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Date	Issue	Revision	Description	Authorized By

The authorization person as detailed shall review this document:

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## 1.0 PURPOSE

To ensure that Engineering Division's (EN's) quality assurance process for design of military program is fully understood and that all design and construction contract documents are properly developed, and documented in a logical and consistent manner.

## 2.0 SCOPE

This procedure covers the quality control process for all military designs, studies, and special projects efforts in EN from project initiation to construction contract closeout. The flow diagrams on page XX of XX are a guide to the execution process for any type military program project.

## 3.0 REFERENCES

a. There are extensive reference documents for developing military designs and studies. A list of current regulations, technical letters and the like are maintained in TECHINFO, which is available through the Huntsville Center internet web page (<http://www.hnd.usace.army.mil>). All files required for project execution are also available through the Construction Criteria DataBase (CCB). Local district criteria are located on the SAS internet web page (<http://en.sas.usace.army.mil/cad.htm>).

b. Depending upon the type of project, the funding source, and the design complexity, various combinations of regulation manuals, and guidance will apply and be required.

## 4.0 DEFINITIONS

The Project Engineer (PE) assigned to the Project Engineering Section (EN-EP), Project Engineering and Support Branch (EN-E), serves as the Project Engineer for all engineering efforts. The PE represents EN and the design team on the project activities.

Products - All deliverables including but not limited to special studies, drawings, specifications, design analysis, permit applications, and other project review submittal documents.

Project Funding Types:	MCA -	Military Construction Army
	MCAF -	Military Construction Air Force
	MCAR -	Military Construction Army Reserve
	AFHNEW -	Air Force Housing New
	BRAC -	Base Realignment and Closure
	DERP -	Defense Environmental Restoration Program
	OMA-	Operations and Maintenance Army
	OMAF-	Operation and Maintenance Air Force
	DLA -	Defense Logistics Agency
	PBS -	Production and Base Support (tank plants and arsenals)
	AFH Reno -	Air Force Housing Renovation
	AFRES -	Air Force Reserve
	SFO -	Support for Others
	DBOF -	Defense Base Operational Funds

Special Project - Any project not generating normal design flow deliverables or fitting the normal programming cycle, and other miscellaneous projects or requests for service funded by a customer.

Support For Others (SFO) - Projects funded from other agencies are classed as support for others.

Job Order Contract (JOC) - An expedited construction procurement method that requires limited Engineering Division effort to facilitate construction start.

## **5.0 RESPONSIBILITIES**

Each Branch/Section Chief is to ensure that a copy of the project Quality Control Plan (QCP) produced through the implementation of this procedure is provided to and reviewed by all personnel involved in the project design prior to initiating work.

All project designers and technical staff have the responsibility to review and utilize the project QCP in the execution of Military program, and to incorporate the procedures into the engineering products. Should it be decided that any given project should not follow this procedure, approval to deviate must be obtained from a member of the Management Team.

## 6.0 PROCEDURE MILITARY PROGRAM

### 6.1 Flow Diagram

See pages xx of xx

### 6.2 Project Initiation

The Engineering Team must prepare the project Quality Control Plan (QCP) for incorporation into the Project Management Plan (PMP), as appropriate for the size and type of project. The combined document will include the agreed upon scope, schedule, budget for the work, and the review procedures to ensure a quality product. Once finalized, it becomes the “contract” between EN and the customer. In some cases due to the small size or expediency of the project a PMP may not be formally developed. When only a QCP is developed by EN it may in effect be the contract. A QCP shall be completed prior to initiating design effort on in-house projects or issuing a Commerce Business Daily (CBD) announcement on AE projects.

### 6.3 Quality Control Plan

6.3.1 QCP initiation. A criteria review conference to develop the QCP shall be convened by the Project Manager prior to the issuance of the Commerce Business Daily announcement for AE designed projects or start of design for in-house projects. The following participants or their designated representative shall be in attendance for the initiation of the QCP.

- Senior Project Manager for the project
- Project Engineer for the project
- Chief Design Branch
- Chief Cost Engineering
- Chief Geotechnical Branch
- Chief Survey Section
- Chief Project Engineering Section
- VE Officer
- Assistant Chief Engineering Division

6.3.2 Preparation for QCP Development In preparation for the criteria review conference, the following activities shall be accomplished:

**Senior Project Manager** shall provide to the PE a project description, location map, schedule of major milestones and overall project budget prior to the working session.

**Chief Design Branch** shall determine if any previous projects exist which may be usable in the exception of this design.

**Chief Survey Section** shall determine if any survey existed of the proposed project location and if any other surveys are anticipated at the project location..

**Chief Geotechnical Branch** shall determine if any subsurface data exist for the proposed project site

**Chief Cost Engineering Branch** shall determine if data exist in the parametric estimating program for this project type or he/she shall determine if existing estimating cost data for this project type exist. In addition, Chief Cost Engineer shall determine if any AE fees have been negotiated for the type and size of project being addressed in this working session.

**Value Engineering Office** shall determine if any previous VE studies are applicable to this project.

**Chief Project Engineering Section** shall designate a Project Engineer for this project and calculate the HQUSACE design target for the project.

**Project Engineer** shall develop a draft QCP and shall distribute the information provided by the Senior Project Manager.

**Assistant Chief Engineering Division** shall discuss the project with the Chief of Design Branch to determine rather the project will be designed in-house or by AE.

### 6.3.3 QCP Development Process

**Senior Project Manager** shall present the customer's view of the project from an overall quality, scope, schedule and budget stand point. Further, He/she will outline the district's commitments for the execution of the project and the submittals required. he/she shall present the proposed scope, budget and schedule for the project.

**Chief Design Branch** shall discuss any comparable designs and shall describe the degree of application to the current project. In addition he/she shall recommend the method of design execution (In-house or AE).

**Chief Geotechnical Branch** shall provide an evaluation of previous geotechnical information relative to the current project. In addition he/she shall recommend the method of execution (In-house or AE) for the geotechnical portion of the work.

**Chief Survey Section** shall provide an evaluation of previous survey information relative to the current project. In addition he/she shall recommend the method of design execution (In-house or AE) of the survey portion of the work.

**Value Engineering Officer** shall discuss the VE requirements for the project and the utilization of previous VE studies.

**Chief Project Engineering Section/Project Engineer** shall discuss/review the following topics:

- Design scope
- Design execution requirements
- Design target and percentage of design cost for each Branch/Section
- Design schedule
- Review list of deliverables to establish quality verification requirements

**Chief Cost Engineering Branch** shall moderate the preparation of a parametric estimate with the input of the attendees. In the event that the project being design is not in the parametric estimating program, the Chief EN-C shall present the data from previous cost estimates for similar structures. The cost data obtained from the parametric estimate/previous cost data shall be assembled into an estimated construction

cost per discipline. This construction cost pre discipline shall be used to establish preliminary budget for design fee, review fee and design to cost targets.

#### 6.3.4 QCP Documentation

The documentation of the criteria review conference will be the QCP, which shall contain the following information:

- Project scope
- Project overall budget
- Project schedule
- Method of design execution (In-house or AE staff)
- If AE select contract vehicle; Existing IDT, Facility contract or new solicitation
- If in-house identify individual in each organization who will be designers on the project.
- Survey to be accomplished by in-house staffs, contract AE or design AE.
- Geotechnical to be accomplished by in-house staff, contract AE or design AE
- Identify COR for project if AE
- Establish team for project; SAS, Command, and Installation/base
- Determine the number of submittal packages required for review and recipient
- Establish control number, file name for ARMS and CADD directory
- Establish VE study requirements and schedule
- Establish submittal requirements
- Preliminary manday estimate for AE fee
- Preliminary manday estimate for review
- Establish project design target
- Type of Advertisement (RFP or IFB)
- Establish reproduction process for each design phase
- AE submittals
- Advertisement (CD or Printed)
- Electronic file format required by client
- Document list of deliverables for each phase of the project and quality verification requirement

A generic QCP document is attached as Enclosure 1 and should be used as a guide for all military projects. Also attached are generic guides for the Appendix A to A-E design contracts (one for a specific project and one for an indefinite delivery/indefinite quantity (IDIQ) contract.

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<p data-bbox="228 254 850 289">6.4 <u>Project Definition/Project Engineering Phase</u></p> <p data-bbox="228 331 1382 401">Air Force requirements for Project Definition products are found in the Design Manual for Military Construction.</p> <p data-bbox="228 443 1446 512">Army requirements for Project Engineering products are found in Technical Instruction, TI 802-01, Code 3 Design with Parametric Estimating.</p> <p data-bbox="228 554 607 590">6.5 <u>Preconcept Design Phase</u></p> <p data-bbox="228 632 1256 667">Requirements for products are found in Design Manual for Military Construction.</p> <p data-bbox="228 709 570 745">6.6 <u>Concept Design Phase</u></p> <p data-bbox="228 787 1455 1268">Requirements for the products to be produced during the Concept Design Phase (35%) are found in Design Manual for Military Construction. The Project Engineer shall verify that the AE or in-house submittal complies with the Concept Design Deliverables List. The Project Engineer shall have the drawings and narrative/analysis reproduced and mailed to all external reviewers. A quality check of the design shall be performed by EN staff, and comments shall be inputted into the ARMS project file. Customer comments obtained by Project Management Division and received by EN shall be incorporated into the ARMS project file and all comments shall be placed on the Internet file server by EN-EP. The comments will be analyzed to ensure that conflicts do not exist. The Project Engineer shall refer any inconsistency in comments between reviewers to the chief of the appropriate branch. A consolidated list of comments will be provided to the AE or to the in-house design team for incorporation into the next submittal. In addition, a consolidated set of comments shall be placed on the Internet file server and shall be mailed to all parties providing comments.</p> <p data-bbox="228 1310 693 1346">6.7 <u>Preliminary / 60% Design Phase</u></p> <p data-bbox="228 1388 1455 1869">Requirements for the products to be produced during the preliminary design phase are found in Design Manual for Military Construction. The Project Engineer shall verify that the AE or in-house submittal complies with the Preliminary Design Deliverables List and that the annotated ARMS comments from the Concept Review have been provided. The Project Engineer shall have the drawings and narrative/analysis reproduced and mailed to all external reviewers. EN staff shall perform a quality check of the design and comments shall be inputted into the ARMS project file. Customer comments obtained by Project Management Division and received by EN shall be incorporated into the ARMS project file by EN-EP, and all comments shall be placed on the Internet file server. The PE will ensure that conflicts do not exist. The EM shall refer any inconsistency in comments between reviewers to the chief of the appropriate branch. A consolidated list of comments will be provided to the AE or to the in-house design team for incorporation into the next submittal. In addition, a consolidated set of comments shall be placed on the Internet file server and shall be mailed to all parties providing comments.</p>		

6.8 Final Design Phase

Requirements for the products to be produced during the final design phase are found in the Design Manual for Military Construction. The Project Engineer shall verify that the AE or in-house submittal complies with the Final Design Deliverables List and that the annotated ARMS comments from the Preliminary Review have been provided. The PE shall have the drawing and specification reproduced and mailed to all external reviewers. EN staff shall perform a quality check of the design and comments shall be inputted into the ARMS project file. Customer comments obtained by Project Management Division and received by PE shall be incorporated into the ARMS project file by EN-EP, and all comments shall be placed on the Internet file server. The PE will ensure that conflicts do not exist. The PE shall refer any inconsistency in comments between reviewer to the chief of the appropriate branch. A consolidated list of comments will be provided to the AE or to the in-house design team for incorporation into the corrected final. In addition, a consolidated set of comments shall be placed on the Internet file server and shall be mailed to all parties providing comments.

#### 6.9 Corrected Final

Requirements for the corrected final design are found in the SAS Design Manual for Military Construction. The PE shall verify that the AE or in-house corrected final complies with the Corrected Final Design Deliverables List, and that the annotated ARMS comments from the Final Review have been provided. After this initial quality verification of the submittal, the PE shall have the plans converted to CALS format and specification to PDF format. The converted files will be loaded on to the Internet file server for internal and external review. A quality back-check of all comments shall be performed by EN staff to verify comment incorporation. After completion of the back-check, the PE shall contact all external reviewers to discuss the disposition of their comments and shall document the project file with the result of that discussion as necessary. A consolidated set of comments shall be placed on the Internet file server and shall be mailed to all parties providing comments.

#### 6.10 Design/Build

Guidance and criteria for Design Build/Request for Proposal (RFP) is contained in SAS Design Manual of Military Construction and SAS SOP 5-1-1.

Special requirements and instructions apply to new Family Housing projects. This information is contained in technical instruction, TI 801-02, Family Housing.

#### 6.11 Advertise and Award

Prior to initiating this phase, the PE must be informed by the PM that both "Authority to Advertise" and "Construction Funds Certification" has been received within the District. This process is defined in SOP 5-1-1, Military Program Management.

## 7.0 RECORDS/OBJECTIVE EVIDENCE

The PE shall maintain project files for each project in accordance with XX that records all actions, processes, and products for each and all phases identified in 6.0 above. Responsibility shall commence upon attendance at the criteria review conference and continue until project construction closeout and project files are sent for permanent storage. Official A/E contract files is maintained in Contracting Division. Project files associated with administering A/E design contracts are maintained in EN-ES until sent to Central Files as part of the project files.