrance areas where the structures can serve as antiterrorism barriers. The locations of seating walls are integrated into the overall layout of features between parking and building entrances.



Fig. 11.4 - Plentiful static displays tell a story of mechanized combat at Fort Stewart.



Fig. 11.5 – An approved type of bench with contoured spring steel slats.

- Seating Wall Design. Seating walls used near buildings must be designed to complement the architecture. Seating walls should generally be between 18 inches and 22 inches high and 12 inches to 18 inches wide (Fig. 11.6) and constructed to be comfortable and attractive as well as durable.

Tables.

- Table Location. Locate tables alone or with seating in areas where people congregate to visit, eat, or work outside. Arrange the tables and seating so they can be used by more than one group of people. Groups of tables are placed in high use areas at recreation or food service facilities.
- Table Installation. Tables that are heavily used are mounted on paved pads adjacent to walkways or building entrances or at a safe distance from athletic courts and fields. Trees or shelters are included to provide shade and protection from the elements.
- Table Design. Tables are square or rectangular and have permanently connected seating. The table and seating surfaces are similar materials and design (Fig. 11.7). The table surface is resistant to corrosion, damage from rough use and splintering or chipping as it ages.



Fig. 11.6 - An example of a concrete seat wall.



Fig. 11.7 – Vinyl coated metal tables and benches are comfortable and durable.

11.3.4 Telephone Booths. Telephone booths are being phased out at Fort Stewart. New pay phones are only installed inside buildings or mounted on building walls near the entrance.

11.3.5 Shelters.

Bus Shelters.

- Bus Shelter Location. Bus shelters are located at designated bus stops in the Housing Visual Zone. Bus shelters are sited between the roadway and walkways that serve residents in the area.
- Bus Shelter Design. Bus shelters must provide protection from wind, rain and sun with an overhead roof and enclosures on three sides (Fig. 11.8). Side enclosures should be constructed of a transparent, unbreakable type material to allow for adequate visibility. Bus shelters should have a minimum size of five feet by eight feet and minimum interior headroom of six feet six inches. Bus shelters must have a trash receptacle and ash tray either as integral fixtures or as separate elements sited with the shelter.



Fig. 11.8 - Bus shelters allow for adequate enclosure and ventilation but do not obscure those waiting.

Picnic Shelters.

- Picnic Shelter Location. Picnic shelters are strategically located and sized for shared use to discourage the proliferation of small shelters scattered throughout the installation.
- Picnic Shelter Design. Picnic shelters are open on all sides to provide ventilation and visibility. The minimum size should be 20 feet square with a minimum 8-foot headroom at the eaves. Picnic shelters are constructed of wood and have wood or asphalt shingle roofing (Fig. 11.9).

Smoking Shelters.

- Smoking Shelter Location. Smoking shelters may be located beside or behind buildings where personnel who smoke congregate. The shelter must be at least 50 feet from a building entrance and connected by a walkway or path.
- Smoking Shelter Design. Smoking shelters may be constructed of wood or synthetic materials and may be enclosed with screen or open. These shelters should be rustic and framed with shrubs so they blend into the setting (Fig. 11.10). Prefabricated or kit smoking shelter designs must be approved prior to purchase to ensure that the quality and appearance is appropriate for its intended location.

11.3.6 Kiosks

- Kiosks Location. Kiosks are used to display information at locations where pedestrian congregate. They will be used sparingly and only where they will be maintained and the information updated.
- Kiosk Installation. Except in recreation areas, mount kiosks on a concrete base adjacent to walkways. Allow a minimum of 3 feet of clearance on all sides.
- Kiosks Design. Kiosk design should blend compatibly with other site furnishings and with the architectural character of nearby buildings (Fig. 11.11).

11.3.7 Walls and Fences.

Walls and fencing are used to provide visual screening and privacy, to define pedestrian routes and to control vehicular access, as well as to provide security. Walls and fences must fulfill their function and visually harmonize with the character and appearance of other nearby elements and structures.



Fig. 11.9 - Picnic shelters are rustic in appearance to blend into the recreations sites they serve.



Fig. 11.10 - A rustic smoking shelter with nearby shrubs blends into the landscape.

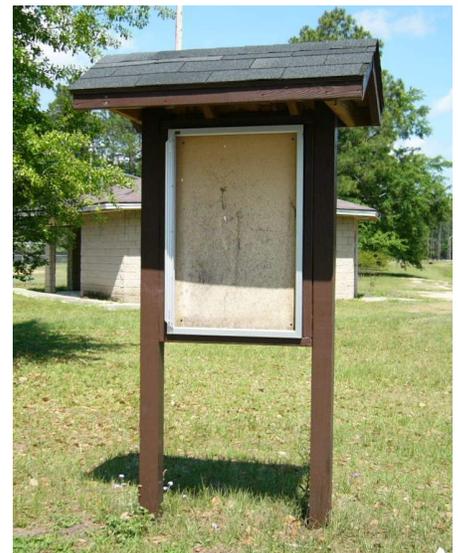


Fig. 11.11 - Wood is an appropriate material for a kiosk in a recreation area.

Walls

- **Wall Location.** Low walls are to be used to define pedestrian court areas and provide informal seating. Screening walls are used to screen building service areas. High walls are used to screen dumpster and mechanical equipment enclosures. Walls adjacent to walkways will be free of any projections, such as signs or drain pipes that would pose a hazard to passing pedestrians.
- **Wall Design.** Walls are constructed of concrete block with brick exterior veneer, or other material to match the adjacent permanent building. Detail is added to break-up the expanse of exterior brick on high walls. Enclosures are equipped with a black metal gate to secure the contents and to improve appearance. Screening and high walls must have a matching brick or a dark brown or bronze metal cap (Fig. 11.12).



Fig. 11.12 - The metal cap, water table course of brick and the black metal gate enhance this enclosure.



Fig. 11.13 – View of the perimeter fence near the Main Gate.

Fences

- **Fence Location.** Fences are used to provide security for and to screen views of large service areas and utility yards. They are also used to provide privacy and to define outdoor spaces in recreation, retail, lodging and family housing areas. The perimeter fence at Fort Stewart defines the boundary between the installation and privately and publicly owned lands beyond and is highly visible to those living or driving nearby.
- **Fence Design.** The following four types of fencing are commonly used at Fort Stewart:
 - Perimeter fencing is constructed with brick-clad concrete block piers spanned with sections of black metal pickets (Fig. 11.13).
 - Security fencing may be chain link, but must be augmented with shrubs and trees to break-up views of long fence lines and broad areas of pavement (Fig. 11.14).
 - Screening fence may also be constructed of wood pickets fitted close together to preclude visibility of what is enclosed (Fig. 11.15).
 - Family housing yard fencing is constructed of black vinyl coated chain link with all mesh and structural members being coated (Fig. 11.16).



Fig. 11.14 – Trees and shrubs planted along a security fence screen unwanted views.



Fig. 11.15 – View of a simple wood screening fence enclosing utility equipment.

11.3.8 Trash Receptacles.

Trash receptacles are small, specially designed containers for the collection of refuse. They are periodically emptied by installation personnel into dumpsters that serve the individual facility.

- **Trash Receptacle Location.** Trash receptacles are intended to be highly visible and accessible so they function well for litter control. Trash receptacles are conveniently placed near seating and eating areas, in recreation areas near shelters or picnic tables, along walkways, at major pedestrian intersections and where walkways lead to buildings from parking lots but not near the actual building entrance.
- **Trash Receptacle Design.** The following two types of trash receptacles are used outdoors at Fort Stewart:
 - **Metal barrels** trash receptacles are used throughout the Headquarters and Town Center visual zones. The metal barrel trash receptacle consists of an outer shell with an inner trash can (Fig. 11.17). The outer shell rests on the ground or is mounted on a pedestal anchored into the ground or pavement. The outer shell is composed of vertical metal staves approximately two inches in width separated by openings that are equal to approximately half the width of the staves. The internal trash can is removable for dumping and may be fitted with a plastic trash bag. The inner can is covered by a metal cap that insets and locks into the outer shell to prevent unauthorized removal of trash.
 - **Wood barrel** trash receptacles are used in all other visual zones at Fort Stewart. The wood barrel trash receptacle consists of an outer shell with an inner trash can (Fig. 11.18). The outer shell is mounted on a pedestal anchored into the ground or pavement. The outer shell is composed of vertical wood, or wood substitute, staves approximately two inches in width separated by openings that are equal to approximately half the width of the staves. The internal trash can is removable for dumping and may be fitted with a plastic trash bag. The inner can is covered by a metal cap that insets and locks into the outer shell to prevent unauthorized removal of trash.

11.3.9 Dumpsters.

A variety of dumpsters are used at Fort Stewart for the collection of trash and recyclable materials. Generally, each building or



Fig. 11.16 – Black chain link fencing encloses yards in family housing areas.



Fig. 11.17 – An example of a metal barrel trash receptacle.



Fig. 11.18 – An example of a wood-substitute barrel trash receptacle.

compound has at least two or three dumpsters which are periodically emptied by installation personnel or contractors.

- **Dumpster Location.** Antiterrorism requirements restrict the location of dumpsters to a minimum of 33 feet (10 meters) from inhabited buildings and 82 feet (25 meters) from billeting and primary gathering areas ([*Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*](#), Table B-1). Dumpsters may be placed closer to uninhabited buildings, but are required to be set back from roadways and walkways. Dumpsters inside the enclosure must be directly accessible by way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Dumpsters are placed on concrete pads with aprons large enough to encompass the bearing points of the service vehicle.
- **Dumpster Enclosure Design.** Dumpsters in the Headquarters, Town Center and Barracks visual zones must be screened from view by enclosing them in a permanent screening wall as described in Section 11.3.7. Dumpsters in the other visual zones may be enclosed by either a screening wall or a screening fence as described in Section 11.3.7. Dumpster enclosures must be oriented and designed as an integral part of the site plan for a facility. Provide a minimum three feet of clearance on each side between screen walls and dumpsters to allow adequate handler and truck access (Fig. 11.19). Concrete filled steel pipe bollards will be set inside the enclosure to protect the rear and side walls from being struck by dumpsters when being emptied and returned. Bollards will be painted yellow. Incorporate plantings around the screening walls to blend them into the overall landscape design for the site.



Fig. 11.19 – View of a large dumpster enclosure with metal gates.

11.3.10 Flag Pole.

- **Flag Pole Location.** Flag poles are installed at Fort Stewart only in specific locations authorized by the Garrison Commander. Contact the Master Planning Division to determine which organizations are pre-approved for flag poles and to initiate the review process for installing one.
- **Flag Pole Design.** The standard flagpole used at Fort Stewart will be tapered mill finish aluminum, fitted with a gold anodized finish ball finial (Figure 11.20). The flag pole will be mounted on a concrete base flush at grade. The base will be enclosed in a concrete pad that extends out a minimum of five feet to provide an area for the color guard

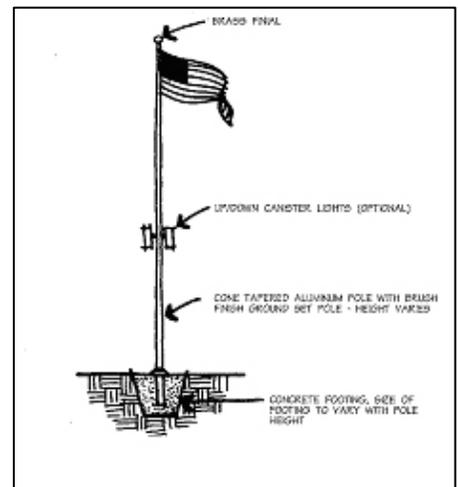


Fig. 11.20 – Sketch showing the basic components of a standard flag pole.

to stand. If the flag pole is located in a larger paved area, the concrete pad may be covered with the same paving materials as the surrounding area, except when that material is asphalt. Flag poles will include lighting and may be accented with well-maintained planting beds.

11.3.11 Planters.

Planters are used at Fort Stewart as vehicle barriers and to enhance the entrances of buildings with seasonal plantings. The locations and designs of planters are as follows:

Barrier Planter.

- **Barrier Planter Location.** Barrier planters are set in groups or rows at an appropriate distance from a building wall or entrance to prevent a threatening vehicle from approaching.
- **Barrier Planter Design.** To resist the force of a large vehicle attempting to approach a building, barrier planters must be constructed of reinforced concrete and anchored to an underground foundation (Fig. 11.21).

Decorative Planter.

- **Decorative Planter Location.** Decorative planters are used to accent a building entrance with seasonal plants and color (Fig. 11.22). Planters should be located so they block uninterrupted vehicular access to a building, but not so they excessively impede pedestrian movement. Several planters of various sizes should be grouped together to produce an aesthetically pleasing display.
- **Decorative Planter Design.** Planters may be made of terra cotta or cast concrete and may have a surface design or pattern. Planters may incorporate exposed aggregate in the exterior surface, but planters with brightly colored aggregate are discouraged. In any case the appearance of decorative planters must be coordinated with the design of the building, its entry and other site elements nearby.

11.3.12 Bicycle Racks.

Bicycle racks are provided at destinations in the Housing, Town Center and Barracks visual zones.

- **Bicycle Rack Location.** Bicycle racks are installed between the parking lots and entrances of buildings they serve. Where possible, bicycle racks are located under the eaves or are sheltered by an extending portion of the building.



Fig. 11.21 – A concrete barrier planter should be attractive, as well as effective in blocking vehicles.



Fig. 11.22 – An example of a commonly available decorative planter.

- **Bicycle Rack Installation.** Bicycle racks are placed on a concrete pad or other pavement associated with walkways approaching the building. The racks will be anchored to the pavement to ensure they remain in place and to protect the bicycles from theft.
- **Bicycle Rack Design.** Bicycle racks are constructed of durable metal pipe such as aluminum or iron (Fig. 11.23). Aluminum pipe will be anodized and iron pipe will be galvanized or have a factory applied powder coating. The color of bicycle racks near buildings will be coordinated with the color of that building and other nearby site elements.



Fig. 11.23 - A bicycle rack made of galvanized iron pipe.

11.3.13 Tree Grates.

- **Tree Grate Location.** Tree grates are to be used sparingly at Fort Stewart but may be needed to protect trees in large paved areas such as along the edge of pedestrian walkways.
- **Tree Grate Installation.** Tree grates and planting pits must be a minimum of five feet by five feet. The planting pit is ringed by a concrete footing for the grate or a metal frame that is included with the grate.
- **Tree Grate Design.** The design of tree grates will be coordinated with the architecture of the adjacent building and nearby site elements (Fig. 11.24). At a minimum, gaps in the tree grate walking surface must be wide enough to permit water and air through to the tree roots but narrow enough to eliminate risk of tripping or shoe soles being caught.



Fig. 11.24 - Tree grates must be simple in design and effective in protecting tree roots.

11.3.14 Bollards.

Bollards are used at Fort Stewart as vehicle barriers and as decorative elements or pedestrian walkway lighting.

Vehicular Barrier Bollards.

There are two types of vehicle barrier bollards. One is an industrial bollard used in the Installation Support Visual Zone and in building service and utility areas throughout the installation. The other is an antiterrorism bollard that is used throughout the installation where buildings, building entrances and gathering places must be protected from vehicles.

- **Vehicular Barrier Bollard Location.** Vehicular barrier bollards adjacent to buildings, loading docks, or utility

equipment are used to fully protect buildings or utility areas from being struck by trucks and other equipment (Fig. 11.25). Antiterrorism bollards are located along the edges of roadways and parking lots to prevent a vehicle from lurching onto pedestrian walkways or into building walls and entrances.

- **Vehicular Barrier Bollard Installation.** Vehicular barrier bollards in installation support and utility areas are buried directly in the ground with compacted crushed stone backfill or concrete. Pavement is then installed around them to produce a finished appearance. Antiterrorism bollards are installed on a steel pipe that is anchored in the ground by a poured concrete footing.
- **Vehicular Barrier Bollard Design.** Vehicular barrier bollards in installation support and utility areas are made from steel pipe of various diameters filled with concrete that is finished with a dome at the top. These bollards are painted yellow to alert truck drivers or brown if they are in a green area. Antiterrorism bollards are made of a cast aluminum or steel shell that fits over a steel core (Fig. 11.26). Antiterrorism bollards are powder coated or anodized in a color that is coordinated with the architecture of adjacent buildings and other nearby site elements.



Fig. 11.25 – Vehicle barrier bollards protect this transformer.



Fig. 11.26 - A powder coated cast aluminum antiterrorism bollard.

Decorative Bollards.

There are two types of decorative bollards. Both are used throughout the installation to define pedestrian areas or to provide low level lighting for pedestrian walkways.

- **Decorative Bollard Location.** Decorative bollards are located in straight rows or along a circular curve to mark the boundary between outdoor spaces of different uses. For example, bollards may be used between an area where tables are provided and an adjacent walkway that leads to a building entrance. Lighted bollards are placed along the edge of walkways that have no other lighting so that pedestrians are able to see their way. Lighted bollards may also be used in a manner similar to decorative bollards where the outdoor spaces will be frequently used at night.
- **Decorative Bollard Installation.** Decorative bollards are anchored to concrete pavement or to a concrete footing beneath other types of surface paving. Lighted bollards are set in a concrete footing that also contains the wire and junction box for the light fixture.

- **Decorative Bollard Design.** Decorative bollards will consist of either a single piece or an inner core and outer shell. The surface design and color will be coordinated with the design of adjacent buildings and other nearby site elements. Lighted bollards will be Model Number DB6 manufactured by Dynamics Industries (Fig. 11.27). The lighted bollard is a specified item in the Fort Stewart electrical system privatization contract.

11.3.15 Playgrounds/Tot Lots.

Playgrounds and tot lots at Fort Stewart will incorporate equipment that is suited for the age group or groups that are expected to use the facility. Two age groups are recognized as having differing equipment specifically designed for them; ages two to five (Fig. 11.28) and ages five to twelve. Play equipment manufacturers' information will be evaluated by project designers to ensure that play equipment installed is consistent with this age group guideline.

- **Playground Planning and Design.** Guidance for planning and designing unsupervised outdoor play areas that meet child safety and child development requirements is found in the following publication; [Unified Facilities Criteria \(UFC\) 3-210-04, Design: Children's Outdoor Play Areas](#). The guidance given in this publication meets the needs of children with and without disabilities.
- **Playground Inspection and Maintenance.** A play area inspection and maintenance program for Child Development Centers can be found in [Technical Manual \(TM\) 5-663, Child Development Center, Play Area Inspection and Maintenance Program](#).
- **Recalled and Banned Playground Equipment.** For updates on banned or recalled playground equipment consult the [Consumer Product Safety Commission Press Releases and Recalls](#) web site.

11.3.16 Monuments, Memorials and Military Equipment Static Displays.

- **Monument and Display Location.** Monuments and static displays must be carefully designed and approved by the Garrison Commander prior to installation. It is in the interest of Fort Stewart as a whole to have monuments and static displays to be consolidated in specific locations to create an orderly presentation of artifacts that are of significance to the entire 3rd ID.



Fig. 11.27 - The lighted bollard approved for use at Fort Stewart.



Fig. 11.28 – An example of play equipment for the two to five year old age group.

- **Monument and Display Design.** Proposals for memorials must conform to the guidance set forth in [Army Regulation \(AR\) 1-33, Memorial Programs](#).

11.3.17 Drinking Fountains.

Outdoor drinking fountains are not generally permitted on Fort Stewart, except to support larger playgrounds, outdoor recreation facility complexes and outlying recreation areas if convenient to a potable water supply line. When drinking fountains are installed, they must be of high quality cast or forged metal and must be self-winterizing. Steps must be provided for children, and the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and [Uniform Federal Accessibility Standards \(UFAS\)](#) standards must be met.

11.4 SIGNS

11.4.1 Signs are used to visually communicate information. They are highly visible features that must be attractive and compatible with their surroundings. Careful consideration must be given to what a sign says, how it is said, its visual appearance and organization, its location, structural support system and relation to other signs on Fort Stewart. A standardized signage system is in force at Fort Stewart to facilitate movement, provide a sense of orientation and reinforce standards of excellence. Signage creates a unifying element throughout the installation that visually ties the installation themes together and builds a reference and continuity that translates into confidence and reassurance when traveling throughout the installation. The standards to apply for signage color, type and sizing is found in [Technical Manual \(TM\) 5-807-10, Signage](#).

11.4.2 Sign System Characteristics. There are several basic design characteristics that, by serving to convey necessary information clearly and attractively, are an integral part of any successful signage system.

Simplicity. An effective strategy provides only needed information, avoids redundancy and eliminates over-signing with resultant clutter and visual confusion. Sign messages must be clear, simple and easy for motorists to process quickly.

Continuity. It is essential that the system be applied uniformly and consistently throughout the entire installation. The importance of consistent implementation extends from the larger issues of sign

type and size down to accurate color continuity and matching typestyles.

Visibility. Sign location is a very important ingredient within the system. Signs must be located at significant decision points and oriented to provide clear sight lines for the intended user. Close coordination of locations with respect to landscaping, utilities, adjacent signage and various other street design elements is important to ensure long-term maximum visibility.

Legibility. Sign typestyle, line spacing, color and size all combine to create the crucial design characteristics of legibility. This aspect of sign design takes into consideration users such as motorists, pedestrians, or bicyclists and the relative travel speed at which each type of user will be traveling when viewing the signs.

11.4.3 Vocabulary of Communication.

A common language is used in the established signing system. The different components that create the sign package are named and referred to within the total signing system.

11.4.4 Visual Hierarchy.

System. The entire signing system communicates, through a range of sign and typestyle sizes, the relative importance of the individual activity that the sign identifies. The system follows a logical progression from a point of origin to the desired destination.

Ranking. A stated ranking method supports the visual standard of hierarchy within the signing system. Signs can be organized within assigned classes with emphasis on the function and image of the installation.

Class. Within each class, the level of architectural influence evokes the importance of the sign to the installation. This is also critical to the idea of progression. The importance of a sign must be presented in its size and level of detail.

Scale. As individuals move closer to their destination on the installation, the scale of the sign becomes progressively smaller and the level of the message more detailed.

11.4.5 Types of Signs.

Installation Identification Signs. Installation identification signs name the installation and display the official US Army plaque. The designation "United States Army" must appear at the top of the sign in accordance with [AR 420-70](#), paragraph 2-7h. Every installation entrance shall have an installation identification sign displaying only the US Army plaque, with the words "United States Army," "Fort Stewart" and the name of the gate. The placement of Senior Mission Commander logo, unit crest and other installation identification signs, monuments, or displays shall be located inside the installation beyond the cleared area of the Access Control Point (ACP) of entry. When used service-wide, these signs convey a uniform image of strength and stability to the public. Emblems, branch colors, unit mottos, names and titles of individuals are not to be displayed.

- Installation identification signs consist of three types:
 - Sign type A1, main entrance sign, identifies the principal visitor entrance.
 - Sign type A2, secondary entrance sign, identifies entry points with relatively high volumes of visitor traffic.
 - Sign type A3, limited access entry gate signs, identifies entry points with limited public access.

See [Technical Manual \(TM\) 5-807-10, Signage](#), paragraph 3-3, for sign specifications and paragraph 3-11 for sign placement guidelines.

Directional, Informational and Facility Identification Signs.

The following standards apply to all signs that are installed for areas and individual buildings on Fort Stewart:

- **Typeface:** Lettering is self-adhesive backing material.
 - Building Title: Helvetica Medium, Upper and lower case
 - Building Numbers: Helvetica regular
 - Building Addresses: Helvetica Medium, Upper and lower case
- **Color:**
 - Panel: Dark Brown
 - Lettering: White
 - Post: Dark Brown

- Exposed panel backs and edges: Dark Brown
- All paint: Semi gloss
- **Materials:**
 - Panel: Double-face 1/8" thick aluminum
 - Post: Steel Pipe
 - Foundation: Concrete pier or direct burial
- **Street Addresses.** The addressing procedures prescribed in [DoD 4525.8-M, DoD Official Mail Manual](#) are mandatory for use by all DoD components. DoD 4525.8-M, Chapter 3 prescribes the following:
 - All DoD addresses shall be assigned so they are compatible with the United States Postal Services automated delivery point sequencing (C3.3).
 - The DoD installation is responsible for assigning city-style, street address on the installation (C3.3.2.2).
 - Street addresses shall be assigned and used even though a DoD activity may deliver the mail to the addressee (C3.3.2.2.1).
 - Only geographically locatable civilian-style street addresses (Fig. 11.29) shall be used (C3.3.2.2.4).
 - Installations shall not use one street address for the entire installation and then use secondary unit designators such as "Building 123" to designate the delivery addresses on the installation (C3.3.2.2.5).
 - Addresses such as "Building 123 Roberts Street" are not a valid address format and shall not be used (C3.3.2.2.6).
 - The Fort Stewart Directorate of Information Management (DOIM) is responsible for assigning street addresses to buildings. See attached listing of assigned building addresses.



Fig. 11.29 –Street addresses are used on all building identification signs.

Brigade, Battalion and Company Headquarters Signs. TM 5-807-10 must be followed for any specifics not covered here.

Notes:

1. All figures and paragraphs referenced in the following can be found in TM 5-807-10.
2. Building numbers as described in TM 5-807-10 **will not** be placed on building identification signs

3. Building addresses will be placed on all building identification signs where the building numbers were once placed.

Military headquarters identification signs consist of four types:

- Sign type B1, installation headquarters sign, identifies the central administration of the installation.
- Sign type B2, command, division and brigade headquarters sign.
- Sign type B3, battalion headquarters sign.
- Sign type B4, headquarters building entrance sign, identifies the building entrance for all levels of authority. In addition, type B4 is used to identify a unit headquarters that has a special entry point other than the main entrance of a building.

Graphics appear on both sides of these signs, since they are placed perpendicular to the road and can be viewed by traffic moving in both directions.

Headquarters Facilities.

Sign Type B1 signs are used to identify the headquarters facilities of each installation.. When the headquarters of a command or division level organization is located in the same facility as the installation headquarters, the unit name is placed below the installation name. In addition, the authorized insignia of the command or division level unit is located to the left of the unit name.

(1) Colors. White letters and numbers on standard brown background; full-color insignia.

(2) Sign grid specifications.

(a) *Dimensions.* 3ft-6in. H x 8ft-0in. W.

(b) *Message.* Installation name—upper and lower case Helvetica medium, 6-inch capital letter height, flush left. Average line length-21 characters per line. “Headquarters”— upper and lower case Helvetica regular, 6-inch capital letter height, flush left. Average line length—24 characters per line. Command or division level name—upper and lower case Helvetica medium, 4-inch capital letter height, flush left. Average line length-27 characters per line.

(c) *Building address.* Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.

(d) *Insignia.* Authorized military insignia, 12-inch maximum height x 8-inch maximum width, flush to top of grid box and centered.

Brigade Headquarters.

Sign Type B2 signs are used to identify the headquarters facilities of command, division and brigade level organizations. The authorized shoulder sleeve insignia or distinctive unit insignia for each command or division is located to the left of the unit name. Brigade level organizations show the name of the command or division under which each serves below the unit name, and display the command or division insignia to the left of the unit name. Only one headquarter unit is identified per sign.

(1) Colors. White letters and numbers on standard brown background; full-color insignia (Fig. 11.30).

(2) Sign grid specifications.

(a) *Dimensions.* 4ft-0in. H x 6ft-0in. W.

(b) *Message.* Unit name-upper and lower case Helvetica bold, 4-inch capital letter height, flush left. Average line length-17 characters per line. “Headquarters” —upper and lower case Helvetica regular, 4-inch capital letter height, flush left. Average line length-25 characters per line.

(c) *Building address.* Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.

(d) *Insignia.* Authorized military insignia, 12-inch maximum height x 8-inch maximum width, flush to left of grid box and centered on the brigade name.

Battalion Headquarters.

Sign Type B3 signs are used to identify the headquarters facilities of battalion level organizations. The name of the command or division under which each serves is shown below the unit name. The authorized branch color(s) of the unit is located to the left of the unit name. Battalion headquarters signs shall display the command or division level organizational insignia in the upper right corner. If more than one (1) battalion headquarters is located in a specific building all unit names will be displayed on one (1) sign.

(1) Colors. White letters and numbers on standard brown background; full-color symbol (Fig. 11.31).

(2) Sign grid specifications.

(a) *Dimensions.* 4ft-0in. H x 5ft-0in. W.

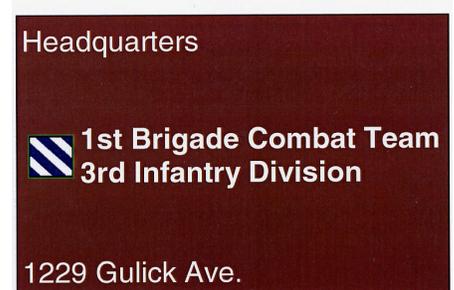


Fig. 11.30 – A sample brigade headquarters sign.

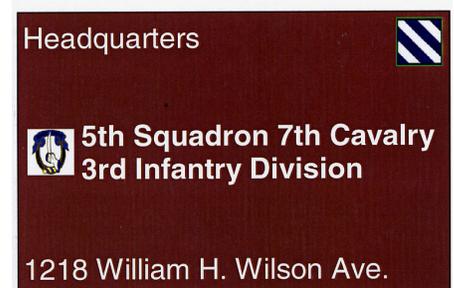


Fig. 11.31 – A sample battalion headquarters sign.

(b) *Message*. Unit name-upper and lower case Helvetica bold, 4-inch capital letter height, flush left. Average line length—20 characters per line. “Headquarters”— upper and lower case Helvetica regular, 4-inch capital letter height, flush left. Average line length—22 characters per line.

(c) *Symbol*. 6-inch diameter overall, 1/4 -inch perimeter ring in white, 1-inch border ring in secondary branch color.

(d) *Building address*. Upper and lower case Helvetica medium, 4-inch capital letter height, flush left.

Company Headquarters.

Most company operations facilities contain more than one company headquarters unit. When more than one company Headquarters unit is located in a specific building all units will be listed on an individual sign. Sign specifications are as follows:

- **Facilities with one (1) company headquarters unit:**

Type C4 signs. Insignias, branch colors, unit mottos, names or titles of individuals are not recommended on company level unit signs.

(1) Colors. White letters and numbers on standard brown background (Fig. 11.32).

(2) Sign grid specifications.

(a) *Dimensions*. 4ft-0in. H x 5ft-0in. W.

(b) *Message*. Facility and unit name-upper and lower case Helvetica medium, 3-inch capital letter height, flush left. Average line length-25 characters per line.

(c) *Building address*. Upper and lower case Helvetica medium, 3-inch capital letter height, flush left.

- **Facilities with more than one (1) company headquarters unit:**

Type C2 signs. Sign Type C2 will be used with the extended grid specifications listed below. Insignias, branch colors, unit mottos, names or titles of individuals are not recommended on company level unit signs (Fig. 11.32).

(1) Colors. White letters and numbers on standard brown background.

(2) Sign grid specifications.

(a) *Dimensions*. 4ft-0in. H x 5ft-0in. W.

(b) *Message*. Unit facility and name—upper and lower case Helvetica medium 4-inch capital letter height, flush left. Average line length-19 characters per line. Sub-service name-upper and lower case

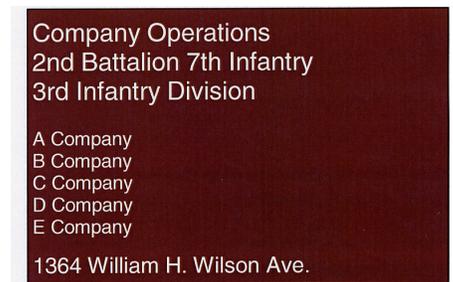


Fig. 11.32 – A sample company headquarters sign for multiple companies.

Helvetica regular, 3-inch capital letter height, flush left. Average line length-30 characters per line.

(c) *Building number*. Helvetica regular, 4-inch number height, flush left.

(4) Extended sign grid specifications.

(a) *Dimensions*. 5ft-6in. H x 5ft-0in. W.

(b) *Message*. Military unit name-upper and lower case Helvetica medium, 4-inch capital letter height, flush left. Average line length—19 characters per line. Sub-unit name-upper and lower case Helvetica regular, 3-inch capital letter height, flush left.

Average line length-30 characters per line.

(c) *Building number*. Helvetica regular, 4-inch number height, flush left.

Exceptions to Stated Regulations. If companies or detachments are co-located in the same facility with battalion or higher headquarters units, all units will be listed on the facility identification sign of the type associated with the highest echelon unit.

Street Signs. Street name identification signs should be designed with the same lettering, color and materials as other information signs (Fig. 11.33).

Housing Area Signs. The sign will be complimentary to the architectural setting of the housing area and approved by Master Planning. Housing numbers are placed on each house where lighting will effectively light the numbering.

Directional Signs. Directional signs are placed in central locations and at major decision points along circulation routes. These signs guide the motorist or pedestrian in, around and out of the installation (Fig. 11.34). The legibility and placement of these signs, as well as the ordering of information, is critical to their effectiveness. Messages will be grouped in the following order according to their arrow direction: forward, left and right. Placement of the message on the sign panel is determined by the arrow direction. Destinations forward and left are listed first and have flush left messages. Destinations right are listed next and have flush right messages. The arrow is centered in the space between the message and the edge of the sign (Fig. 11.35).

Prioritize destinations to be listed by giving the highest priority to the destinations that are most often sought by people new to the garrison or that serve as highly visible landmarks on the garrison. Those who live or work on the garrison or who visit frequently do

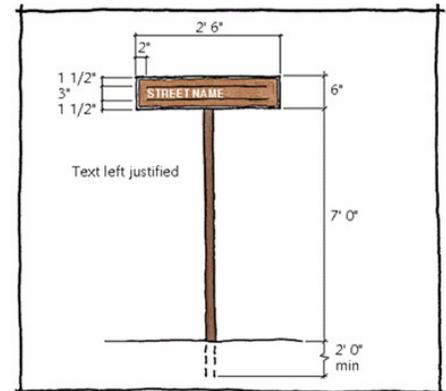


Fig. 11.33 - Dimensions of a typical street sign.

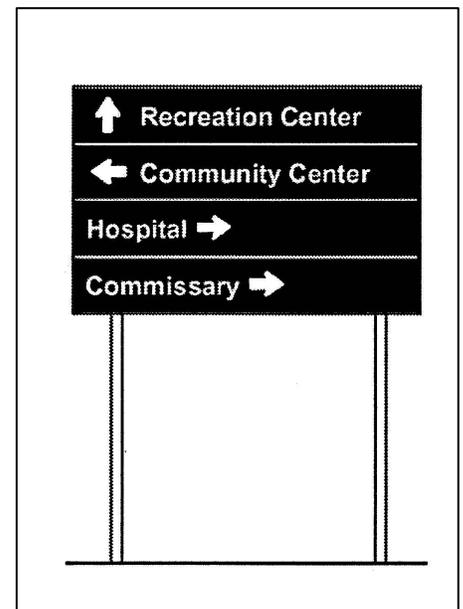


Fig. 11.34 – A diagram showing typical arrangement of arrows and names on a directional sign.

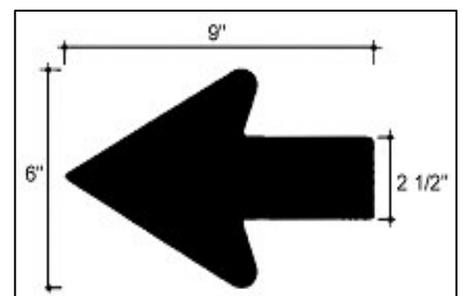


Fig. 11.35 - Dimensions of the arrow to be used on directional signs.

not need the degree of help required by a first time or infrequent visitor. These signs are designed to include the following:

Regulatory Signs. Regulatory signs provide the rules for travel and parking on Fort Stewart. Included are speed signs, turning and lane use signs, warning signs, parking control signs, etc. (Fig. 11.36). Related to these signs are pavement markings and traffic signals.

Traffic Control Signs. National highway standards will be used for signs to regulate vehicular traffic on Fort Stewart ([AR 420-72, Transportation Infrastructure and Dams](#), paragraph 2-15f). These standards are described in the [Manual of Uniform Traffic Control Devices \(MUTCD\)](#). Also see [MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings](#). This pamphlet clarifies existing standards and provides definite guidelines for installation officials to conform to the MUTCD. These standards shall be used installation wide to include installation Access Control Points.

Prohibitory (Warning) Signs. This category of signage is intended to maintain security and safety on the installation perimeter and at other specific secure areas. These signs notify visitors of restrictions, as well as other security procedures. The guidelines for design, fabrication and placement of warning signs are found in [Technical Manual \(TM\) 5-807-10, Signage](#), paragraph 3-9.

Electronic Exterior Signs. All exterior flashing signs, traveling lights, or signs animated by lights of changing degrees of intensity or color are prohibited. Wheeled electrical signs will have an attractive presentation. Temporary landscape elements should be used whenever possible. The siting of this type of sign will be approved by Master Planning. No sign of this type will be left in place for longer than six months. After which time, the sign will be removed or turned into a permanent sign.

11.4.6 Sign Placement

Placement of signs differs according to the type of sign and the specific site constraints. The following guidelines apply to placement of the majority of signs:

- Do not place more than one sign at any location. Traffic rules are the exception to this rule.
- Place signs in areas free of visual clutter and landscape materials.

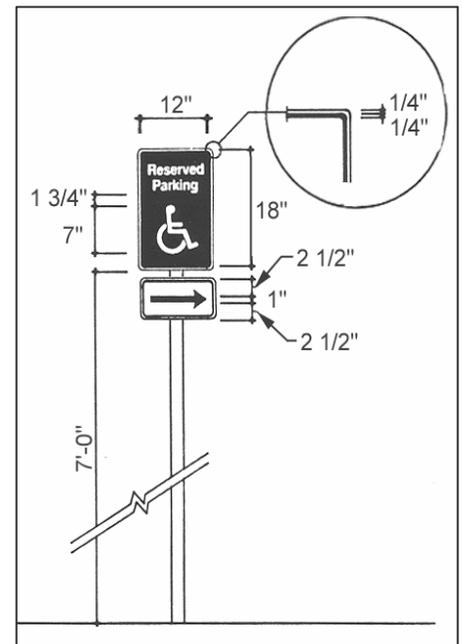


Fig. 11.36 – Dimensions for a regulatory sign.

- Place signs in locations that allow enough time for the user to read and react to the message.
- Signs must not be placed such that they block sight lines at intersections.
- Place signs approximately 4 feet (1.2 meters) above ground level to be within 10 degrees the driver's line of vision (Fig. 11.37). Provide proper placement to avoid a hazard to children.

11.4.7 Sign System Typography.

Military Emblems. The Army has a rich tradition of military heraldry. Military emblems are an important part of the soldiers' identity and the emblems have been carefully crafted over the years to express unit pride and unique history and function of the unit. The care and use of organizational emblems in a signage system can add visual interest as well as build pride and a sense of history. However, the overuse of miscellaneous emblems can lead to clutter and a dilution of their importance. Colors for military emblems must be in accordance with the Institute of Heraldry.

Department of the Army Plaque. The plaque should be displayed on installation identification signage to emphasize the heritage and professionalism of the United States Army. The design of the plaque must be in accordance with [Army Regulation \(AR\) 840-1](#), [Department of the Army Seal](#), and [Department of the Army Emblem and Branch of Service Plaques](#), and must be reproduced in full color.

Insignias. The use of branch insignia, shoulder sleeve insignia, coat of arms and/or distinctive insignia on headquarters signs is permitted. All military emblems must appear in full color. Motivational symbols or motifs will not be used.

11.4.8 Reduce Visual Clutter.

Over-signing detracts from a uniform sign system and if left uncontrolled will eventually destroy the integrity of the system.

Clutter creates confusion and ineffectiveness. Often motorist and pedestrians are confused by the bombardment of messages that have no relationship to each other, or the communication is on such a minimal level that the sign serves no purpose.

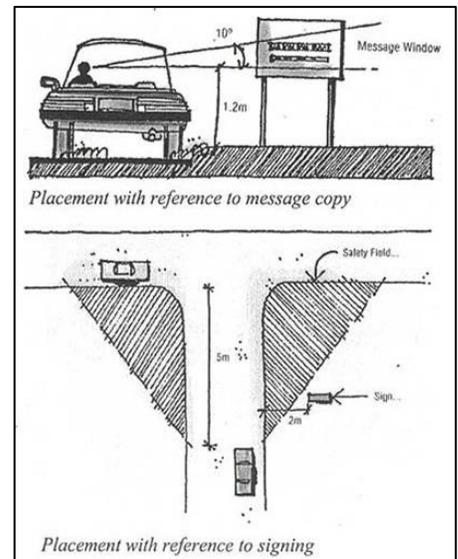


Fig. 11.37 - Placement of signs is critical to ensure easy readability.

11.5 LIGHTING

11.5.1 Lighting is a functional requirement of installations that also impacts the visual environment. The site lighting system conveys a sense of order and organization, as well as providing safety.

11.5.2 The lighting system provides the proper type of lighting for different lighting requirements and locations.

11.5.3 All lighting must be located and selected to prevent undesirable spillover of light into other areas. Spotlights or area lights mounted on buildings must be aimed or screened to prevent glare that could blind motorists or pedestrians or light sleeping areas.

11.5.4 Light Fixtures.

The following five types of lighting fixtures will be permitted for site lighting on Fort Stewart. Selection criteria are included with each lighting type.

Standard Cobrahead Fixture Cut-Off

- a) Description (Fig. 11.38)
 - i) **GE M-250R** and **GE M-400** series cobrahead fixture, gray
 - ii) Cut-Off optics
- b) Use
 - i) Recommended for use along roadways where aesthetics are not of primary concern.
- c) Available Types/Wattage
 - i) MH: 250W 400W



Fig. 11.38 - Photograph of the standard cobrahead fixture.

Premium Cobrahead Fixture Cut-Off

- a) Description (Fig. 11.39)
 - i) **GE M-250R** and **GE M-400** series cobrahead fixture, bronze
 - ii) Cut-Off optics
- b) Use
 - i) Recommended for use in non-residential areas where aesthetics are not of primary concern.
- c) Available Types/Wattage
 - i) MH: 250W 400W



Fig. 11.39 - Photograph of the premium cobrahead fixture.

Shoebox Fixture

- a) Description Fig. 11.40)
 - i) **GE Decashield** shoebox fixtures, bark Bronze
 - ii) Cut-Off optics
- b) Use
 - i) Recommended for use along roadways or in parking lots where large amounts of light are desired and aesthetics is of primary concern.
- c) Available Types/Wattage
 - i) MH: 250W 400W

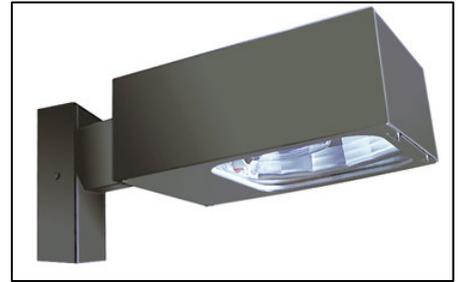


Fig. 11.40 - Photograph of the approved shoebox fixture.

Post Top Light Fixture

- a) Description (Fig. 11.41)
 - i) **General Electric Salem Series** post top light, dark bronze
 - ii) Cut-Off optics
- b) Use
 - i) Recommended for use in residential or community areas subject to high likelihood of damage.
- c) Available Types/Wattage
 - i) MH: 70W 150W



Fig. 11.41 - Photograph of the Salem Series post top light.

Lighted Bollard

- a) Description (Fig. 11.42)
 - i) **Dynamics DB6** series bollard light with rounded top
- b) Use
 - i) Recommended for use along sidewalks where minimum amounts of light are desired to illuminate walkways with small amounts of light trespass.
- c) Available Types/Wattage
 - i) MH: 70W



Fig. 11.42 - Photograph of the approved bollard light.

11.6 UTILITIES

11.6.1 Utility systems provide the basic infrastructure of power, communication, water and sewer services necessary for the operation of Fort Stewart. Utilities also play a key role in the visual quality of the installation. Their primary impact on the visual quality is the result of the clutter of overhead utility lines and poorly designed storm drainage systems.

11.6.2 The visual and environmental impact of utilities must be minimized wherever practical. New utility systems must be designed to minimize maintenance and repair. The result is a more sustainable utility system that will promote the overall sustainability of the installation. The primary components of the utility system that tend to produce negative visual effects are below along with recommendations of how the negative effects will be minimized:

Overhead Transmission Lines. Unsightly overhead utilities must be relocated underground wherever possible to reduce negative visual impacts and reduce maintenance and repair requirements. Underground utilities are also desirable for protection from terrorist or other enemy attack. When underground locations are not possible, the negative visual impacts should be minimized by using the following design techniques:

- **Overhead Transmission Line Location.** Overhead transmission lines should be aligned along edges of land use areas to avoid dividing an area and creating gaps or unusable areas. Wooded areas can be used to screen these lines from public view (Fig. 11.43).
- **View Screening.** Minimize long views or silhouette views of overhead transmission lines from along roads and other public viewing areas. Avoid the “tunnel effect” of long, straight, uninterrupted views along the alignment by clearing vegetation only within the right-of-way that threatens the overhead lines. Jog the alignment of utility lines at road crossings and periodically undulate lines of plants installed along the edges of the right-of-way.

11.6.3 Distribution Lines.

Power distribution lines should also be located underground to minimize negative visual impact, reduce maintenance and protect from terrorist or other enemy attack. If overhead, they should be located out of view from main public visibility areas or screened to be as unobtrusive as possible (Fig. 11.44). Avoid alignments of overhead lines along major circulation corridors. Use minor streets, alleyways, rear lot lines and vegetation or topography that provide screening and minimize visual impact. Minimize the number of poles and pole height and use poles that blend into their surroundings to reduce visual impact. Poles should also be multi-functional for power, telephone, cable television, street lighting, etc., to reduce visual clutter.



Fig. 11.43 - Routing transmission lines in wooded areas reduces their visibility.



Fig. 11.44 - Well-placed trees and shrubs of the appropriate types reduce the visibility of distribution lines.

11.6.4 Substations and Transformers.

Substations and transformers must be designed and located to minimize their visual impact and be compatible with the character of their setting. Substations are best located in the Installation Support or Green Space visual zones and away from where they will be seen from primary roadways, parks, family housing and trails. If they are located in visible areas, they must be screened by plant material, berms and walls.

11.6.6 Sewer and Water.

The following guidelines for sewer and water utilities are in effect at Fort Stewart:

- All sewer and water lines will be underground.
- Sewage treatment facilities will be located 1,250 feet (0.38 Km) away from and downwind from all inhabited facilities.
- Treatment facilities must be screened from view of major roads and other installation facilities by plant material, berms, walls and fences.
- Fire hydrants should be highly visible and free of any screening. They shall be yellow in color with luminous paint. Caps shall indicate tested water pressure (Fig. 11.45).

11.6.7 Storm Drainage

Storm drainage systems at Fort Stewart will be appropriate to the character of development they serve. Storm drainage systems in densely developed areas require curbs, gutters and underground lines. Storm drainage systems in low-density areas can utilize drainage swales and ditches that are contoured to be compatible with the natural landform. Where detention is required, dry ponds will be used. Dry detention ponds will be enclosed with fencing and screening where there is a risk that children will play in them and where they detract from the visual quality of the site or abutting roadways. Underground detention structures may be approved for use if there is no opportunity to detain sufficient storm water on the surface.



Fig. 11.45 - Fire hydrants are yellow with color-coded markings on the cap that indicate flow rate.

11.7 ARMY STANDARDS

11.7.1 The cited Army Standards shall be met.

- [DoD 4525.8-M, DoD Official Mail Manual](#)
- [Army Regulation \(AR\) 420-49, Utility Services](#)
- [Army Regulation \(AR\) 420-70, Buildings and Structures](#)
- [Army Regulation \(AR\) 420-72, Transportation Infrastructure and Dams](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Technical Manual \(TM\) 5-807-10, Signage](#)
- [Manual of Uniform Traffic Control Devices \(MUTCD\)](#)
- [MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)

11.8 REFERENCES

11.8.1 The following references are provided for guidance.

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 11](#)
- [Unified Facilities Criteria \(UFC\) 3-210-04, Design: Children's Outdoor Play Areas](#)
- [Army Regulation \(AR\) 1-33, Memorial Programs](#)
- [Army Regulation \(AR\) 840-1, Department of the Army Seal and Department of the Army Emblem and Branch of Service Plaques](#)
- [Technical Manual \(TM\) 5-663, Child Development Center, Play Area Inspection and Maintenance Program](#)
- [Technical Manual \(TM\) 5-803-5, Installation Design Manual](#)

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SECTION 12 **ANTITERRORISM DESIGN STANDARDS**

12.1 INTRODUCTION

12.1.1 Accommodating security and antiterrorism is a significant concern for design of facilities at Fort Stewart. Security and antiterrorism requirements must be integrated into each project from planning to execution. The design of protective elements should also seek to visually enhance and complement the design of its associated facility and the installation as a whole. Site elements such as fences, courtyards, screen walls, swales, berms, planters and retaining walls can be used effectively for facility protection. These elements should be designed to provide visual harmony with the main facility, producing architectural compatibility through consistent use and application of materials, forms and colors.

12.1.2 Final design decisions to meet security and antiterrorism requirements and to resolve conflicts require coordination among the design disciplines and appropriate functional areas to include planners, landscape architects, architects, intelligence personnel, security personnel, facility users and engineers. The designers must work to balance antiterrorism requirements with all other requirements that impact design and development. These include the [Americans with Disabilities Act Accessibility Guidelines](#) (ADAAG), the [Uniform Federal Accessibility Standards](#) (UFAS), National Fire Protection Codes (NFPA) and all applicable local building codes and ordinances. The design team will also consult security personnel to determine whether portions of the design documents are subject to access limitations.

12.2 BUILDING SITING AND DESIGN STANDARDS

12.2.1 A primary concern at Fort Stewart is the threat of terrorist attack. To minimize the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live, DoD has developed the [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#).

UFC 4-010-01

The UFC establishes the minimum building antiterrorism standards for all DoD components.

- Mandatory DoD minimum antiterrorism standards for new and existing inhabited buildings are contained in Appendix B.
- Mandatory DoD minimum antiterrorism standards for expeditionary and temporary structures are contained in Appendix D.
- Additional recommended measures for new and existing, inhabited buildings are contained in Appendix C.

Implementation of the mandatory standards is obligatory for all new construction regardless of the funding source. These standards first applied to FY 2004 projects and remain in effect for all new construction and major renovations for inhabited structures. The standards will be reviewed before any site planning or design is initiated.

- The minimum standoff distances and separation for new and existing buildings are found in Table B-1 of [UFC 4-010-01](#).
- The minimum standoff distances and separation for expeditionary and temporary structures are found in Table D-1 of [UFC 4-010-01](#).

Minimum standoff distances and separation are used wherever feasible. If standoff distances can be met, no building hardening measures are required. Appropriate antiterrorism obstacles shall be incorporated into the site design to prevent penetration of an attack vehicle into the secure area perimeter.

Minimum DoD Standards

The DoD minimum standards, when applicable, may be supplemented by more stringent antiterrorism building standards to meet specific threats established by specific Combatant Commanders or based on risk and threat analysis.

Alternative Approach

When the minimum standoff distances can not be achieved because land is unavailable, the standards allow for building hardening to mitigate blast effects. Costs and requirements for building hardening are addressed in the DoD Security Engineering Manual.

12.2.2 Implementing Design Guidance

Additional guidance on applying the *DoD Minimum Antiterrorism Standards for Buildings* can be found in UFC 4-010-02, *DoD Security Engineering Manual*. Currently, this document is in draft form. Until the *DoD Security Engineering Manual* is published, see the guidance provided on the [Security Engineering Working Group](#) website.

Website Access for Military and Government Users

This is a password protected website. To enter the site you must be accessing the site from either a ".mil" or ".gov" address. Upon initial entry, you will be prompted with instructions on how to acquire your password.

Website Access for Non Military and Government Users

Currently, the Protective Design Center is developing a procedure for e-mailing the network administrator to receive procedures to enter the site. If upon initial entry into the site there are no instructions on this procedure, contact the Protective Design Center (CENWO-ED-S) at (402) 221-3151 for instructions.

12.2.3 Orientation of Buildings on a Site

The following will be considered in determining the orientation of a building:

- Deny aggressors a clear sightline to the facility from on or off the installation where possible. Protect the facility against surveillance by locating the protected facility outside of the range or out of the view of vantage points.
- Protect against attack by selecting perimeter barriers to block sightlines such as obstruction screens, trees, or shrubs. Non-critical structures or other natural or man-made features can be used to block sightlines.
- Make the facilities more defensible by positioning facilities to permit building occupants and police to clearly monitor adjacent areas.
- Orient buildings so there are no sides parallel to vehicle approach routes.

- Design vehicular flow to minimize vehicle bomb threats and to avoid high-speed approach into any critical or vulnerable area.
- Avoid siting the facility adjacent to high surrounding terrain, which provides easy viewing of the facility from nearby non-military facilities.

12.3 FENCING

12.3.1 Fences are used as protective measures against project-specific threats. They are most appropriately used to define boundaries and to deter penetration of a secure area (Fig. 12.1). A fence will assist in controlling and screening authorized access to a secured area. Fences also serve the following purposes:

- Platform for an Intrusion Detection System.
- Screen against explosive projectiles.
- Prevent entry by vehicles, when reinforced to do so.

12.4 LANDSCAPE CONSIDERATIONS

12.4.1 Landscaping guidelines for buildings should not be ignored because of standoff distances. The landscape design should enhance the overall attractiveness of the facility while still providing or enhancing the objective level of security.

12.4.2 Establish clear zones along both sides of security fencing (Fig. 12.2). Vegetation in the clear zone should not exceed four inches in height. ([DoD 0-2000.12-H, Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence](#), Appendix EE, Table EE-4). The following additional considerations apply:

- Strategically locate trees and planters to prevent penetration of an attack vehicle into the secure area perimeter. (Plants with tall growth habits and/or large mature growth will be located well away from security fences.)
- Vegetative groupings and earth sheltering berms provide inherent blast effect reduction from external blast forces.
- Plant material that can provide concealment will not be used adjacent to high security structures or fencing (Fig. 12.2).
- Use dense, thorn-bearing plant material to create natural barriers to deter aggressors.



Fig. 12.1 – Fencing provides a reliable barrier to unauthorized entry.



Fig. 12.2 – Perimeter fencing is flanked by cleared areas.

12.4.7 Outdoor play and recreation areas should be screened from viewing from locations off the installation.

12.4.8 Signs that identify, locate and direct residents and supported personnel to installation assets can contribute hostile intelligence gathering and access. The following methods can be used to diminish the risk associated with signage:

- Direct people to a community support or information center to obtain directions to high security activities.
- Direct all incoming personnel and visitors to a specific address for the appropriate facility.

12.4.9 Place trash containers as far away from buildings as possible. Antiterrorism requirements restrict the location of dumpsters to a minimum of 33 feet (10 meters) from inhabited buildings and 82 feet (25 meters) from billeting and primary gathering areas ([Unified Facilities Criteria \[UFC\] 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#), Table B-1).

12.4.10 Ensure that vegetation and site features within 33 feet (10 meters) of inhabited buildings do not conceal from observation objects of 6 inches (150mm) in height. ([UFC 4-010-01](#), Appendix B, Para B-1.3). This does not preclude landscaping within the unobstructed space, but it will affect the design and may affect plant selection.

12.5 LIGHTING

Lighting systems for security operations provide illumination for visual and closed-circuit television (CCTV) surveillance of boundaries, sensitive inner areas and entry points. When CCTV is used as part of security operations, the lighting system will be coordinated with the CCTV system. Two or more types of lighting systems may be used within a single area. Guidance on the use of security lighting may be obtained from [TM 5-811-1, Electrical Power Supply and Distribution](#).

12.6 BERMS

12.6.1 Earthen berms intended for antiterrorism purposes can fulfill one of more or the following functions (Fig. 12.3).

- Define boundaries of property or boundary limits.
- Provide a barrier to moving vehicles.
- Hinder pedestrian movement.
- Intercept projectiles.



Fig. 12.3 – An earth berm between a building and adjacent parking lots or roads prevents vehicles from approaching the building.

- Obstruct lines of sight.

12.6.2 Berms used to block lines of sight or projectiles must be high enough to achieve those objectives or may be combined with landscaping or other construction elements. Detailed design guidance is contained in Army Technical Manual (TM) 5-853-3/AFMAN 32-1071, Vol. 3, *Security Engineering Final Design*.

NOTE: This Army Technical Manual is a "For Official Use Only" document and is not accessible on the Army Corps of Engineers publications website. A copy of the manual can be acquired by ordering it through a standard publications account.

12.7 GATES AND ACCESS CONTROL POINTS (ACP)

12.7.1 The Fort Stewart ACPs are key components in the antiterrorism security program. They accommodate the functions of observation, detection, inspection, access control and disablement of hostile personnel and vehicles, while containing the vehicles and pedestrians until access is granted. These areas are one of the most important installation features in the creation of a sense of arrival for both installation personnel and visitors. It is important that these areas present a positive public image (Fig. 12.4).

12.7.2 The Headquarters Department of the Army, Deputy Chief of Staff for Operations and Plans office, DAMO-ODL, in coordination with the Protective Design and Electronic Security Centers of Expertise has developed standards for Army ACP.

Canopies for ACPs

ACPs will have a canopy, which will cover the full width of incoming lanes at the Guard Booth. The canopy shall have a minimum clearance of 14.5 feet and shall have a minimum length of 50 feet. The roof supporting structure will consist of columns sized and located to create peripheral vision for the guards with minimal obstructions. Lighting will provide a minimum of 10 foot-candles with a Color Rendition Index of 65. Measures will be taken to protect the canopy from the threat of an over-height vehicle. Details are contained in the following reference:

- [*Security Engineering: Entry Control Facilities / Access Control Points.*](#)

12.7.3 Physical Security Equipment.

Under DoD Directive 3324.3, the Product Manager, Physical Security Equipment (PM-PSE) is assigned the mission of



Fig. 12.4 – The Main Gate to Fort Stewart is well-designed for security and appearance.

developing, fielding and supporting Physical Security Equipment (PSE) throughout its life cycle for the Army, Joint Services and other Government agencies.

- The DoD Directive identifies and assigns specific areas of responsibility for PSE which include: interior PSE, Command and Control Systems, security lighting, antiterrorism systems, barrier systems and interior and exterior robotics.

12.8 AREA SPECIFIC STANDARDS

12.8.1 Standard For Under Vehicle Surveillance Systems

Under Vehicle Surveillance Systems (UVSS) shall be incorporated at ACPs and other locations as determined by the installation security officer. UVSS installations must be capable of the following:

- Capture the image of the entire vehicle undercarriage;
- Scroll, zoom-in and roam about the total undercarriage image for quick analysis or detailed inspection;
- Allow images to be archived with date and time stamping for future use;
- Allow for smooth traffic flow by inspection of undercarriages when vehicles drive over the system;
- Inspect vehicles of all sizes, from passenger cars to tractor trailers; and,
- Surface mounted at existing locations.

12.8.2 Bollards

Fixed bollards may be utilized to address antiterrorism requirements as appropriate for the specific site. Pop-up bollards are not permitted at Fort Stewart.

12.9 ARMY STANDARDS

12.9.1 The cited Army Standards shall be met.

- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)
- [Unified Facilities Criteria \(UFC\) 4-010-10, DoD Minimum Antiterrorism Standoff Distances for Buildings](#). (This document is a "For Official Use Only (FOUO)" publication. Users may contact the Point of Contact posted at the noted website for inquires regarding this document).
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Americans with Disabilities Act Accessibility Guideline \(ADAAG\)](#)
- [DoD Instruction 2000.16, DoD Antiterrorism Standards](#)

12.10 REFERENCES

12.10.1 The following references are provided for guidance.

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 12](#)
- DoD Handbook 2000.12-H, *Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence*, February 1993 (This Handbook is a "For Official Use Only (FOUO)" publication. Users may contact the Point of Contact posted at the following website to obtain a copy of the Handbook).
<http://www.dtic.mil/whs/directives/corres/html/o200012h.htm>
- Army Regulation (AR) 525-13, The Army Antiterrorism Program (Available only through the [Army Knowledge Online](#) web portal).
- UFC 4-010-02, *DoD Security Engineering Manual*, (This document is in draft form. See the [Security Engineering Working Group](#) website).

- Technical Manuals/Air Force Manual series TM 5-853/AFMAN) 32-1071, Security Engineering, 3 volume series: (Volumes 2 and 3 are "For Official Use Only [FOUO]" and are not available on the Army Corps of Engineers publications website. A copy of the manuals can be acquired via your standard publications account. The three volumes cover, Project Development, Concept Design and Final Design respectively).

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APPENDIX A **DESIGN TEAM IDG CHECKLIST**

A.1 A completed Design Team Installation Design Guide (IDG) Checklist will be completed for all projects that impact the appearance of Fort Stewart. The DPW Master Planning Division will provide the checklist to all teams designing new facilities, additions, or renovations to existing facilities, or maintenance on the installation. The Design Team IDG Design Checklist is to be completed by the design team to assure the guidelines and standards have been considered and complied with in the design process, and by the DPW Master Planning Division in project review.

A.2 The Designer of Record or Design Agent will provide a copy of the completed checklist, together with a signed certification statement with each design submittal (10% [pre-concept], 35%, 60%, and 90% for each MILCON projects). The Designer of Record will complete the checklist and verify compliance in the space provided. In the case of design-build, all agents i.e. the Corps of Engineers, NAF, AFFES, tenants, etc. shall have the perspective design build contractors submit a completed IDG Checklist as part of their proposal. The completed checklist will be provided to the DPW Master Planning Division for review with concurrence or denial. Upon a determination of concurrence by the Master Planning, the plan and checklist with signatures will then be provided to the Real Property Planning Board for final acceptance or denial. The accepted checklist will become a part of the project record files.

A.3 If plans are denied for non-compliance at the installation or command level (where applicable) of review, an explanation of the denial will be provided to the Designer of Record. The plan and checklist can be resubmitted with revisions as indicated in the explanation of denial.

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A.4 FORT STEWART INSTALLATION DESIGN GUIDE (IDG) COMPLIANCE CHECKLIST

1. PROJECT TITLE AND DESCRIPTION.

Title: _____

Description: _____

2. PROJECT JUSTIFICATION: _____

3. SUSTAINABLE DESIGN:

a. Has LEED Checklist been attached? (If not, obtain completed checklist)

b. Does LEED meet or exceed Silver level? (Silver is the standard for all FY06 and future-year MILCON vertical construction projects).

Yes _____ - Review project as submitted.

No _____ - Return submittal to design team for revisions to meet LEED.

4. SITE PLANNING

a. Was a site plan prepared for the proposed project utilizing the IDG Design Process included in Sections 2, 3 and 5 of the IDG?

Yes _____ No _____

b. Does the site plan include Site Planning Design Component guidelines of the IDG?

Yes _____ No _____

c. Does the site plan meet antiterrorism requirements identified in Section 12 of the IDG?

Yes _____ No _____

d. Designer Comments on Site Planning:

e. Does Site Planning comply with the IDG? If not, provide justification.

f. Does Site Planning meet approved Fort Stewart master plan siting compliance?

Yes _____ No _____ If not, provide justification.

g. Has NEPA been initiated for the construction effort in accordance with AR 200-2?

Yes _____ No _____

h. Has airspace criteria been consider relative to airfield accident potential zones?

Yes _____ No _____

5. BUILDINGS

a. Does the building exterior design meet the Building Design objectives defined in the IDG?

Yes _____ No _____

b. Is the exterior building designed to meet the Structural Characteristics defined in the IDG?

Yes _____ No _____

c. If the project is a renovation or addition, does the proposed renovation or addition meet IDG building design and structural characteristics?

Yes _____ No _____

- d. If the project is a renovation or addition to a historic building, does the renovation or addition maintain the design integrity of the original building or meet Historical Approval Agencies' requirements for any deviations?

Yes _____ No _____

- e. Does the building exterior design meet antiterrorism requirements (if applicable)?

Yes _____ No _____

- f. Designer Comments on exterior Building Design:

- g. Does Building design comply with the IDG? If not, provide justification.

6. CIRCULATION

- a. If the project includes roadway construction, does the proposed plan meet Federal Highway and/or local guidelines defined in the IDG?

Yes _____ No _____

- b. If the project includes roadway construction, does the proposed plan meet ANTITERRORISM roadway setback requirements defined in the IDG?

Yes _____ No _____

- c. If the project includes roadway construction, does the proposed plan include applicable roadway alignment and intersection guidelines defined in the IDG?

Yes _____ No _____

- d. If the project is an entrance gate, does the proposed plan include entrance gate guidelines and standards defined in the IDG?

Yes _____ No _____

- e. If the project includes parking, does the proposed plan meet the Parking Lot Location/Design guidelines defined in the IDG?

Yes _____ No _____

f. If the project includes pedestrian circulation, does the proposed plan meet the Walkways and Pedestrian Circulation Guidelines in the IDG?

Yes _____ No _____

g. If the project includes bicycle circulation, does the proposed plan meet the Bikeway Guidelines in the IDG?

Yes _____ No _____

h. Designer Comments on Circulation Design:

i. Does Circulation Design comply with the IDG? If not, provide justification.

7. PLANT MATERIAL

a. All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan?

Yes _____ No _____

c. Does the proposed planting plan meet antiterrorism requirements defined in the IDG?

Yes _____ No _____

d. Does the proposed planting plan include plant material recommended in the selected Plant Palette Matrix included in the IDG?

Yes _____ No _____

e. Designer Comments on Landscape Design:

f. Does Landscape Design comply with the IDG? If not, provide justification.

8. SITE ELEMENTS

a. If the project includes Site Furnishings, does the proposed plan follow the guidelines in the IDG?

Yes _____ No _____

b. If the project includes Signs, does the proposed plan meet the Signs standards in the ?

Yes _____ No _____

c. If the project includes exterior Lighting, does the proposed plan meet the exterior Lighting guidelines defined in the IDG?

Yes _____ No _____

d. Will all power and other distribution lines to be located underground?

Yes _____ No _____

e. Will all substations and transformers be designed as to be screened from view?

Yes _____ No _____

f. Will all sewer and water lines to be located underground?

Yes _____ No _____

g. Are all storm drain systems designed to meet the guidelines defined in the IDG?

Yes _____ No _____

h. Designer Comments on Site Elements Design:

- i. Does Site Elements Design comply with IDG? If not, provide justification.

9. ANTITERRORISM (SECURITY)

- a. Have installation boundary setbacks been included?

Yes _____ No _____

- b. Have building setbacks from roads, parking, other buildings been included?

Yes _____ No _____

- c. Do site plans and landscape plans include the criteria outlined for antiterrorism?

Yes _____ No _____

- d. Designer Comments on Antiterrorism Compliance:

- e. Does Antiterrorism Design comply with the IDG? If not, provide justification.

I hereby certify that the information provided is in compliance with the guidelines of the installation or applicable IDG, except as justified as non-compliance.

Designer of Record

Date

Concur _____

Deny _____, Explanation of denial is attached.

IDG Coordinator

Date

Accept _____

Deny _____, Explanation of denial is attached.

Command Review (Where Applicable)

Date

APPENDIX B
**PROJECT
REQUIREMENTS
IDG CHECKLIST**

The following checklist is optional and is intended for use on major projects.

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PROJECT REQUIREMENTS CHECKLIST

For Completion by Fort Stewart DPW Project Managers for Use in Preparation of the Request for Proposals (RFP).

PROJECT _____ LOCATION _____

DPW/DIS POC _____ PH# _____

ADDRESS: _____

E-MAIL _____

DATE CHECKLIST COMPLETED _____ BY _____

When completing this form it is important to remember that it is the responsibility of the Project Manager to ensure that conflicts between the different “users” (i.e. DPCA, DPW, etc.) about wants, needs, etc. are resolved. The A/E that prepares the RFP must have the specific guidance contained herein to get you what you want. If there is information you wish to provide that is not specifically requested or you are unable to make your desires clear within the confines of this checklist, then add those comments at the end.

1.0 GENERAL INFORMATION

A. Maps and plans available: (Provide copies with completed checklist)

1. Basic Information Maps (BIMs): (List Drawing Numbers)

(Maps should be provided in Spatial Data Standards (SDS) compatible GIS format whenever possible.)

- Site topography
- Site Sanitary Sewer
- Site Storm Sewer
- Site Electrical
- Site Water
- Site Plan Extract - from RPMP (Future Development Site Plan)
- Other
- Project Location Plans
- Area Map
 - a) Site Map

2. Aerial Photograph (Preferred to Topographic)

3. USGS Map
4. Project Siting Plan (Proposed)
5. Environmental
 - a) Jurisdictional wetlands designation
 - b) Other historical concerns:

B. Project Building Plans: (If renovation/addition or prior design, provide available information and plans)

- | | |
|---------------|--------------------|
| 1. Foundation | 7. Electrical |
| 2. Basement | 8. Mechanical |
| 3. Floor | 9. Plumbing |
| 4. Structural | 10. Site Utilities |
| 5. Roof | 11. Specifications |
| 6. Elevations | 12. Other |

C. Applicable Codes and Standards:

List all known applicable codes and regulations. Generally, NAF construction will not follow Federal or Military Specifications.

Department of Defense (DoD) Governing criteria is [UFC 1-200-01, Design: General Building Requirements, 31 July 2002](#)

National Fire Protection Codes (NFPA), [UFC 3-600-01, Design: Fire Protection Engineering for Facilities, 17 April 2003](#)

Local Building Codes:

State and County Codes:

Environmental Regulations:

Installation Regulations:

Cultural Regulations:

Other:

1.1 TEMPORARY FACILITIES AVAILABLE TO THE CONTRACTOR

A. Facilities available to contractor during construction:

1. General Site Plan has been annotated to show limits of construction site: _____Yes, _____No. If the contractor requires the use of additional area, he must obtain written approval from the Contracting Officer.
2. Construction Office available: _____Yes, _____No.
3. Covered materials storage available: _____Yes, _____No.
4. Uncovered materials storage available: _____Yes, _____No.

NOTE: Security of construction site and materials is the Contractor's responsibility.

5. Select fill borrow areas, spoil areas, sanitary fill and haul routes are shown on attached Installation map: _____Yes, _____No.

List any restrictions or notes on the use of those areas:

NOTE: Disposition of scrap and salvageable materials resulting from construction is the responsibility of the contractor unless otherwise noted and agreed.

B. Utilities available to contractor during construction:

1. Potable Water: ____Yes, ____No; Metering required: ____Yes, _____No;
Cost \$ _____ per _____.
2. Non-Potable Water (Irrigation, Machine Washing, etc.): ____Yes, _____No;
Metering required: ____Yes, ____No; Cost \$ _____ per _____.
3. Electricity: ____Yes, ____No; Metering required: ____Yes, _____No;
Cost \$ _____ per _____.
4. Natural gas: ____Yes, ____No; Metering required: ____Yes, _____No;
Cost \$ _____ per _____.

5. Sanitary sewer: _____ Yes, _____ No

NOTE: Utilities used at the construction may be metered and/or charged to the contractor. The rate schedule for utilities will be provided as part of this completed checklist and shall be the basis by which the installation will bill the utility usage. Installation of temporary meters, where required, and temporary tie-ins to the utility systems shall be the responsibility and at the cost of the contractor.

1.2 DEMOLITION REQUIREMENTS

Facilities for demolition, relocation, or retention.

Provide description, size, type construction, and location of any existing facilities on the site that must be demolished, relocated or retained. Consider all structures, foundations, pavements, communications, and utilities (whether active or abandoned). Consider demolition hazards (i.e. lead, asbestos, etc.). Every effort shall be made by the installation to ensure compliance with the clean site policy. Provide the date when the clean site will be available. Recycle building demolition and debris material when ever possible.

1.3 PAVING REQUIRMENTS

A. Parking area (s) required: _____ Yes, _____ No.

1. Location and brief description:

2. Number of parking spaces for passenger vehicles: _____
(including _____ spaces for the handicapped).

3. Type of pavement: _____

4. Perimeter of parking area (s) to have concrete curb: _____ Yes, _____ No.

5. Striping of parking spaces required: _____ Yes, _____ No.

a) Width of stripes: _____

b) Type of paint to be used: _____

1. Special signage required: _____

2. Concrete wheel stops required: _____ Yes, _____ No.

3. Handicapped ramps/depressed curbs required: _____ Yes, _____ No.

B. Service road (s) required: _____ Yes, _____ No.

1. Location: _____
2. Type pavement: _____
3. Concrete curbing required on both sides of road: _____ Yes, _____ No.
4. Minimum roadway width: _____ Feet _____.

List any other special paving considerations or needs: _____

C. Sidewalks required: _____ Yes, _____ No.

1. Type of paving material: _____
2. Location: _____
3. Minimum width: _____
4. Minimum thickness shall be 4” with welded wire fabric.

D. Concrete dumpster pads required: _____ Yes, _____ No.

1. Number of pad (s): _____ each. See note below.
2. Size of each pad: _____ feet by _____ feet.
3. Provide bumper stops at rear of pads: _____ Yes, _____ No.
4. Provide architectural screening of pads: _____ Yes, _____ No.

Type: _____

NOTE: Building orientation or design may eliminate need for screening. Screening shall be in accordance with the Fort Stewart Installation Design Guide (IDG).

1.4 UTILITIES SERVICE REQUIREMENTS

A. Electrical Service: Meter required: _____ Yes, _____ No,

Type: _____

1. Type system to be installed: _____ underground,
_____ aerial.

2. Type transformer (s) to be installed: _____ Pole mtd., _____ Pad
mtd.,

NOTE: Screen in accordance with Army IDG.

3. Available Voltage: _____

4. Location of tie-in point: _____

B. Water Service: Meter required: _____ Yes, _____ No.

1. Size and location of tie-in point: _____

2. Additional fire hydrant (s) required: _____

C. Sanitary Sewer Service: Size and location of tie-in point: _____

D. Storm Drainage:

1. Design for _____ year occurrence.

2. Type System: _____ Surface,
_____ Underground

3. Location of tie-in point for existing underground storm drainage system if
incorporated in contractor design: See Site Plan.

E. Gas Service: _____ Natural, _____ Propane;

Meter required: _____ Yes, _____ No.

1. For Heating: _____ Yes, _____ No.

2. For domestic hot water: _____ Yes, _____ No.

3. For laundry dryers: _____ Yes, _____ No.

4. For kitchen equipment: _____ Yes, _____ No.

5. Size and location of tie-in point: _____

NOTE: Contractor (Offeror) shall be responsible to determine that all of the existing service utilities are of sufficient capacity to accommodate all of the design loads for this total facility. Should a Contractor (Offeror) determine that one or more of the existing service utilities are not adequate to accommodate the Contractor's (Offeror's) design loads for this total facility, then the Contractor (Offeror) shall submit with his initial and any subsequent proposal (Best & Final Offer), the requirements, design data and the price for increasing the capacity of each existing service utility system or for providing a new service utility system. Design loads for this facility shall be calculated in accordance with the criteria specified in this Request for Proposals (RFP), with the most stringent criteria governing. The responsibility for verification and field location of any and all information provided in the RFP and on any attached or enclosed drawings, or other documents shall be and is the responsibility of the Contractor (Offeror).

F. Coordination and Notification Required for Utilities Tie-in:

1. Point of contact for coordination: _____

Tel. _____ Email _____

2. Road Closing:

a) Can both lanes be closed to traffic: _____ Yes, _____ No.

b) Maximum time road can be closed:

c) Can road be closed over a holiday or weekend: _____ Yes,
_____ No.

3. Minimum notification time required for utilities outages and road closing:

a) Electric Power: _____ working days.

b) Water: _____ working days.

c) Gas: _____ working days.

d) Steam: _____ working days.

e) Central AC lines: _____ working days.

f) Roads: _____ working days.

NOTE: Enclose underground primary electrical service in concrete from the new utility tie-in points to the pad mounted transformer and/or mechanical room panel boxes. Provide one spare conduit for

each service sealed at both ends. The conduit may be PVC provided it conforms to NFPA 70, current edition.

NOTE: If existing sidewalk, curbs, gutters, or paving are disturbed or removed during construction, the paving or concrete must be replaced by the Contractor.

G. Coordination and Notification Required for Railroad Track Work:

1. Point of contact for coordination: _____
Tel. _____ Email _____
2. Road Closing:
 - a) Can both lanes of traffic be closed: _____ Yes, _____ No.
 - b) Maximum time road can be closed: _____
 - c) Can road be closed over a holiday or weekend: _____ Yes, _____ No.
3. Railroad Track Closing:
 - a) Can track be closed to traffic: _____ Yes, _____ No.
 - b) Maximum time track can be closed: _____
 - c) Can track be closed over holiday of weekend: _____ Yes, _____ No.
4. Minimum notification time required for railroad track and road closing:
 - a) Railroad track: working days.
 - b) Road: working days.
5. Are used track components to be sorted and properly stored: ___ Yes, ___ No.
6. Are samples, ultra-sonic inspections, temperature recordings, and certificates to be submitted for ties, rail track components, or ballast: ___ Yes, _____ No.
7. Are RAILER markings and reporting required: _____ Yes, _____ No.
8. Are there special radio or communication requirements: ___ Yes, ___ No.

NOTE: If existing sidewalk, curbs, gutters, drainage, ballast, or paving are disturbed or removed during construction, the paving, drainage, ballast, or concrete must be replaced by the Contractor.

1.5 ARCHITECTURAL AND STRUCTURAL BUILDING DESIGN REQUIRMENTS

A. Seismic Design Zone: _____. Structural design shall be in accordance with codes specified in the RFP.

B. Basic wind speed: _____ mph.

C. Ground Snow Load: _____ PSF (Plus code live load).

D. Maximum Frost Penetration: _____ inches.

E. Heat Transmission: “U” Factors:

- 1. Walls: _____.
- 2. Floor (slab-on-grade) at perimeter foundation wall: _____.
- 3. Floor over ventilated crawl spaces: _____.
- 4. Ceiling and/or roofs: _____.

F. Roof:

- 1. Minimum pitch: _____
- 2. Type: _____
- 3. Scuppers and drains are required: _____ Yes, (If a parapet type roof is proposed); _____ No.
- 4. Gutters and downspouts: _____ Yes, _____ No, Type: _____
- 5. Drainage carry off: _____ Splash Blocks; or _____ Underground drainage system (internal roof drains not permitted.)
- 6. Access to roof: _____.

NOTES: Catwalks to and around rooftop HVAC units and other equipment are required (Cary tread or equal). Where possible, architectural screening of visible rooftop equipment is required.

G. Site Conditions:

1. Environmental Assessment required: ____ Yes, ____ No.

Completion Date: _____.

EIS Required: ____ Yes, ____ No.

Completion Date: _____.

(Provide copies of actions to date.)

2. Cultural Resources Compliance Completed: ____ Yes, ____ No.

3. Site Conditions:

Topographical feature description: _____

Confirm or identify subterranean hazards:

Fill area
Old foundations
Unexploded ordnance
Existing/abandoned utility line
Tunnels/mines
Other

4. Soil investigation data available: ____ Yes, ____ No.

At project location: ____ Yes, ____ No.

Other:

5. Soil bearing capacity: _____ PFS. Actual test _____,
Assumed _____.

NOTE: The successful Offeror shall be responsible for accomplishing additional necessary testing to verify soil characteristics at the site and design of the foundation system to meet these requirements.

H. Building Exterior: Brick: _____ Yes, _____ No.

Other: _____

NOTE: Where brick is required, the exterior walls shall be finished with face brick with through body integral color and shall match the brick currently in place in Building No's _____.

NOTE: The final floor plan as designed by Offerors shall include all functional areas outlined subsequently in this section. Gross building areas shall not exceed that specified in the RFP, including the mechanical room.

I. Barrier Free Requirements: (Where applicable) as minimum, _____ guest units shall be barrier free.

NOTE: Where required, "Barrier Free Requirements" shall be designed and constructed to provide for the Physically Handicapped (interior and exterior), in accordance with [Uniform Federal Accessibility Standards \(UFAS\)](#) and the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#).

J. Kickplates required on interior wood doors: _____ Yes, _____ No.

K. Approximate total maximum occupancy:

1. Female: Adults _____ Children _____

2. Male: Adults _____ Children _____

3. TOTAL: _____

Comments: _____

L. Landscape Requirements:

List any special requirements:

NOTE: Offerors will provide a Landscaping Plan for the project area as required in the RFP. Surface area disturbance and tree removal will be minimized. Trees determined to be retained will be incorporated in the Landscaping Plan. Landscaping shall refer to the planting of trees, shrubs, plants, etc. and shall not be associated with establishment of turf as defined below. Trees, shrubs, plants, etc. shall be guaranteed for a period of one (1) year from time of planting.

M. Establishment of Turf:

N. Soil Poisoning: For termite protection is _____, is not _____ required.

NOTE: It will be the Contractor's responsibility to protect all existing turf and landscaping affected by the construction and to replace any turf or landscaping that has been damaged, for the term of the contract.

O. Paint Color:

List standard paint colors:

1. _____
2. _____
3. _____
- Etc. _____

P. Finishes:

List standard finishes:

1. _____
2. _____
3. _____
- Etc. _____

1.6 ELECTRICAL DESIGN REQUIREMENTS

A. Exterior lighting:

1. Parking area (s) lighting required: _____ Yes, _____ No.

- a) Type of lighting: _____ High Pressure Sodium
_____ Low Pressure Sodium
_____ Mercury
_____ Halogen
_____ Other

- b) Average Intensity: _____ foot candles per sq. yd. with a uniformity ratio of 4:1 _____, Other _____. (Avg. to min.)
- c) Type pole: _____.
- d) Special mounting requirements:
- e) Switching:
- Type: _____ Manual
- _____ Clock .7 day .7 day
- _____ Astronomical
- _____ Photo Electric
- _____ Combination of above as indicated.
- _____ Other

2. Exterior building lighting required: ____ Yes, ____ No.

- a) Type of lighting: _____ High Pressure Sodium
- _____ Low Pressure Sodium
- _____ Mercury
- _____ Halogen
- _____ Other
- b) Average Intensity: _____ foot candles per sq. yd.
- c) To be mounted on the building structure: ____ Yes, ____ No.
- d) Switching:
- 1) Type: _____ Manual
- _____ Clock .7 day .7 day
- _____ Astronomical
- _____ Photo Electric

_____ Combination as indicated.
_____ Other

2) Location: _____

3) Lighting for plumbing and electrical chases required:

_____ Yes, _____ No.

NOTE: All electrical wiring (exterior and interior) shall be copper.

B. Outside weather proof receptacles: shall be installed every _____ feet along the building exterior. Outside weather proof receptacles should be RCD (GFCI) protected.

NOTE: The building shall have emergency light fixtures and exit lights in accordance with NFPA requirements. Both shall have battery powered back-up, charge level meters and test buttons.

C. Electromagnetic Shielding:

List any electromagnetic shielding requirements.

D. Standby/Backup Power Requirements:

List and standby/backup power requirements.

1.7 MECHANICAL/PLUMBING DESIGN REQUIREMENTS

A. Heating design data:

1. Below is the outside dry bulb temperature that is equaled or exceeded 97 ½ percent of the time, on the average, during the coldest 3 consecutive months (Dec., Jan., and Feb.). Heating design shall be based on the dry bulb temperature equaled or exceeded 97 ½ percent of the time.

a) Dry bulb temperature: _____.

b) Wind velocity: _____.

c) Degree days: _____.

2. Interior design temperatures: 68 degrees.

B. Air conditioning design data:

1. Outside dry bulb and wet bulb temperatures that are equaled or exceeded 2 ½ percent of the time, on the average, during the warmest 4 consecutive months (Jun. thru Sep.) are given below. Air conditioning design shall be based on the 2 ½ percent dry bulb, wet bulb temperature.

a) Dry bulb temperature: _____.

b) Wet bulb temperature: _____.

2. Interior design temperatures: _____.

a) Dry bulb temperature: _____.

b) Wet bulb temperature: _____.

C. Heating and air conditioning system: shall be designed to provide a relative humidity of 50% + 10% or -10%.

D. Mechanical Systems: Economy cycle. The air conditioning system except where room fan coil units are located, if located where the winter design dry bulb temperature is 35 degrees F (97 ½% basis) or less, shall be designed so that 100% outside air may be used in the system during those cool weather periods when the outside air temperature is sufficiently low to provide all the cooling needed, or reduce the load on the air conditioning refrigeration equipment. Use of the economy cycle in areas above 35° F shall be provided when it can be clearly shown that use of the economy cycle is cost effective.

E. Install humidity control override: _____ Yes, _____ No.

F. Automatic timer controls required for:

1. Heating System: _____ Yes, _____ No.

2. Air Conditioning System: _____ Yes, _____ No.

G. Heating and Air Conditioning Source:

1. Self contained plant: _____ Heat, _____ AC.

2. Supply lines from central plant: _____ Heat, _____ AC.

3. Purchased heat: _____

H. Low profile roof mounted HVAC units are permissible: _____ Yes, _____ No.

I. Automatic timer controls required for:

1. Heating System: _____ Yes, _____ No.
2. Air Conditioning System: _____ Yes, _____ No.

J. Heating fuel to be used:

Fuel: _____ Natural gas, _____ #2 Fuel oil,
_____ Propane.

K. Dual fuel heating plant required: _____ Yes, _____ No.

Primary Fuel _____, Secondary Fuel _____.

L. Outside air supply intake: to close when building is unoccupied:

_____ Yes, _____ No.

M. Outside air supply intake: to close when building is unoccupied:

_____ Yes, _____ No.

N. Type heating and air conditioning filters required:

() Permanent () Throw away

O. Covers and locks: required on interior utilities controls: _____ Yes, _____ No.

P. Plumbing Design Data:

1. Exterior hose bibs: Minimum of _____ each with $\frac{3}{4}$ " hose connection on building exterior.
 - a) Frost protection required: _____ Yes, _____ No.
 - b) Removable cutoff handles required: _____ Yes, _____ No.
2. Interior hose bibs: See Functional Requirements
3. Grease trap (s) required: _____ Yes, _____ No.
Location (s):
4. Commodes shall be floor mounted flush valve type.
5. Lift station required: _____ Yes, _____ No.

6. Hot water heater (s) required: _____ Yes, _____ No.
- a) Energy source: _____ Natural gas, _____ #2 Fuel oil.
- b) Required minimum temperature: _____
- c) System: _____

NOTE: All domestic water piping below grade shall be type K copper. All domestic water piping above grade shall be either type L copper in accordance with appropriate codes. All joints shall be soldered with 95/5 Tin/Antimony solder. The entire potable water system shall be lead free. Vent piping shall be schedule 40 galvanized steel or DWV weight copper.

7. Provide a minimum of _____ floor drain (s) in the laundry and mechanical room.
8. Insulate all water pipes (hot & cold) above slab: _____ Yes, _____ No.

NOTE: The domestic hot and cold water piping below grade shall be kept to a minimum, and below the frost line if located outside the building perimeter.

9. All domestic water pipes (hot & cold) shall be stenciled HW or CW. If pipes have been insulated then the pipe insulation shall also be stenciled.
10. Provide grease interceptor: _____ Yes, _____ No.

Location: _____

11. Provide a water filtration system: _____ Yes, _____ No.
- Location: _____
- Type: _____

12. Other plumbing considerations or requirements:

2.0 MINIMUM REQUIREMENTS FOR RESTROOMS

The following criteria are for minimal requirements only and may be superseded in quantities and/or finishes, providing that changes are an upgrading of the minimal requirements.

A. General: MALE and FEMALE

<u>ITEM</u>	<u>QUANTITY</u>	<u>SPECIAL REQUIREMENTS</u>
Lavatory	_____	
Commode	_____	
Faucets	_____	chrome finish.
Expose pipes/valves	_____	chrome finish.
Pipe penetrations	_____	chrome finish escutcheons.
Clean outs	_____	chrome covers.
Mirrors	_____	mech. wall fasteners.
		Lighting
Floor drain	_____	each restroom.
Hose bib	_____	under lavatory in each restroom.
Wall finish		ceramic tile to 5' height
Ceiling		moisture resistant DW.
Floors		ceramic tile w/ceramic tile base,
or		quarry tile w/quarry tile base.
		Tile shall be MUD-SET.
Toilet Partitions	_____	at all commodes and urinals.
		overhead braced w/door bumpers
		baked enamel w/skirts.
Skirts	_____	18" stainless steel.
		watertight top edge.
Duplex receptacle	_____	GFCI type over vanity.
Paper towel dispenser with trash receptacle	_____	recessed in wall.
Hand dryer	_____	over each lavatory.
Soap dispenser	_____	liquid pump.
Toilet paper dispenser	_____	each commode stall.
Ash receptacle	_____	recessed, each restroom.
B. Specific: WOMENS		
Sanitary napkin disposal	_____	each commode stall.
Sanitary napkin disposal	_____	each restroom, coin operated.
C. Specific: MENS		
Urinal	_____	porcelain wall mounted w/stainless steel part.

NOTE: Each restroom shall be designed and constructed with provisions for the handicapped and shall conform to the latest edition of the National Standard Plumbing Code and the Uniform Federal Accessibility Standards published in the Federal Register, August 7, 1984 (Current Edition).

3.0 FIRE PROTECTION REQUIREMENTS

A. Sprinkler system required: _____ Yes, _____ No.

1. Type system to be installed: _____ Wet, _____ Dry.
2. Complete coverage throughout the structure: _____ Yes, _____ No.
If no, describe proposed system, layout, etc.:
3. Exterior Siamese connections are required.

B. Detection System:

1. Smoke detectors required: _____ Yes, _____ No.

NOTE: Radium type shall not be used.

2. Heat detectors required: _____ Yes, _____ No.
(Rate of Rise Heat Detectors shall not be permitted.)

NOTE: When smoke and heat detectors are specific, full coverage of the building is required. In addition, heat detectors are also to be installed in conjunction with potential fire producing equipment such as furnaces, electric motors, etc. All detection devices shall be spaced and installed in accordance with manufacturer's specifications and the latest edition of the NFPA in effect at the time of installation. Heat detectors shall be set to trigger at 135° F. The heat and smoke detectors shall be the combination type. The smoke detection unit shall alarm locally and the heat detection unit shall alarm the facility and transmit the alarm to the fire department via a dedicated telephone line or appropriate transmission media, i.e. radio transmission equipment. Automatic cutoff of air handling equipment is required when smoke or heat detectors, sprinkler systems, or any other automatic/manual fire alarm suppression system are activated.

C. Manually Activated Fire Alarm System: installed in accordance with the latest edition of the NFPA in effect at the time of installation, is required. Also provide manual pull stations at the ends of the building. The pull stations shall be tied into a central panel box that will signal the fire department via a dedicated telephone line or appropriate transmission media, i.e. radio transmission equipment.

D. Special fire suppression system (s) required: _____ Yes, _____ No.

Describe type, location, and justification:

E. Fire extinguishers (manually operated) are required.

1. Government furnished: _____ Yes, _____ No.
2. Quantity and locations shall be based upon building design, NFPA, requirements, and coordinated with Installation's fire department.
3. Recessed cabinet mounted: _____ Yes, _____ No.

NOTE: The Contractor (Offeror) shall furnish and install the recessed fire extinguisher cabinets. The cabinets shall be at a minimum 24 1/2" tall, 7" deep and 8 1/2" wide w/glass doors.

F. All interior finish materials shall be per NFPA standards and [UFC 3-600-01, Design: Fire Protection Engineering for Facilities, 17 April 2003](#).

G. Water supply lines: for the sprinkler system shall be black steel pipe.

H. The installation's standard fire alarm panels shall be specified for ease of maintenance and sustainability.

I. Emergency Lighting Requirements:

4.0 SECURITY REQUIREMENTS

A. Building physical security:

1. Intrusion detection system required: _____ Yes, _____ No.
 - a) Type system to be installed.
 - b) Desired location of detectors:
 - c) Exterior door alarm requirements:
 - d) Exterior window alarm requirements:
2. Duress alarm system (s) required: _____ Yes, _____ No.
 1. Type system to be installed.
 2. Location (s):

B. Safe (s) required: _____ Yes, _____ No.

1. Type and Number:
2. Size:
3. Location (s):
4. Secure to building: _____ Yes, _____ No, if yes, how:
5. Connect to main intrusion alarm system: _____ Yes, _____ No.

C. Remote transmission of the intrusion alarm system: to the installations master system required: _____ Yes, _____ No. If yes, provide and install the transmitter, all conduit, wiring, hookups from the intrusion alarm devices to the transmitter, as well as all exterior underground conduit, required wiring, panel boxes and all other ancillary equipment to bring the system to the existing communication transmission lines. The final connection at the communication line will be made by the government. All systems proposed shall be compatible with the existing system (s) installed at the installation. Point of coordination is Provost Marshall's Physical Security Officer. Specify the installation's standard intrusion alarm system if required.

D. Keying requirements:

1. Rooms requiring card readers:
2. Rooms requiring cipher locks:
3. Rooms requiring individual keys:
4. Rooms requiring master keys:
5. Exterior keying requirements:
6. At least six (6) keys shall be provided for each lock. An additional twelve (12) sub master and six (6) master keys shall be provided.
7. The Offeror shall provide fifty (50) key blanks in addition to the above keying requirements.

E. All exterior doors shall have unremovable hinge pins.

F. Panic hardware shall be in accordance with NFPA requirements.

G. Hardened secure area (s) required: _____ Yes, _____ No

Location (s):

H. Fencing Requirements:

1. Location:
2. Type and height:
3. Gate requirements:

I. Antiterrorism Requirements:

1. Blast resistant windows:
2. Setbacks:
3. Barriers:
4. Others:

J. Risk/Threat Analysis Requirements:

1. _____
2. _____
3. _____

5.0 COMMUNICATIONS REQUIREMENTS

A. Intercom system required: _____ Yes, _____ No.
Give a brief description of the requirements for the system:

B. Music/Paging system required: _____ Yes, _____ No.
Give a brief description of the requirements for the system:

C. Telephone system required: _____ Yes, _____ No.

Location:

Type:

Pay telephone required: _____ Yes, _____ No. If required, unit (s) will be wall hung. Contractor shall run wire and conduit from pay phone outlets to the main panel. Phones to be provided by Contractor.

NOTE: Contractor shall provide all conduit, wire, junction boxes and pull wires for the telephone system as required. Hookup of the telephone system will be performed by the Contractor. The Contractor shall coordinate all the telephone requirements with the Fort Stewart DPW office and the local telephone company to determine requirements and provide space for communication equipment, panels, etc., in the mechanical room of where otherwise designed.

The basic telephone system shall be the “Centrax System” as provided by: _____

They system functions shall include the following:

1. Direct in dialing, with restrictions on receiving collect calls.
2. Direct out dialing to local exchange number only.
3. Restrictions on placing chargeable calls outside the local exchange, except for calls charged to credit card or calls made with the charges reversed.

D. Television system required: _____ Yes, _____ No.

1. The technical and installation requirements of the television system shall be coordinated with _____ the local cable television provider.
2. Locations/number of internal outlets:
3. Wiring and grounding shall be in accordance with the National Electric Code.

E. Mass Notification System (Required per [UFC 4-010-01](#), Standard 23: for New Inhabited Buildings and for Existing Buildings (Primary Gathering and Billeting), also for Existing Buildings, Recommended for all Inhabited Buildings)

Type of Mass Notification System Required:

6.0 SIGNAGE REQUIREMENTS

(Excluding those required by NFPA and OSHA)

D. Interior signage:

E. Exterior Signage:

All exterior signage shall conform with the Fort Stewart IDG Exterior Finish Standards and color charts.

7.0 OTHER COMMENTS

APPENDIX C **INTERIOR DESIGN REVIEW CHECKLIST**

The following checklist is optional and is intended for use on major projects.

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INTERIOR DESIGN REVIEW CHECKLIST

1. Installation	Project	Date
Job Description		
Building No.	Building Cost\$	
Evaluator	Furnishing Cost\$	
Using Agency Coordinator		Phone#
Designer	Phone#	

ITEM	YES	NO	N/A
2. Is the interior design integral to the facility design?			
- Interior design is specified by the using agency.			
- Scope of work includes building related interior design.			
- Scope of work includes furniture related interior design.			
- Design incorporates Army Installation Design Guide and Standards criteria.			
- DPW representative was a member of Pre-selection and/or Selection Boards.			
Preselection member:			
Selection member:			
3. Was the designer provided interior design criteria?			
- Designed Guide for Interiors DG 1110-3-122.			
- Design Guide for facility type designed.			
- Army Installation Design Guide and Standards.			
4. The design has been reviewed and the following are acceptable?			
<u>For building related interior design?</u>			
- Statement of Design Objective			
- Sketches			
- Color Board			
- Furniture Plan			

ITEM	YES	NO	N/A
- Exterior Materials and Finishes			
- Graphic Design			
Hand Drawn Sketches			
Digital image files (JPG, BMP, etc.)			
3D Model			
Animation (AVI, etc.)			
- Interior Design Finish Schedule			
- Government Furnished Material List			
Items for Installation of Furniture and Accessories			
-Predesign Evaluation:			
Maintenance Data			
Floor Systems			
Electrical Equipment and Task/Supplemental Lighting			
- Interior Element Specification			
Cost Estimates:			
Maintenance and Repair			
New Work			
Equipment-in-place and Furnishings			
<u>For furniture related interior design:</u>			
- Typical furniture layout			
- Furnishing, fabrics and finishes board			
- Furnishings plan			
- Sketch perspectives			
- Colored rendering			
- Photographs			
- Catalog Cuts			
- Furnishing illustration sheets			
- Furnishing placement lists			
- Furnishing order forms			
- Furnishing contract specifications			

ITEM	YES	NO	N/A
5. Does the interior design address the following functions?			
- Communications			
- Storage/filing			
- Display surfaces			
- Work surfaces			
- Conference Space(s)			
- Privacy			
- Lighting			
- Planting			
- Spatial considerations			
- Color/texture characteristics			
- Reflectance values			
- Acoustical considerations			
- Mechanical fixture placement			
- Electronic support			
- Furnishings/accessories			
- Work, training or paper flow			
- Hardware selection			
- Graphics/signage			
- Force Protection			
- Physical Security			
- Fire Safety			
6. Construction and installation phase			
- Positive first impression is created			
- Coordinated color scheme, interior reflecting exterior			
- Area & shape of spaces match function & support mission			
- Furnishings support function of space			
- Creative use of interior design spaces			
- Retained designer to review and approve contractor submittals			
- Retained designer to oversee the installation of furnishings			

ITEM	YES	NO	N/A
- Color boards were required and reviewed			
- Interior appearance policy is implemented			
<p>Describe actions taken to ensure quality interior design to all negative responses on an attached sheet. Maintain a copy of this interior design review checklist and all negative responses in the DPW project file.</p>			
<p>I hereby certify that the information provided is in compliance with the guidelines of the installation or applicable IDG, except as justified as non-compliance.</p>			
Designer of Record	Date		
Concur			
Deny (Explanation of denial is attached.)			
Master Planner	Date		
Accept			
Deny (Explanation of denial is attached.)			
Command Review (Where Applicable)	Date		

APPENDIX D SUSTAINABLE DESIGN

D.1 WHAT IS SUSTAINABLE DESIGN?

D.1.1 Sustainable design and development is an integrated approach to planning, designing, building, operating, and maintaining facilities in a collaborative and holistic manner among all stakeholders (Fig. D.1). It is a systematic process and engineering practice with how to do it guidance, checklist, tools, and scoring systems. Sustainable design integrates the decision-making across the installation, basing every decision on the greatest long-term benefits and recognizing the interrelationship of installation actions with the natural environment. In the content of Fort Stewart, sustainable design is the design, construction, operation, and reuse/removal of the built environment in an environmentally and energy efficient manner (Fig. D.2). The basic objectives of sustainability are:

- Reduce the consumption of energy, land, materials, water, and other non-renewable resources.
- Minimize the waste of energy, land, materials, water, and other limited resources.
- Protect the natural environment that is the source of all resources.
- Create livable, healthy, and fiscally productive manmade environments for existing and future generations.

D.1.2 Designing for sustainability ultimately increases quality of life through better resource protection and use. The design process must incorporate a change in mind-set that embraces less



Fig. D.1 – Sustainable design is demonstrated in this site plan by extensive green space.

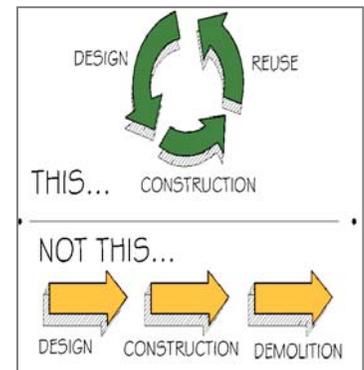


Fig. D.2 – Sustainable Design Process

consumptive lifestyles. This mind-set change must include global interdependence, stewardship of the environment, social responsibility, and economic viability. The new design mind-set must change from the traditional approach to recognize the impacts of every design choice on natural and cultural resources and on local, regional, and global environments.

D.2 SUSTAINABLE DESIGN AND DEVELOPMENT

D.2.1 Practicing the principles of sustainable design in the planning, design, construction, and operation of infrastructure and facilities is a smart business practice. Protecting our natural resources and reducing our impact on the natural environment is achievable when we create energy efficient (Fig. D.3), healthy (Fig. D.4), high-performance (Fig. D.5), and safe buildings.

D.2.2 The Integrated Design Process. Critical to the success of sustainable design and development is the organization and commitment of the team to engage in the Integrated Design Process. To effect change in building design and operation, the project delivery process itself must become a collaborative effort to integrate design strategies among all disciplines and all players in the project delivery process. Integrated design demands a more inclusive team, working closer together than is traditionally the case. Future building users and facility managers must be invited to join architects, engineers, and planners in developing the vision and goals for new facilities. (Adapted from the HOK Guidebook to Sustainable Design)

D.2.3 This appendix discusses the sustainable design concept and its application to Army projects. Paragraph D.3 discusses the “Leadership in Energy and Environmental Design” (LEED) Green Building Rating System developed by the U.S. Green Building Council. To comply with the [Assistant Chief of Staff for Installation Management \(ACSIM\) endorsement of Sustainable Design and Development](#) initiatives, the LEED Rating System will be used for all projects funded FY08 and later. Because the planning and design process for projects anticipated for funding in FY08 is initiated many months in advance of funding, Fort Stewart has adopted use of the LEED Rating System.

As stated on the Green Building Council website, the LEED Green Building Rating System (a trademarked system) is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings’ performance. LEED promotes a whole-



Fig. D.3 - Energy Efficient Lighting Contributes to Sustainability



Fig. D.4 - CO2 Measurements of Indoor Air Quality Assisting in Creating a Healthy Environment



Fig. D.5 - Efficient Water Usage Contributes to a High Performance Facility

building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. The minimum LEED 2.2 rating requirement is "Silver".

The LEED checklist ([Appendix E, LEED Checklist](#)) is from the U.S. Green Building Council LEED 2.2 (Leadership in Energy and Environmental Design) Green Building Rating System.

D.2.4 Further information on sustainable design can be obtained at the following websites:

- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#) This site provides information on the following topics: documentation and references; sustainable process, tools, products and materials; Sustainable Design and Development Training; and links to various sustainable design and development informational website.
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#).
- [Whole Building Design Guide](#) (WBDG) This site provides comprehensive and current information on sustainable design strategies and technologies.

D.3 SUSTAINABILITY AND THE FEDERAL GOVERNMENT

D.3.1 The Federal Government has led the nation in the energy efficient, resource-conserving building design, construction, and operation. Executive Order (EO) 13123, "Greening the Government through Efficient Energy Management", was issued June 3, 1999. This Order establishes that sustainable design principles shall be applied to all Federal projects in order to reduce pollution and other environmental costs associated with facility construction, operation, and eventual decommissioning. The principles of sustainable design for Federal Agencies established by EO 13123 include siting, design, and construction, as follows (Fig. D.6):

- Site - Optimize site potential.
- Energy – Minimize nonrenewable energy consumption.
- Materials – Use environmentally preferable products.
- Water – Protect and conserve water.

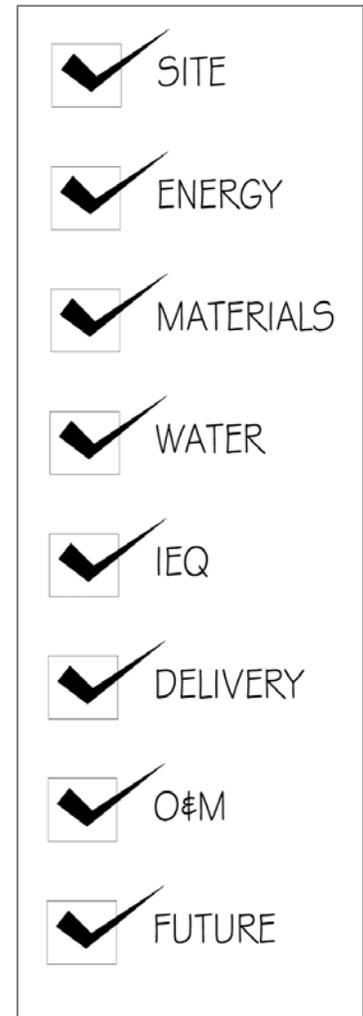


Fig. D.6 – Sustainable Design Principles

- Indoor Environmental Quality – Enhance indoor environmental quality.
- Facility Delivery – Holistic delivery of facility.
- O&M – Optimize operational and maintenance practices.
- Future Missions – Functional life of facility and support systems.

D.4 ARMY STANDARDS

The cited Army Standards shall be met.

D.5 REFERENCES

The following references are provided for guidance.

- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#)
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#)
- [Air Force Sustainable Facilities Guide](#)
- [Whole Building Design Guide](#)

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APPENDIX E **LEED CHECKLIST**

The following sample LEED checklist for new construction is used in tabulating the LEED Rating System score for a project. There are other ratings and checklists that may be obtained from the U.S. Green Building Council (www.usgbc.org) for other specific types of projects.

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LEED-NC

LEED-NC Version 2.2 Registered Project Checklist

<< enter project name >>

<< enter city, state, other details >>

Yes ? No

			Sustainable Sites	14 Points
--	--	--	--------------------------	------------------

Y			Prereq 1 Construction Activity Pollution Prevention	Required
			Credit 1 Site Selection	1
			Credit 2 Development Density & Community Connectivity	1
			Credit 3 Brownfield Redevelopment	1
			Credit 4.1 Alternative Transportation, Public Transportation Access	1
			Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms	1
			Credit 4.3 Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	1
			Credit 4.4 Alternative Transportation, Parking Capacity	1
			Credit 5.1 Site Development, Protect or Restore Habitat	1
			Credit 5.2 Site Development, Maximize Open Space	1
			Credit 6.1 Stormwater Design, Quantity Control	1
			Credit 6.2 Stormwater Design, Quality Control	1
			Credit 7.1 Heat Island Effect, Non-Roof	1
			Credit 7.2 Heat Island Effect, Roof	1
			Credit 8 Light Pollution Reduction	1

Yes ? No

			Water Efficiency	5 Points
--	--	--	-------------------------	-----------------

			Credit 1.1 Water Efficient Landscaping, Reduce by 50%	1
			Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation	1
			Credit 2 Innovative Wastewater Technologies	1
			Credit 3.1 Water Use Reduction, 20% Reduction	1
			Credit 3.2 Water Use Reduction, 30% Reduction	1

Yes ? No

			Energy & Atmosphere	17 Points
--	--	--	--------------------------------	------------------

Y			Prereq 1 Fundamental Commissioning of the Building Energy Systems	Required
---	--	--	--	----------

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2	Low-Emitting Materials, Paints & Coatings	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.3	Low-Emitting Materials, Carpet Systems	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Indoor Chemical & Pollutant Source Control	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.1	Controllability of Systems, Lighting	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.2	Controllability of Systems, Thermal Comfort	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.1	Thermal Comfort, Design	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.2	Thermal Comfort, Verification	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8.2	Daylight & Views, Views for 90% of Spaces	1

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Innovation & Design Process		5 Points
--------------------------	--------------------------	--------------------------	--	--	-----------------

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.1	Innovation in Design: Provide Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.2	Innovation in Design: Provide Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.3	Innovation in Design: Provide Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.4	Innovation in Design: Provide Specific Title	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	LEED® Accredited Professional	1

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project Totals (pre-certification estimates)		69 Points
--------------------------	--------------------------	--------------------------	---	--	------------------

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

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APPENDIX F **LANDSCAPE MAINTENANCE SCHEDULE**

To be completed by the installation.

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	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
LAWNS	Include activities in the vertical columns that take place in the particular month.				To setup the shaded block across the month columns do the following. 1. Block the area you would like to setup using your mouse. 2. Using fill color icon, choose the color to fill in the blocked area. 3. Block the area again and right click on the box. Choose format cells then choose the border tab. 4. Delete all of the borderlines and press the outline button.							
					Complete these blocks with activities that occur during the identified time duration.							
TREES AND SHRUBS												

LANDSCAPE MAINTENANCE SCHEDULE
 Name of Installation Fort Stewart

APPENDIX G
NOT USED

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APPENDIX H
NOT USED

Links

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APPENDIX I
NOT USED

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APPENDIX J
NOT USED

Links

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APPENDIX K **EXTERIOR MATERIALS AND COLORS MATRIX**

The following tables include exterior materials and colors to facilitate making selections.

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Visual Zone	Building Type	Roofs		Walls				Doors and Windows			
		Standing Seam Metal	Fiberglass Comp. Shingles	Brick	CMU	Concrete	Secondary Material	Doors	Storm Doors	Windows	Storm Window Frames
Headquarters	“Significant” (Div., BDE & BN HQ)	Manufacturer: Berridge Color: Patina Green	-----	Manufacturer: Belden Brick Field Color: Cherry Velour Accent Colors: Dutch Gray Frontier Seal Brown	Manufacturer: Featherlite Color: Texas Cream	Color: Warm Gray	-----	Color: White	-----	Color: White	-----
	“Secondary” (CO OPNS FAC)	Manufacturer: Berridge Color: Patina Green	-----	↓	↓	↓	Siding: Metal; horizontal slats Color: White	↓	-----	↓	-----
	Temporary	-----	Manufacturer: Georgia Pacific Color: Greenwood Blend	-----	-----	-----	Siding: Metal; horizontal slats Color: Warm Gray	↓	-----	↓	-----
Town Center	Retail Community and	Manufacturer: Berridge Color: Patina Green Colonial Red	-----	Manufacturer: Belden Brick Field Color: Cherry Velour Frontier Accent Colors: Dutch Gray Seal Brown Quaker Blend	Manufacturer: Featherlite Color: Texas Cream	Color: Warm Gray	Siding: Metal; vertical slats Color: White	↓	-----	↓	-----
	Recreation	↓	-----	-----	↓	↓	Siding: Metal; vertical slats Color: White	↓	-----	↓	-----
	Temporary	-----	Manufacturer: Georgia Pacific Color: Greenwood Blend	-----	-----	-----	Siding: Metal; vertical slats Color: Warm Gray	↓	-----	↓	-----

Visual Zone	Building Type	Roofs		Walls				Doors and Windows			
		Standing Seam Metal	Fiberglass Comp. Shingles	Brick	CMU	Concrete	Secondary Material	Doors	Storm Doors	Windows	Storm Window Frames
Barracks	Main Cantonment Area	Manufacturer: Berridge Color: Colonial Red	-----	Manufacturer: Belden Brick Field Color: Cherry Velour Accent Colors: Seal Brown Quaker Blend	Manufacturer: Featherlite Color: Texas Cream	Color: Warm Gray	Siding: Metal; vertical slats Color: Colonial Red Seal Brown Patina Green	Color: Match field brick or CMU	-----	Color: White	-----
	4 th BCT	Manufacturer: Berridge Color: Colonial Red	Manufacturer: Georgia Pacific Color: Miami Red Ranchwood	Manufacturer: Belden Brick Field Color: Quaker Blend Accent Colors: Cherry Velour	↓	↓	-----				
	Temporary	-----	↓	-----	-----	-----	Siding: Metal; vertical slats Color: Tan	Color: Tan	-----	Color: Dark bronze	-----
Installation Support	Maintenance Facilities	Manufacturer: Berridge Color: Shasta White	Manufacturer: Georgia Pacific Color: Light Gray	Brick: Belden Brick Color: Dutch Gray	Manufacturer: Featherlite Color: Texas Cream	Color: Warm Gray	Siding: Metal; horizontal slats Manufacturer: Chicago Metallic Color: Natural Adobe	Color: Match brick, CMU or siding	-----	Color: Match brick, CMU or siding	-----
	General Administration	↓	↓	Brick: Belden Brick Field Color: Cherry Velour Frontier Blend Accent Color: Dutch Gray Quaker Blend Seal Brown	Manufacturer: Featherlite Color: Texas Cream Rose	↓	Siding: Metal; horizontal slats Color: Natural Adobe	↓	-----	↓	-----

Visual Zone	Building Type	Roofs		Walls				Doors and Windows			
		Standing Seam Metal	Fiberglass Comp. Shingles	Brick	CMU	Concrete	Secondary Material	Doors	Storm Doors	Windows	Storm Window Frames
National Guard	Barracks	Manufacturer: Berridge Color: Colonial Red	Manufacturer: Georgia Pacific Color: Red	Manufacturer: Belden Brick Field Color: Dutch Gray Frontier Accent Colors: Seal Brown Cherry Velour	Manufacturer: Featherlite Color: Texas Cream	Color: Warm Gray	-----	Color: Maroon	-----	Color: White	-----
	Maintenance Facilities	Manufacturer: Berridge Color: Shasta White	Manufacturer: Georgia Pacific Color: Light Gray	Brick: Belden Brick Color: Dutch Gray	Manufacturer: Featherlite Color: Texas Cream	↓	Siding: Metal; horizontal slats Manufacturer: Chicago Metallic Color: Natural Adobe	Color: Match brick, CMU or siding	-----	Color: Match brick, CMU or siding	-----
Housing	All Types	-----	Manufacturer: Georgia Pacific Color: Gray	Brick: Belden Brick Accent Color: Cherry Velour	Manufacturer: Featherlite Color: Texas Cream Rose	-----	Siding: Metal; horizontal slats Color: Olive Green Harvest Yellow Brown Beige	Color: White or match brick or siding	Color: White	Color: White	Color: White
Green Space	All Types	Manufacturer: Berridge Color: Colonial Red Forest Green	Manufacturer: Georgia Pacific Color: Greenwood Blend Miami Red	Manufacturer: Belden Brick Field Color: Dutch Gray Quaker Blend Frontier	-----	Color: Warm Gray	Paint Manufacturer: Sherwin Williams Color: Warm Gray Off-White	Color: White	↓	↓	↓

APPENDIX L
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APPENDIX M **HISTORIC PRESERVATION GUIDELINES**

M.1 INTRODUCTION

M.1.1 Most of the history and literature about the military does not deal with the topics of Army facility planning and design processes. However, to plan for the future development of an Army installation, it is necessary to understand past planning and development.

M.1.2 In the development of its policies, the Army had to deal with the question of how buildings relate to one another both by use and layout and by architectural characteristics. At least in its earliest phases, this development was not always a conscious formulation of policy so much as it was the immediate response to a given situation. Over the years, there have been different forces affecting the process of military planning in this country, as illustrated by the various districts and zones on Fort Stewart.

M.2 HISTORIC PRESERVATION REGULATIONS

M.2.1 The Army's management of historic properties is pursuant to the duties and responsibilities established by Congress under the National Historic Preservation Act (NHPA) of 1966 and its subsequent amendments. This act committed Federal agencies to a program of identification and protection of historic properties on the land they own. The NHPA established the Advisory Council on Historic Preservation (ACHP) to "advise the President and the Congress on matters relating to historic preservation; (and to) recommend measures to coordinate activities of Federal, State, and local agencies" [16 U.S.C. 470j].

M.2.2 The NHPA also created the National Register of Historic Places to designate publicly or privately owned resources and to encourage identification and planning that promotes the compatible use of these properties. The National Register is the official listing of the nation's historic and cultural resources considered worthy of preservation.

It includes “districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture” [16 U.S.C. 470a].

M.2.3 Section 106 of the NHPA requires “the head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, buildings, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking” [16 U.S.C. 470f].

M.2.4 Pursuant to its authority in overseeing the nation’s historic preservation programs, the Department of the Interior has developed a set of standards and guidelines for projects and activities involving properties listed in or eligible for listing in the National Register. The [Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation](#) acts as a guide to the Advisory Council and to State Historic Preservation Offices in their procedural review of Federal undertakings. These guidelines should also act as standards for all Federal agencies as they commence planning for any undertaking that has the potential to trigger Section 106 review, thus assuring that all proposed projects would meet Advisory Council and NHPA requirements.

M.2.5 Federal agencies must comply with Section 106 of the NHPA by following a series of procedural steps set forth in [36 CFR Part 800 – Protection of Historic Properties](#). The Army further explains its policies and procedures in [Army Regulation \(AR\) 200-4, Cultural Resources Management](#) and Department of the [Army Pamphlet \(DA PAM\) 200-4, Cultural Resources Management](#). This Installation Design Guideline is intended to be used in conjunction with the above regulations as well as with the Fort Stewart Integrated Cultural Resources Management Plan (ICRMP).

The procedures in 36 CFR Part 800 establish a review process with the State Historic Preservation Officer (SHPO) on projects subject to Section 106 of the NHPA. The agency official, in this case the Assistant Chief of Staff of Installation Management at Fort Stewart, consults with the SHPO during each step of the Section 106 process: 1) initiate the process; 2) identify historic properties; 3) assess effects of undertaking on historic properties; and 4) resolve any adverse effects.

M.2.6 Fort Stewart has a Programmatic Agreement (PA) with the Georgia SHPO, which streamlines the Section 106 process for all the Installation’s construction projects and training and support missions. The PA streamlines the Section 106 process when no historic properties are found, establishes categorical exclusions of Installation actions that will not affect historic properties, excludes low-probability and unexploded explosive ordnance (UXO) areas from archaeological survey, establishes a streamlined process for archaeological site mitigation, and mitigates a number of historic railroad and tramline beds.

M.3 STANDARDS AND GUIDELINES

M.3.1 Rehabilitation of Historic Properties

Design and renovation guidelines for historic districts, such as those within Fort Stewart, are of necessity much broader than design guidelines for single buildings. Such guidelines must not only address the appropriate architectural style and materials for proposed new buildings, but they must also address how a proposed action within the historic district will impact its integrity, that is, its original design intent and historic character.

M.3.1.1 New work should not conflict with the existing architectural character. For example, it should not:

- Be larger in mass or taller than the existing historic buildings and structures.
- Be of a color or material that conflicts visually with the predominant historic colors or materials used in the area.
- Destroy the historic fabric of any existing buildings, structures, or landscape features that are essential character-defining elements within the district.
- Destroy the spatial relationship between or among historic buildings designed as a grouping, including the regular spacing of buildings within a group and views from one to the other or into the grouping as a whole.

M.3.1.2 New work should seek to enhance and protect the historic quality of existing resources. For example:

- Conduct a survey to examine the level of use of existing facilities prior to determining the need for new construction.
- Follow the Secretary of the Interior's Standards for Preservation and Guidelines for Preserving Historic Buildings.

New work should also provide necessary modern conveniences as unobtrusively as possible. For example:

- Site new construction so that it does not destroy existing building relationships or configurations.
- Scale down new buildings so as to minimize their visual impact.
- Place parking to the rear of buildings.
- Landscape parking areas and modern mechanical equipment so as to screen them from view.

M.3.1.3 Phase out (gradually eliminate) existing intrusions. For example:

Restore buildings that have been altered by inappropriate material changes, replacement windows, porch enclosures, etc.

M.3.2 Treatment of Historic Fabric

The most effective way to preserve historic properties is to keep them in use and to consistently maintain them. When buildings and grounds are consistently used for their intended purposes and maintenance is regularly conducted, there is rarely a need for extensive preservation work. Only when they are misused, underused, or left vacant for long periods of time does large-scale rehabilitation become necessary. It follows that if a regular maintenance program is put into effect once a property has been appropriately renovated, then another major rehabilitation would unlikely be required.

M.3.3 Standards for Historic Preservation Projects

M.3.3.1 Compatible use of historic buildings, structures, and sites. Every reasonable effort should be made to use a historic building, structure, or site for its originally intended purpose or to provide a compatible use. A compatible use is one that involves minimal alteration to the property and/or has no adverse effect upon its historic integrity. Use of the building, structure, and site should be regulated to prevent alterations that are potentially damaging to historic fabric and/or cultural context.

M.3.3.2 Retention of character-defining features. Distinguishing stylistic or character-defining features and examples of skilled craftsmanship should not be destroyed, altered, or removed from a historic building, site, or structure. All such fabric should be treated with sensitivity and preserved in its original context and form.

M.3.3.3 Treatment of deteriorated historic fabric. Deteriorated historic fabric should be repaired rather than replaced whenever possible. When replacement is unavoidable, the new material should match the old fabric in composition, design, color, texture, and other visual and structural qualities.

M.3.3.4 Documentation of missing historic elements. Replacement of missing historic elements should be based on the accurate duplication of features known to have existed and substantiated by historic pictorial and/or physical evidence and not on conjecture, nor simply on the example of similar treatment found on other buildings, structures, or sites of the same period or region.

M.3.3.5 Retention of historic alterations. Changes to a historic building, structure, or site that have occurred over the course of time may provide evidence of important social or cultural processes. As such they should be respected and their potential significance carefully evaluated.

M.3.3.6 Unacceptable alterations. Historic sites, structures, and buildings should be recognized as products of their own time and as part of an important cultural process. Alterations which have no historical basis or which destroy the authenticity of the place are discouraged.

M.3.3.7 Acceptable alterations and additions. When possible, alterations and new additions to historic building, structures, or sites should be done in such a manner as to leave the essential form and character-defining features unimpaired.

M.3.3.8 Contemporary design in a historic context. Contemporary design for additions to existing historic sites or districts should not be discouraged if such design is compatible with the massing, proportions, scale, materials, color, views, and general contextual relationships of the place.

M.3.3.9 Surface cleaning methods. Surface cleaning of structures or buildings should be undertaken with the gentlest possible means, and only when cleaning is essential to the preservation of the buildings. Cleaning methods that could damage historic material or speed their deterioration (e.g., sand blasting) are discouraged.

M.3.3.10 Archaeological resources. All work that potentially affects surface or sub-surface prehistoric or historic archaeological resources should be coordinated with an archaeologist. If National Register eligible or listed archaeological resources must be disturbed, then mitigation measures will be undertaken.

M.3.4 Guidelines for Historic Preservation Projects

The historic preservation and maintenance guidelines contained within this IDG are general in nature. The IDG must be utilized in conjunction with the Fort Stewart ICRMP.

M.3.4.1 Roof Guidelines

- Preserve existing historic roofing. Repair and patch with materials that match the old.
- All roofs should receive an annual inspection. Repair and patch all materials as needed, clean out all gutters and drains, and replace deteriorated flashing.
- When full replacement of the roof becomes necessary, replace or restore with historic materials to match the old.
- Roof details. Retain and/or maintain all existing chimneys, ventilators, vents, louvers, and decorative elements such as brackets, dentils, and cornices. When possible, restore missing decorative elements.

M.3.4.2 Wall Guidelines

- Limestone and brick masonry
 - Clean only when necessary using the gentlest possible means.
 - Repair or replace deteriorated or missing units as needed with physically (size, material) and visually (color, texture) compatible masonry.
- Stucco
 - Repair damaged or deteriorated stucco.
 - Repaint only when necessary and with the appropriate color based on analysis of historic paint layers.

- Wood
 - Retain or repair wood siding. Where replacement is necessary, match existing clapboards in width and species.
 - Repaint only as needed to protect the wood from moisture.
 - Use a color paint scheme based on analysis of historic paint layers.

M.3.4.3 Porch Guidelines

- Retain or maintain existing original porches.
- Remove historically inappropriate porches.
- Where possible, restore original porches that have been removed or enclosed.

M.3.4.4 Window Guidelines

- If building an addition or altering the building, retain the same window height as existing.
- Retain the same window size and fenestration pattern when replacing windows or altering the building.
- If replacing windows, preserve frame material or use historically accurate reproductions. Avoid replacing original frames with aluminum frames.
- Restore historic windows where non-historic replacement windows have been used.
- The window manufacturing industry can replicate and/or reproduce most types and sizes of windows to match existing historic windows. In many cases, matching replacement windows are available as stock items.

M.3.4.5 Door Guidelines

- Retain or maintain existing historic doors.
- If replacing doors, preserve frame material or use historically accurate reproductions.
- If building an addition or altering the building, maintain the size of the door opening.
- Restore all main entranceways by reinstalling appropriate frames.

M.3.4.6 Color Guidelines

- If historic buildings must be repainted before an accurate color scheme is developed, a very conservative approach should be followed. Repaint to match the existing colors or colors that can be documented to have been used on that building.
- Utilize a qualified historic paint color specialist for an inventory and analysis of the paint layer sequences for all building groupings.
- Establish a rotating schedule for the painting and cleaning of each building.

M.3.4.7 Painting Guidelines

- Do not undertake a paint job until any problems with leaking water have been solved. All gutters and downspouts should be repaired and be in good operating condition.
- Only repaint when the existing coat is no longer performing, as excessive coats of paint create a thick film, which obscures detail.

M.3.4.8 Handicap and Safety Access Guidelines

- Any modifications required to bring a historic building in compliance with safety and accessibility codes should be carefully planned and undertaken so that they do not adversely affect the design of main entrances or principal façades.
- Where possible, avoid alterations to the main façade and principal doorways.
- Place or install new ramps, lifts, and any added fire escapes on secondary building façades such as to the side or rear.
- Locate new doorways at the side or rear of the building.
- Required protective railings on ramps, stairs, steps, and lifts should match existing porch railings.

M.3.4.9 Mechanical Equipment Guidelines

- In many cases within historic districts, mechanical equipment is located outside of the building. When historic buildings or structures are renovated and mechanical systems are upgraded, equipment placement should be planned in order to make the least visual impact.
- Where possible, locate mechanical equipment within the building.
- Screen necessary surface equipment with vegetation.
- When large groups of buildings are upgraded as one project, consider the use of a remote system.

M.3.4.10 Guidelines for Additions

In general, additions should follow all the guidelines for new construction within historic districts; however, because their proximity makes the potential for damage to historic fabric even greater, there are additional principles that should be followed.

- Avoid changes that impact primary façades or obscure, damage, or destroy character-defining features.
- Some highly visible freestanding buildings may not have a secondary façade; thus, additions are not advisable.
- Design additions to be compatible in scale, form, and features to the existing historic building.
- Design additions to establish a clear and obvious difference between the existing historic building and the new addition.

M.3.4.11 Force Protection. These guidelines should be used in conjunction with the [Unified Facilities Criteria \(UFC\) 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*](#) and the Force Protection Design Standards of this Army Installation Design Guide and Standards.

M.4 ARMY STANDARDS

- [Army Regulation \(AR\) 200-4, *Cultural Resources Management*](#)
- [Department of the Army Pamphlet \(DA PAM\) 200-4, *Cultural Resources Management*](#)
- [The Secretary of the Interior's Standards for the Treatment of Historic Properties](#)

M.5 REFERENCES

- [Advisory Council on Historic Preservation](#)
- [United States Army Environmental Center Cultural Resources Management Program - Historic Buildings and Landscapes](#)
- [United States Army Environmental Center Cultural Resources Management Program - Native American Affairs](#)
- [United States Army Environmental Center Cultural Resources Management Program - Archeology](#)

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APPENDIX N
**HOUSEKEEPING
RULES
(EXAMPLE)**

This appendix will be modified by the installation to describe practices at Fort Stewart.

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INTRODUCTION

N.1 The following set of housekeeping rules consists of a list of general and public rules that are applicable to the administrative office work areas throughout the installation. Organizations should make every effort to assure that all personnel are familiar with the facilities housekeeping rules. An organized, well kept working area that is neat and clean contributes to the visual harmony of the work area and fosters work efficiencies.

N.2 Housekeeping Rules (*Example*). Modify as appropriate.

Housekeeping Rules for (*Enter Name of Organization*)

GENERAL RULES:

1. Alterations: Employees shall not mark, paint, drill, damage, string wires within, or in any way deface any part of the building. Employees will not install or permit the installation of any awnings, shades, Mylar films or num filters on windows. Employees will not obstruct, alter, or in any way impair the efficient operation of the heating, ventilating, air conditioning, electrical, fire safety, or lighting systems, nor shall the employee tamper with or change the setting of any thermostat or temperature control valve in the building. Employees shall not cover or block air ducts or vents.
2. Cleanliness: Employees shall exercise their best efforts to keep workstations and common areas, i.e., hallways, corridors, team rooms, etc., clean and free from rubbish. No employee shall cause any unnecessary labor on the part of cleaning personnel due to carelessness or indifference in the preservation of good order and cleanliness. It is highly recommended that employees use covered cups when transporting liquids to and from the coffee bars. Employees shall not bring any substance into the building that might add an undue burden to the cleaning or maintenance of the premises, or the building.
3. Carpet: Carpet stains and/or damage should be reported to (*Enter Point of Contact [POC]*).
4. Energy Conservation: Turn off systems furniture lighting, conference room lights, private office lights and equipment, etc. when not in use, especially at the end of the day. During non-business hours, employees shall limit the use of lighting and equipment to areas occupied.
5. Lighting: Do not move and /or modify any overhead lighting fixtures above workstations. One task light may be placed in a workstation.
6. Vertical and Venetian Blinds: Blinds are to be left in fully extended position at all times. Blades shall be positioned so as to permit a good level of natural lighting and shall only be closed for the purposes of sun control and at night for privacy. Only the wands will be used for adjustments. Items shall not be placed or stored on windowsills other than small plants as described hereinafter.

7. Signage: No signs, advertisements or notes shall be painted or affixed on or to any window, door, restroom conference/team room or other part of the building unless approved by (Enter POC). Bulletin boards for posting of unofficial material are restricted to communal areas such as break rooms and coffee bars.

8. Bicycles: Employees shall not bring bicycles or motorcycles into the office environment, but shall be left secured in an upright position in areas designated for that purpose.

9. Aerosol Sprays: The use of aerosol products such as air fresheners, hair sprays, etc., in the work environment should be avoided.

10. Maintenance: All requests for maintenance on furnishings, or building systems or components should be reported to (Enter POC [there may be more than one POC]).

11. Smoking: The use of tobacco products inside any Army facility is strictly prohibited. Smoking of tobacco products may only occur in designated areas where proper ash receptacles, which are kept free of trash and debris, are located.

PUBLIC SPACES:

1. Eating in Work Areas: Eating in work areas can contribute to pest infestation and an unsightly appearance. If eating at your desk, please ensure trash is discarded daily. Perishable food items should not be stored in the employees' work area. Perishable foods are to be kept refrigerated.

2. Appliances (e.g., Heaters/Refrigerators/Microwaves/Coffee Pots): Refrigerators and microwaves are not permitted in work areas. One personal fan, not to exceed 8" in diameter may be placed in a workstation. Exceptions to accommodate health problems may be submitted to (Enter POC).

3. Centralization: Copiers, faxes, scanners, printers, etc., will be centralized and networked to the maximum extent possible. Personal office equipment will be provided on an exception basis only.

4. Office Accessories: All office equipment and other devices of any electrical or mechanical nature shall be placed on an area of the work surface that best accommodates the prevention/elimination of any vibration, noise or annoyance to others. Employees shall not construct, maintain, use or operate any equipment of machinery that produces music, sound, noise, pictures, or lighting which is audible or visible beyond their workstation.

5. Office Wall Mountings: Only framed items shall be hung on walls. No artwork or other displays may be placed or hung on fixed or temporary walls/partitions, other than in private offices, without approval by (Enter POC). The use of tape, pushpins, or other devices to affix items to walls is prohibited.

6. **Plants:** Plants must be contained in appropriate leak-proof non-corroding containers such as ceramic jardinières or flower pots with saucers and shall be kept within workstations and not affixed in any way to the workstation, partitions, floors, or ceiling as outlined in the guidance detailed elsewhere in this document; this prohibition extends to trailing vines. Small plants that do not interfere with the normal operation of window blinds may be placed on windowsills. Watering of plants shall not subject any government equipment to risk of damage.
7. **Speakerphones:** The use of speakerphones is discouraged and should be restricted to those occasions when absolutely necessary. Concerted efforts must be made to utilize team rooms when speakerphone conversations are required.
8. **Trash:** The janitorial contractor will discard only items in wastebaskets or items clearly labeled “TRASH”. Do not place trash in the corridors, hallways, stairwells, or other common areas.
9. **Workstation Reconfiguration:** Workstations will not be reconfigured, modified, or altered in any way by the occupant.
10. **Workstation Guidelines:** Every employee shall make a concerted effort to keep workstations clean, uncluttered, and professional in appearance. Avoid placing papers and other “hard copy” materials on the wall of the workstation and the accumulation of excessive pictures/cartoons/mementos. The storage of papers, boxes, and files on floors is prohibited. Materials are not to be hung on the outside panels of workstations.
 - a. **Above the Panels:** Nothing will be placed above the panel height of the workstations or hung from the ceiling. Nothing will be stacked on the tops of flipper doors, map files, filing cabinets, towers, etc.
 - b. **Cabling:** No temporary cabling for electrical, information technology, or communications is allowed. Requests for alterations must be submitted to (Enter POC). This prohibition includes extension cords; surge protectors are permitted. Wiring is to be contained in cable trays and off the floors.
11. **Care of Furniture and Furniture Systems**
 - a. **Laminate Surfaces –** To clean laminate tops, use a soft cloth or non abrasive sponge dampened in a solution of mild detergent and warm water. Remove residue of cleaning solution with a soft cloth wrung out in clean water. Dry with a soft cloth.
 - b. **Steel and Painted Metal Surfaces –** Panel trim, panel poles, painted flipper doors, and other parts of flipper doors should be cleaned with a soft damp cloth and thoroughly dried with a soft dry cloth. For soiled areas a mild detergent solution in warm water may be used.
 - c. **Fabric –** For information on how to remove spots from fabric panels on workstations, contact (Enter POC).

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APPENDIX O **PLANT PALETTE**

The following table lists the plant material that are permitted for use on Fort Stewart. The table includes information on characteristics of each plant related to their appearance, recommended uses and growing conditions.

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PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function									
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen		
Botanical Name	Common Name	Characteristics													Culture						Use												
SHADE TREES																																	
Acer rubrum	Red Maple	X				X					X	X	X	X						X	X		X	X		X						X	
Betula nigra	River Birch	X				X				X			X						X	X	X			X		X						X	
Liriodendron tulipifera	Tulip Poplar	X				X			X	X			X								X			X		X						X	
Magnolia grandiflora	Southern Magnolia		X			X			X	X			X	X					X		X		X	X		X						X	
Platanus occidentalis	London Planetree	X				X						X	X	X							X	X		X	X		X					X	
Quercus falcata	Southern Red Oak	X		X								X	X	X							X	X		X	X		X					X	
Quercus laurifolia	Laurel Oak	X		X								X	X	X					X	X	X		X	X		X						X	
Quercus phellos	Willow Oak	X		X								X	X	X							X	X		X	X		X					X	
Quercus shumardii	Shumard Oak	X		X								X	X	X						X	X	X		X	X		X					X	
Quercus virginiana	Live Oak	X		X								X	X	X						X	X	X		X	X		X					X	
INTERMEDIATE TREES																																	
Carpinus caroliniana	Blue Beech	X				X					X	X	X							X	X											X	
Cercis Canadensis	Redbud	X				X			X	X		X	X	X					X	X		X					X						X
Cornus florida	Flowering Dogwood	X		X					X	X		X	X	X					X	X		X					X						X
Koelreuteria paniculata	Goldenrain Tree	X				X		X			X			X					X	X	X	X	X		X								X
Lagerstroemia indica	Crapemyrtle	X		X			X	X		X	X	X		X								X					X						X
Magnolia soulangeana	Saucer Magnolia	X		X					X	X	X	X	X						X		X			X									X
Magnolia virginiana	Sweet Bay Magnolia		X	X					X	X	X	X	X						X	X	X			X			X						X
Myrica cerifera	Southern Wax Myrtle		X			X			X			X	X	X					X		X				X	X							X
Nyssa sylvatica	Black Tupelo	X		X							X	X	X						X	X	X						X						X
Pyrus calleryana 'Aristocrate'	Aristocrat Pear	X				X			X	X				X					X	X		X	X										X
Sapium sebiferum	Chinese Yellowtree	X				X		X			X	X							X	X	X	X		X									X
Taxodium distichum	Common Bald Cypress	X				X				X	X	X	X							X	X		X	X		X							X
EVERGREEN TREES																																	
Butia capitata	Butia Palm		X	X						X			X								X						X						X
Eriobotrya japonica	Loquat		X	X		X			X		X	X	X					X		X	X				X	X							X
Juniperus virginiana	Eastern Red Cedar		X			X				X		X	X						X		X	X			X	X	X						X
Pinus elliottii	Slash Pine		X			X				X		X	X								X				X	X	X						X
Pinus palustris	Longleaf Pine		X			X				X		X	X								X				X	X	X						X
Sabal palmetto	Cabbage Palmetto		X	X						X			X						X		X		X			X							X
Trachycarpus fortunei	Windmill Palm		X	X						X			X						X		X		X			X							X
EVERGREEN SHRUBS																																	

PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function							
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
Botanical Name	Common Name	Characteristics											Culture						Use												
Buxus microphyllum	Japanese Boxwood		X	X			X			X		X		X	X						X	X					X		X		X
Camellia sasanqua	Fall-blooming Camellia	X	X			X			X		X		X	X						X	X				X						X
Cotoneaster horizontalis	Rockspray Cotoneaster		X	X							X		X	X							X					X					X
Cycas revolute	Sago Cycas		X	X							X		X	X					X		X					X					X
Elaeagnus pungens	Thorny Elaeagnus		X			X					X	X	X	X					X		X	X			X						X
Fatsia japonica	Japanese Fatsia		X	X		X			X		X		X	X							X					X					X
Hypericum patulum 'Sungold'	Sungold Hypericum		X			X		X		X		X	X					X	X		X	X				X					X
Ilex cornuta 'Burfordii'	Burford Holly		X	X							X		X	X					X		X				X	X					X
Ilex cornuta 'Carissa'	Carissa Holly		X	X							X		X	X				X	X		X				X	X					X
Ilex cornuta 'Rotunda'	Dwarf Chinese Holly		X	X							X		X	X				X	X		X				X	X					X
Ilex crenata	Japanese Holly		X	X							X		X	X					X		X				X	X		X			X
Ilex crenata 'Helleri'	Heller Japanese Holly		X	X							X		X	X							X				X		X				X
Ilex opaca 'Fosteri'	Fosters Holly		X	X							X		X	X					X		X				X						X
Ilex opaca 'Savannah'	Savannah Holly		X	X							X		X	X					X		X				X						X
Ilex vomitoria	Yaupon Holly		X	X							X		X	X					X		X				X	X					X
Ilex vomitoria 'Stokes dwarf'	Dwarf Yaupon Holly		X	X							X		X	X					X		X				X	X					X
Illicium parviflorum	Yellow Anise-Tree		X			X	X		X		X	X	X					X	X	X					X						X
Illicium floridanum	Florida Anise-Tree		X			X	X		X		X	X	X					X	X	X					X						X
Juniperus chinensis 'Torulosa'	Hollywood Torulosa Juniper		X	X							X		X								X				X						X
Juniperus chinensis 'Pfitzeriana'	Pfitzer Juniper		X	X							X		X					X			X	X				X					X
Juniperis conferta	Shore Juniper		X	X							X		X					X			X	X				X					X
Juniperus horizontalis 'Plumosa'	Andorra Juniper		X	X							X		X					X			X	X				X					X
Ligustrum japonicum	Japanese Privet		X			X		X	X		X		X	X				X			X				X	X					X
Ligustrum lucidum	Golden Privet		X			X		X	X		X		X	X				X			X				X	X					X
Mahonia bealei	Leatherleaf Mahonia		X	X				X	X		X	X	X								X				X						X
Nandina domestica	Heavenly Bamboo		X			X		X	X		X	X	X					X		X	X	X			X						X
Osmanthus americanus	Devilwood Osmanthus		X	X		X			X		X	X	X					X		X											X
Osmanthus fragrans	Fragrant Tea Olive		X			X	X		X		X	X	X					X		X				X	X						X
Photinia serrulata	Chinese Photinia		X			X		X	X		X		X	X							X	X			X	X					X
Pittosporum tobira	Japanese Pittosporum		X			X		X	X		X	X	X								X	X			X	X					X

PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function								
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen	
Botanical Name	Common Name	Characteristics													Culture						Use											
Podocarpus macrophyllus 'Maki'	Shrubby Yew Podocarpus		X	X				X	X		X	X	X	X				X	X		X	X			X	X	X				X	
Prunus caroliniana	Cherry Laurel		X	X				X	X		X		X	X							X				X						X	
Pyracantha coccinea	Scarlet Firethorn		X			X		X						X							X	X				X					X	
Raphiolepis indica	Indian Hawthorn		X	X				X	X		X	X	X	X				X			X	X	X			X					X	
Rhododendron indicum	Indica Azalea		X			X			X	X		X	X	X							X	X				X					X	
Rhododendron obtusum	Kurume Azalea		X	X					X	X		X	X	X							X	X				X					X	
Ternstroemia gymnathera	Japanese Cleyera		X	X					X	X		X	X	X				X	X		X	X			X	X					X	
Viburnum odoratissimum	Sweet Viburnum		X			X					X		X								X	X			X	X					X	
DECIDUOUS SHRUBS																																
Clethra alnifolia	Summersweet Clethra	X				X			X			X	X	X					X		X					X					X	
Hibiscus syriacus	Shrub Althea	X		X					X			X	X	X					X		X	X				X						
Hydrangea macrophylla	Bigleaf Hydrangea	X				X		X				X	X							X	X					X					X	
Hydrangea quercifolia	Oakleaf Hydrangea	X				X		X		X			X	X					X		X					X					X	
Jasminum nudiflorum	Winter Jasmine	X		X				X	X			X	X	X				X	X		X	X				X					X	
Lonicera fragrantissima	Winter Honeysuckle	X				X			X	X		X	X					X			X				X	X					X	
Spiraea thunbergii	Thunberg Spirea	X				X		X						X							X					X					X	
Spiraea x vanhouttei	Vanhoutte Spirea	X				X		X						X							X					X					X	
GROUNDCOVERS/VINES																																
Ajuga reptans	Carpet Bugle	X				X			X	X		X	X	X				X	X	X	X	X				X						
Euonymus fortunei 'Radicans'	Common Wintercreeper		X	X							X		X	X							X					X						
Hedera canariensis	Algerian Ivy		X	X					X			X	X						X		X					X						
Hedera helix	English Ivy		X	X					X			X	X						X		X					X						
Hemerocallis	Daylily	X				X	X	X	X		X		X	X					X		X					X						
Juniperus chinensis 'Sargentii'	Sargent Juniper		X	X							X		X	X							X	X				X						
Juniperus conferta 'Blue Pacific'	Blue Pacific Juniper		X	X							X		X	X							X	X				X						
Juniperus horizontalis	Creeping Juniper		X	X							X		X	X							X	X				X						
Juniperus procumbens	Japgarden Juniper		X	X							X		X	X							X	X				X						
Vinca major	Bigleaf Periwinkle		X			X			X	X		X	X								X					X						
GRASSES																																
Axonopus affinis	Carpet Grass	X				X					X		X								X					X						

PLANT SELECTION LIST Plant Material Suitability Matrix		Type		Growth			Flower			Interest			Light			Salt Tolerant			Resistant		Soil Moisture			Function								
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen	
Botanical Name	Common Name	Characteristics													Culture						Use											
<i>Cortaderia selloana</i>	Pampas Grass	X				X		X		X			X	X	X					X		X	X					X				X
<i>Cynodon dactylon</i> 'Tiflawn'	Common Bermuda Grass	X				X					X			X								X					X					
<i>Ermochloa ophiuroides</i>	Centipede Grass	X		X						X				X	X							X					X					
<i>Liriope muscari</i>	Big Blue Lilyturf	X				X		X		X		X	X						X			X	X				X					
<i>Liriope spicata</i>	Creeping Lilyturf	X				X		X		X		X	X						X			X	X				X					
<i>Stenotaphrum secundatum</i>	St. Augustine Grass	X				X					X	X										X					X					

APPENDIX P ARMY FACILITIES STANDARDIZATION PROGRAM CENTERS OF STANDARDIZATION

P.1 General. The various facility types are listed with contact information according to the Center of Standardization (COS) responsible for development of standards for that facility type.

P.3 Specific Contact Information. For more specific contact information, such as POC with email address and telephone number, refer to the [IDS Newsletter \(https://secureapp2.hqda.pentagon.mil/acsimnews/\)](https://secureapp2.hqda.pentagon.mil/acsimnews/) under the heading “Standardization Program POCs”. An Army Knowledge Online (AKO) account will be required to access the information which includes the Category Code, Army Proponent, ACSIM Proponent, HQUSACE POC, and HQIMA POC.

Links

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**Army Facilities Standardization Program
Centers of Standardization**

<u>Assigned Center</u>	<u>Facility Type</u>
U.S. Army Engineering and Support Center, Huntsville Attn: CEHNC-ED-CS-A and IS P.O. Box 1600 Huntsville AL 35807 Telephone: 256-895-1673/1672/1535	Child Development Center-Infant/Toddlers
	Child Development Center Playground
	Child Development Center – 6 to 10 Year Olds
	Physical Fitness Facilities
	Fire Station
	Hazardous Material Storage Facility
	Outdoor Sports Facility
	Close Combat Tactical Trainer (CCTT)
	Urban Assault Course (UAC) <i>replaces: Military Operations Urban Terrain (MOUT)</i>
	Training Range
	Youth Activity Center
	Bowling Center (RFP)
	Army Community Service Centers
	Consolidated Fire/Police/Safety Facility
U.S. Army Engineer District, Louisville ATTN: CELRL-ED-D-A 600 Martin Luther King Jr. Place Louisville, KY 40202 Tel: 502-315-6250	Army Reserve Center
U.S. Army Engineer District, Norfolk ATTN: CENAO-TS-EA 803 Front Street Norfolk, VA 23510 Telephone: 757-441-7702	Classroom XXI
	Criminal Investigation Facility (CIDC)
	Enlisted Personnel Dining Facility
	Family Housing (RFP)
	General Instruction Building
	Information Systems Facility
	Troop Issue Subsistence Activity Facility (TISA)
	Central Issue Facility
	General Purpose Warehouse
U.S. Army Engineer District, Omaha ATTN: CENWO-ED-DG/PM-M 215 North 17 th Street Omaha, NE 68102 Telephone: 402-221-4552/443	Army Chapel
	Chapel Family Life Center
	Religious Education Facility
	Small Site Chapel
	Access Control Points
	Airfields, Railroads, Pavements, Bridges, & Dams

Army Facilities Standardization Program Centers of Standardization	
<u>Assigned Center</u>	<u>Facility Type</u>
U.S.Army Engineer District, Mobile ATTN:CESAM-PM-SI P.O. Box 2288 Mobile, AL 36652-2288 Telephone: 251-394-3600	National Guard Armory
U.S. Army Engineer District, Savannah ATTN: CESAS-EN-E P.O. Box 889 Savannah, GA 31402 Telephone: 912-652-5212	Company Operations Facility (COF)
	Military Entrance Processing Station (MEPS)
	Tactical Equipment Maintenance Facility (TEMF)
	Unaccompanied Enlisted Personnel Housing (UEPH), New & Modernization
	One Station Unit Training (OSUT) Barracks
	Unaccompanied Officer / Sr. Enlisted / Quarters
	Unaccompanied Officer Quarters, Transient
	Brigade / Battalion HQ
	Operational Readiness Training Complex (ORTC)
	Deployment Facility
	*Advanced Individual Training (AIT) Barracks
	*Basic Combat Trainee (BCT)
U.S. Army Engineer District, Tulsa ATTN: CESWT-EC-D 1645 S. 101 ST East Avenue Tulsa, OK 74128 Telephone: 918-669-7033	*Advanced Individual Training (AIT) Barracks
	*Basic Combat Trainee (BCT)
	Reception Barracks
*AIT & BCT to be transferred to Savannah, upon completion by Tulsa.	
CFSC Telephone: 703-681-1506	Army Lodging
	Clubs/FBE Facilities
	Golf Courses
	Recreational Lodging

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APPENDIX Q STANDARDS AND REFERENCES

Q.1 STANDARDS AND REFERENCES

Standards and References for the Army Installation Design Standards (IDS).

Q.1.1 Chapter 2, Site Planning Design Standards

Q.1.1.1 Army Standards

- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Army Regulation \(AR\) 200-2, Environmental Effects of Army Actions](#)
- [Army Regulation \(AR\) 210-20, Master Planning for Army Installations](#)
- [Army Regulation \(AR\) 415-15, Army Military Construction Program Development and Execution](#)
- [Army Regulation \(AR\) 420-70, Buildings and Structures](#)

Q.1.1.2 References

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 7](#)
- [Unified Facilities Criteria \(UFC\) 3-400-01, Design: Energy Conservation](#)
- [Unified Facilities Criteria \(UFC\) 3-210-01A, Design: Area Planning, Site Planning, and Design](#)

- [Unified Facilities Criteria \(UFC\) 3-210-06A, Design: Site Planning and Design](#)
- [Unified Facilities Criteria \(UFC\) 3-230-15FA, Design: Subsurface Drainage Facilities for Airfields and Heliports](#)
- [Unified Facilities Criteria \(UFC\) 3-230-16FA, Design: Drainage and Erosion Control Structures for Airfields and Heliports](#)
- [Unified Facilities Criteria \(UFC\) 3-230-17FA, Design: Drainage for Areas Other than Airfields](#)
- [Unified Facilities Criteria \(UFC\) 3-250-18FA, Design: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas](#)
- [Unified Facilities Criteria \(UFC\) 3-260-02, Design: Pavement Design for Airfields](#)
- [Unified Facilities Criteria \(UFC\) 3-250-01FA, Design: Pavement Design for Roads, Streets, Walks and Open Storage Areas](#)
- [Unified Facilities Criteria \(UFC\) 1-300-05A, Installation Support](#)
- [Technical Instructions \(TI\) 800-01, Design Criteria](#)
- [Technical Instructions \(TI\) 801-02, Family Housing](#)
- [Master Planning Instructions \(MPI\)](#)
- [Whole Building Design](#)

Q.1.2 Chapter 3, Building Design Standards

Q.1.2.1 Army Standards

- [Army Regulation \(AR\) 200-4, Cultural Resources Management](#)
- [Army Regulation \(AR\) 420-70, Buildings and Structures](#)
- [Unified Facilities Criteria \(UFC\) 3-520-01, Interior Electrical Systems](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)
- [UFC 4-171-05, Design: Guide for Army Reserve Facilities](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)

- [Secretary of the Interior's Standards for the Treatment of Historic Properties](#)
- [Technical Manual \(TM\) 5-807-10, Signage](#)
- [Technical Instructions \(TI\) 809-04, Seismic Design for Buildings](#)
- [Technical Instructions \(TI\) 809-05, Seismic Design Evaluation and Rehabilitation for Buildings](#)
- [Technical Manual \(TM\) 5-809-10/Navy NAVFAC P-355/Air Force AFM 88-3, Chap 13, Seismic Design for Buildings](#)
- [Technical Manual \(TM\) 5-809-10-2/Navy NAVFAC P-355.2/Air Force AFM 88-3, Chap 13, Sec B, Seismic Design Guidelines for Upgrading Existing Buildings](#)
- [Army Barracks Master Plan, Appendix I, Army Barracks Standards](#)
- [Memorandum Subject: Revised Barracks Construction Criteria, dated 1 May 2003](#)
- [Quality Standards for New and Replacement Residential Communities Initiative \(RCI\) Family Housing](#)
- [Army Lodging Standards](#)
- [Army Chapel Standard Definitive Design](#)
- [Army Standard for Chapel Construction – January 2004](#) and Memorandum for Record, subject: [The Army Standards for Chapels](#), dated 21 January 2004.
- [Army Standards for Company Operation Facility \(COF\)](#)
- [Army Standards for Child Development Center Construction \(for school-age children\) October 2004](#)

Q.1.2.2 References

- [Army Regulation \(AR\) 190-13, The Army Physical Security Program](#)
- [Army Regulation \(AR\) 200-1, Environmental Protection and Enhancement](#)
- [Army Regulation \(AR\) 200-2, Environmental Effects of Army Actions](#)
- [Army Regulation \(AR\) 200-4, Cultural Resources Management](#)
- [Army Regulation \(AR\) 210-20, Master Planning for Army Installations](#)
- [Army Regulation \(AR\) 405-45, Real Property Inventory Management](#)

- [Army Regulation \(AR\) 405-70, *Utilization of Real Property*](#)
- [Unified Facilities Criteria \(UFC\) 2-600-01, *Installation Design, Chap 8*](#)
- [Unified Facilities Criteria \(UFC\) 4-510-01, *Design: Medical Military Facilities*](#)
- [Unified Facilities Criteria \(UFC\) 1-200-01, *Design: General Building Requirements, 31 July 2002*](#)
- [Unified Facilities Criteria \(UFC\) 3-400-01, *Design: Energy Conservation*](#)
- [Engineering Regulation \(ER\) 1110-345-122, *Engineering and Design, Interior Design*](#)
- [Department of the Army Pamphlet \(DA PAM\) 200-4, *Cultural Resources Management*](#)
- [U.S. Army Corps of Engineers, Design Guide \(DG\) 1110-3-122, *Design Guide for Interiors*](#)
- [Department of Defense \(DoD\) Interior Design Website](#)
- [Technical Instructions \(TI\) 800-01, *Design Criteria*](#)
- [Technical Instructions \(TI\) 811-16, *Lighting Design*](#)
- [Technical Manual \(TM\) 5-683, *Electrical Interior Facilities*](#)
- [Technical Manual \(TM\) 5-688, *Foreign Voltage and Frequencies Guide*](#)
- [Army Barracks Master Plan](#)
- [Air Force Sustainable Facilities Guide](#)
- [Air Force Interior Design Guides](#)
- Office of the Assistant Secretary of the Army for Financial Management and Comptroller (OASA [FM&C]) [Sales and Outlease of Army Assets - Installation Guide](#)
- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#)
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#)

- [Whole Building Design Guide](#)
- Unified Facilities Guide Specifications (UFGS), "Division 12 - Furnishings", [Construction Criteria Base](#)
- [Engineering and Construction Bulletins](#)

Q.1.3 Chapter 4, Circulation Design Standards

Q.1.3.1 Army Standards

- [Army Regulation \(AR\) 420-72, Transportation Infrastructure and Dams](#)
- [Technical Manual \(TM\) 5-811-1/Air Force AFJMAN 32-1080, Electric Power Supply and Distribution](#)
- [Technical Manual \(TM\) 5-850-2/Air Force AFJMAN 32-1046, Railroad Design and Rehabilitation](#)
- [Manual For Railway Engineering](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)
- [Unified Facilities Criteria \(UFC\) 3-210-02, Design: POV Site Circulation and Parking](#)
- [Unified Facilities Criteria \(UFC\) 3-250-18FA, Design: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas](#)
- [Unified Facilities Criteria \(UFC\) 3-260-02, Design: Pavement Design for Airfields](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Manual of Uniform Traffic Control Devices \(MUTCD\)](#)
- [Chicago's Bike Lane Design Manual](#) (Provides a comprehensive series of technical drawings and design specifications for bike lanes).

Q.1.3.2 References

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 9](#)
- [U.S. Air Force, Landscape Design Guide, Parking Area](#)

- [U.S. Air Force, Landscape Design Guide, Walkways and Bikeways](#) (Provides a comprehensive walkways and bikeways planning guide including sections on paving materials and gradients and curvature data).
- [Illumination Engineering Society of North America \(IESNA\)](#)
- Federal Highway Administration reference document “[Accessible Sidewalks and Street Crossings – an informational guide](#)”.

Q.1.4 Chapter 5, Landscape Design Standards

Q.1.4.1 Army Standards

- [Unified Facilities Criteria \(UFC\) 3-210-05FA, Design: Landscape Design and Planting Criteria](#)
- [Army Regulation \(AR\) 420-70, Buildings and Structures](#)
- [Technical Manual \(TM\) 5-630, Natural Resources Land Management](#)
- American Standard for Nursery Stock, ANSI Z60.1

Q.1.4.2 References

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design, Chap 10](#)
- [USAF Landscape Design Guide](#)
 - C. Brickell and D. Joyce. Pruning and Training, 1996

Q.1.5 Chapter 6, Site Elements Design Standards

Q.1.5.1 Army Standards

- [DoD 4525.8-M, DoD Official Mail Manual](#)
- [Army Regulation \(AR\) 420-49, Utility Services](#)
- [Army Regulation \(AR\) 420-70, Buildings and Structures](#)
- [Army Regulation \(AR\) 420-72, Transportation Infrastructure and Dams](#)
- [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Technical Manual \(TM\) 5-807-10, Signage](#)

- [Manual of Uniform Traffic Control Devices \(MUTCD\)](#)
- [MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings](#)
- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)

Q.1.5.2 References

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design](#)
- [Army Regulation \(AR\) 1-33, Memorial Programs](#)
- [Army Regulation \(AR\) 840-1, Department of the Army Seal, and Department of the Army Emblem and Branch of Service Plaques](#)
- [Technical Instructions \(TI\) 811-16, Lighting Design](#)
- [Technical Manual \(TM\) 5-663, Child Development Center, Play Area Inspection and Maintenance Program](#)
- [Unified Facilities Criteria \(UFC\) 3-210-04, Design: Children's Outdoor Play Areas](#)
- [National Fire Protection Association \(NFPA\) 291, Recommended Practice for Fire Flow Testing and Marking of Hydrants](#)
- [Advisory Circular AC 70/7460-1K, Obstruction Marking and Lighting](#)

Q.1.6 Chapter 7, Force Protection Design Standards

Q.1.6.1 Army Standards

- [Unified Facilities Criteria \(UFC\) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings](#)
- Unified Facilities Criteria (UFC) 4-010-10, *DoD Minimum Antiterrorism Standoff Distances for Buildings*. (This document is a "For Official Use Only [FOUO]" publication.)
- [Uniform Federal Accessibility Standards \(UFAS\)](#)
- [Americans with Disabilities Act Accessibility Guideline \(ADAAG\)](#)
- [DoD Instruction 2000.16, DoD Antiterrorism Standards](#)

Q.1.6.2 References

- [Unified Facilities Criteria \(UFC\) 2-600-01, Installation Design](#)
- DoD Handbook 2000.12-H, *Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence*, February 1993 (This Handbook is a "For Official Use Only [FOUO]" publication. Users may contact the Point of Contact posted at the following website to obtain a copy of the Handbook). <http://www.dtic.mil/whs/directives/corres/html/o200012h.htm>
- Army Regulation (AR) 525-13, The Army Force Protection Program (Available only through the [Army Knowledge Online](#) web portal).
- UFC 4-010-02, *DoD Security Engineering Manual*, (This document is in draft form. See the [Security Engineering Working Group](#) website).
- Unified Facilities Criteria (UFC) Security Engineering series, [UFC 4-020-01FA](#), [UFC 4-020-02FA](#), [UFC 4-020-03FA](#) and [UFC 4-020-04FA](#), cover, Project Development, Concept Design, Final Design, and Electronic Security Systems respectively.

Q.1.7 Appendix D, Sustainable Design

Q.1.7.1 Army Standard

- [Assistant Chief of Staff for Installation Management \(ACSIM\) endorsement of Sustainable Design and Development](#)

Q.1.7.2 References

- [Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website](#)
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), [Sustainable Design and Development Website](#)
- [Air Force Sustainable Facilities Guide](#)
- [Whole Building Design Guide](#)

Q.1.8 Appendix M, Historic Preservation Guidelines

Q.1.8.1 Army Standards

- [Army Regulation \(AR\) 200-4, *Cultural Resources Management*](#)
- [Department of the Army Pamphlet \(DA PAM\) 200-4, *Cultural Resources Management*](#)
- [The Secretary of the Interior's Standards for the Treatment of Historic Properties](#)

Q.1.8.2 References

- [Advisory Council on Historic Preservation](#)
- [United States Army Environmental Center](#)

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