

8 May 1995

Construction
BIDDABILITY, CONSTRUCTIBILITY, OPERABILITY AND ENVIRONMENTAL REVIEW

1. PURPOSE.

a. To establish a uniform procedure to accomplish Biddability, Constructibility, Operability and Environmental (BCOE) reviews.

b. To define responsibilities for conducting the BCOE reviews and incorporating appropriate review comments prior to contract award.

2. APPLICABILITY. This regulation applies to all elements of the Pacific Ocean Division (POD).

3. REFERENCES.

ER 5-7-1(FR), Project Management
ER 415-1-11, Biddability, Constructibility, Operability and Environmental Review
ER 415-1-16, Fiscal Management

4. POLICY. POD's policy is to include BCOE reviews, defined by ER 415-1-11, as part of the planning and design process for all military construction, civil works and support-for-others programs administered by POD.

5. RESPONSIBILITIES.

a. District Commanders will develop a Standing Operating Procedure (SOP) for their District and attach a copy as an appendix to this regulation. A copy of the District SOP will also be furnished to Directorate of Construction-Operations, POD.

b. Directors/Chiefs of Programs and Project Management will ensure the following:

(1) That project baseline schedules include adequate time for processing BCOE reviews and resolution and incorporation of resulting comments.

(2) That adequate design funds for the accomplishment of BCOE reviews are reserved in the baseline budget, as negotiated, and included in the Project Management Plan in accordance with ER 5-7-1(FR).

c. Directors/Chiefs of Engineering will:

(1) Provide adequate funds to their respective Directorate of Construction-Operations/Construction Division to accomplish BCOE reviews in accordance with ER 415-1-16.

*This regulation supersedes PODR 415-1-16, 8 Mar 91.

(2) Provide timely design documents at the preliminary/concept and final design stages to the Directorate of Construction-Operations/Construction Division for review. Design documents will include project drawings, specifications, design analysis, annotated review comments, special contract requirements, work restrictions and phasing directives, and written assurance that all necessary easements and permits have been obtained.

(3) Solicit comments regarding operability of non-Civil Works construction from the Director of Public Works, Base Civil Engineer or User, as appropriate.

(4) Evaluate comments, incorporate appropriate review comments into the design documents at each review stage, and furnish information to the reviewers regarding action taken on each review comment.

(5) Provide a certification for the contract file prior to bid opening, signed by the Director/Chief of Engineering or his duly authorized representative that all appropriate comments have been incorporated into the design documents and feedback for all comments has been provided to reviewers.

d. Directors of Construction-Operations/Chief of Construction Division will:

(1) Appoint a coordinator to administer the BCOE review program.

(2) Provide qualified personnel to perform reviews and provide comments to Directorate of Engineering/Engineering Division for biddability, constructibility on all construction projects and operability for Civil Works construction, and ensure environmental concerns are addressed at the preliminary/concept and final design stages.

(3) Provide recommendations on the operability of non-Civil Works construction, as appropriate.

(4) Provide to its Directorate of Engineering/Engineering Division an estimate of the funds required to perform required reviews and properly account for the expenditure of those funds.

(5) Perform a backcheck review of the solicitation documents and promptly notify Directorate of Engineering/Engineering Division if BCOE review comments have not been incorporated.

(6) Provide a certification for the contract file prior to bid opening, signed by the Director of Construction-Operations/Chief of Construction Division or his duly authorized representative, that all appropriate comments made by the Directorate of Construction-Operations/Construction Division and its Area/Resident Offices have been incorporated into the solicitation documents and feedback for all comments has been provided to reviewers.

e. Area/Resident Engineers will:

(1) Provide qualified personnel to review and comment to Directorate of Construction-Operations/Construction Division for biddability, constructibility on all construction projects and operability for Civil Works construction, and ensure environmental concerns are addressed at the preliminary/concept and final design stages.

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(2) Provide recommendations on the operability for non-Civil Works construction.

(3) Provide a backcheck review of all comments made by the Area/Resident Office and promptly notify their Directorate of Construction-Operations/Construction Division coordinator if comments have not been incorporated.

FOR THE COMMANDER:



JAMES K. LIGH
Director, Information Management

3 Appendices
App A - Standing Operating
Procedures, HED
App B - Reserved for JED
App C - Reserved for FED

DISTRIBUTION (List 95-1):
B (Less 3, 11, 16, 18 & 19)
CEPOD-ED (12)
CEPOD-LO (1)
CEPOD-RM (1)
CEPOH-DR (1)
CEPOH-HA (5)

Appendix A

Standing Operating Procedures
Honolulu Engineer District
Biddability, Constructibility, Operability and Environmental

1. General

The Biddability, Constructibility, Operability and Environmental (BCOE) review process shall be a coordinated effort to assure that prior to solicitation the completed plans and specifications are free from omissions and ambiguities that would hinder efficient construction operations and project administration. The Directorate of Construction-Operations and Area/Resident Offices will conduct the BCOE reviews. The Directorate of Engineering will provide the design documents to the Directorate of Construction-Operations for our reviews and to the Director of Public Works/Base Civil Engineer/User for their operability review. A technical manager from Directorate of Engineering and a coordinator from Directorate of Construction-Operations will provide the necessary liaison between Directorates and within their own organizations.

2. Definitions

a. Plan-in-hand review: A field check to ensure accurate depiction and adaptation of design structures and features to site conditions, including surface and probable subsurface materials, appropriate as-built conditions, building, grades, site storage, site access, utility availability, site clearing, grading and drainage, physical conditions in the general area of the proposed project, and existing underground utilities. Identify possible impacts to archaeological or environmental resources, e.g., wetlands. This check should be done as soon as possible, but not later than at the final BCOE review stage. Minimum requirements are shown in Attachment 1.

b. Initial Review: A review for biddability, constructibility and addressing of environmental concerns performed on concept design documents for military construction projects (MCA, MCP, etc.) and on final design documents for O&M construction projects. Concept design documents include the drawings, outline specifications, and design analysis. Final design documents for O&M projects include the drawings, specifications, and design analysis. An on-board review may be required when the design process cannot be stopped. On Civil Works projects an on-board review will be accomplished after the design is sufficiently complete for substantive comment (e.g., at the completion of the feature-design memorandum).

c. Final Review: A review for biddability, constructibility and addressing of environmental concerns performed on final design documents at least 30 days prior to advertisement. The documents for this review will include Division 1 - General Requirements, any non-standard Special Contract requirements, the Submittal Register, ENG Form 4288, work restrictions and phasing directives, and written assurance that all necessary easements and permits have been obtained. If performance-type specifications or any special design-type requirements are included, this information must be provided at this time.

d. Backcheck: A review of all the documents that Directorate of Contracting will use for solicitation, which includes drawings and specifications with all appropriate review comments incorporated, and the final Division 1 - General Requirements and Special Contract Requirements.

e. Associate Contract Review: A review of the Scope(s) of Work or Contract(s) associated with the project under review to include archaeological monitoring, environmental compliance, water quality monitoring, etc. Documents are to be furnished not later than the final review.

3. Responsibilities

a. Directorate of Engineering

(1) The Director of Engineering or his duly authorized representative, Division Chief or higher, will certify in writing that all appropriate BCOE comments have been incorporated in the bid documents and that feedback for all comments has been provided to reviewers. This certification will be sent to Director of Contracting for inclusion in the contract file. A sample certificate is shown at attachment 3.

(2) The Engineering Technical Manager assigned to the project by the division that has oversight responsibility is responsible for:

(a) Allocating design funds for the review process in accordance with attachment 4. Specifying the ADP work code and amount in the memorandum that transmits the documents. Allocating sufficient funds to cover the total review costs which will not be withdrawn without notifying the Construction-Operations Directorate coordinator.

(b) Transmitting separate documents and annotated comments to all reviewers.

(c) Requesting and ensuring that the operability comments made by the Director of Public Works/Base Civil Engineer/User have been incorporated into the documents.

(d) Providing a "check set" to the coordinator after the final review so that a backcheck of all documents that will be issued for solicitation can be accomplished.

(e) Providing either a list of material for government salvage or a statement that no salvage is required.

(f) Providing a list of permits, easements and clearances required and their status not later than the final review for projects requiring such from public or private entities.

(g) Ensuring that plans and specifications are provided to other governmental agencies and are approved by these agencies when their review and approval is necessary.

(h) Providing documents for Associate Contract Review as applicable, e.g., Coastal Management, Civil Works, etc.

(i) Providing a submittal register.

(j) Providing schedules for Architect-Engineer planned visits during construction.

(3) Design Division will participate in the initial plan-in-hand review with Resident Office (for in-house designs) when requested by resident office personnel.

b. Directorate of Construction-Operations

(1) The Director of Construction-Operations or a duly authorized representative, Division Chief or higher will certify in writing that all appropriate BCOE comments have been incorporated in the bid documents and feedback for all comments has been provided to reviewers. A sample certificate is shown at attachment 3.

(2) The Construction Technical Division will provide a coordinator and review personnel.

(a) The coordinator will:

1. Review the initial and final documents in sufficient depth to determine the technical assistance required within the Construction Technical Division and Operations and Readiness Division to accomplish the review or backcheck.

2. Ensure that timely reviews are performed and inform Engineering Technical Manager if suspense dates cannot be met.

3. Consolidate review comments from Construction-Operations Directorate and Area/Resident Offices and forward them to the appropriate Engineering Technical Manager.

4. Manage the funds provided by Engineering Directorate for conducting reviews; allocate funds to the reviewers; review labor charges; and request additional funds when necessary.

5. Determine, after consulting with the appropriate Resident Engineer, the extent of Quality Control needed for the project, the need for a project sign, and the need for other clauses in Division 1 of the Technical Specifications or in the Special Contract Requirements.

6. Review the backcheck documents in sufficient depth to determine that all appropriate constructibility/biddability/environmental comments have been incorporated in the design package. Seek assistance from the Resident Office or the various divisions of the Directorate of Construction-Operations, when required.

(b) Review personnel will be of the various engineering disciplines involved and have sufficient construction experience to be familiar with all aspects of a construction project. They will:

1. Review the plans and specifications and provide comments by separate disciplines on POD Form 118 or the Automatic Review Management System (ARMS) for initial and final review. Participate in the backcheck review when required.

2. Participate in the plan-in-hand review when requested by the Area/Resident Offices.

3. Review submittal requirements and the ENG Form 4288 prepared for the project.

4. Review adaptation of design to site conditions, adequacy of space and access to avoid operational conflicts, availability of materials and labor skills, and incorporation of lessons learned from similar projects.

(3) The Construction Management Division will:

- (a) Review (or establish when requested) the contract performance period.
- (b) Establish the liquidated damage assessment.
- (c) Establish the necessity and format for progress reporting; e.g., Network Analysis Special Contract Requirement.
- (d) Establish the percentage of work to be performed by the contractor.
- (e) Review the bid schedule(s) to determine compatibility with Payment and Phasing/Working Directive provisions.
- (f) Include a statement whether or not Small Business Administration (SBA) contractors are qualified and competent to construct project, when required.

(4) The Operations & Readiness Division will:

- (a) Review Civil Works construction documents and provide operability comments to the coordinator for forwarding to the Engineering Technical Manager.
- (b) Review the Environmental Protection Clause on an "as requested" basis.
- (c) Review planning documents EA/EIS to ascertain compliance with environmental requirements which affect operability, constructibility, and the environment; e.g., conditions and agreements that require memorandums of agreement or monitoring requirements.
- (d) Review status of permits to determine impact on construction.
- (5) Area/Resident Office personnel, preferably the project engineer or team leader who will be responsible for construction, will:

- (a) Conduct plan-in-hand reviews in accordance with Attachment 1.
- (b) Provide review comments to the coordinator for forwarding to the Engineering Technical Manager.
- (c) Participate in backcheck reviews as requested.

c. Directorate of Contracting will ensure bid opening is not made prior to receipt of certification; unless, due to extenuating circumstances, the Contracting Officer determines that it is in the best interest of the Government to award without incorporation of all comments. A determination and findings signed by the Contracting Officer will be placed in the contract file when award is made without this certification.

4. Review Procedures

a. All designs will be reviewed. When a concept design is not required by Engineering Regulation in the design process, the initial review will be concurrent with and use the same documents furnished for the final technical and user reviews. The final and backcheck reviews will be combined. When a concept design is required by regulation, the initial review will be performed on design documents furnished for the technical and user reviews at the concept/preliminary stage of design. Separate final and backcheck reviews will be performed.

b. An additional plan-in-hand review will be performed prior to solicitation for (a) military construction and civil works projects which have been completed but held in abeyance for more than six months and (b) O&M projects which have not been site checked for six months.

c. The Engineering Technical Manager will initiate the request for each review by memorandum. The request will provide funding information and Special Contract Requirement information required. The Engineering Technical Manager will forward the memorandum along with two complete sets of the design documents to the coordinator. In addition to these, he will forward a copy of the memorandum with another complete set of design documents to the appropriate resident office. When the request for a back check is submitted, the Engineering Technical Manager will forward the annotated comments and a set of corrected specifications and drawings to the coordinator who will determine whether the field needs to do a backcheck or whether the backcheck can be accomplished by other review personnel.

d. The coordinator will distribute design documents within the Directorate of Construction-Operations for review, consolidate those review comments and forward them to the Engineering Technical Manager. The Area/Resident Office will forward review comments through the coordinator to the Engineering Technical Manager. Information provided for development of the Special Contract Requirements for the project will be forwarded in accordance with the instructions contained in the requesting memorandum.

e. Review comments will be made in writing using POD Form 118 and attached to transmitting memorandum. Marked-up drawings or specifications will be used only in rare instances and only as a supplement to the POD Form 118. Comments will be legibly handwritten or typewritten. Comments will be kept by separate discipline; i.e., Architectural, Structural, Civil, Mechanical, Electrical, etc., using separate sheets of the POD Form 118 for each discipline. This separation is necessary to facilitate dissemination, incorporation and annotation of the comments. Review comments will be transmitted through the Automated Review Management System (ARMS) for those projects initiated through ARMS.

f. Upon satisfactory completion of the backcheck review, the coordinator will prepare a "BCOE Certification" for signature by the Director of Construction-Operations and Director of Engineering or their authorized representatives (Attachment 3). The certification will be signed and dated by the Director of Construction-Operations or his authorized representative and forwarded to the Engineering Technical Manager by endorsement to the tasking memorandum. Upon completion of review by Engineering, the Director of Engineering or his authorized representative will sign and date the "BCOE Certification" and forward it to Contracting Directorate for inclusion in the contract file. Bid opening will not be made prior to receipt of the signed BCOE certificate unless a Determination and Findings is made by the Contracting Officer that it is in the best interest of the Government to award without incorporation of all comments.

g. When backcheck review results in comments which are of a minor nature and no formal resubmittal is required, an endorsement to the tasking memorandum will be prepared requiring the Engineering Technical Manager to confirm with the BCOE Coordinator that the review comments have been adequately addressed. Upon satisfactory resolution of the review comments, BCOE Certification will be signed by the Director of Construction-Operations or his authorized representative and forwarded to the Engineering Technical Manager by a separate memorandum.

h. When the backcheck review results in the necessity for a formal resubmittal, the BCOE Certification will be provided upon satisfactory completion of the backcheck review.

i. Time Allowance for Review. Reviews will receive prompt attention. For planning purposes, the following review times are required:

- (1) MILCON Concept Design - 21 calendar days
- (2) MILCON Final Design - 28 calendar days
- (3) O&M Final Design - 21 calendar days
- (4) Civil Works Initial Review - 21 calendar days
- (5) Civil Works Final Design - 21 calendar days
- (6) All Backcheck Reviews - 10 calendar days

5. Funding. Funding required for performing biddability, constructibility and environmental reviews by the Directorate of Construction-Operations and the Area/Resident Offices is shown as Attachment 4. These costs are subject to review and readjustment for unusually large or complex projects which require additional effort or when additional review effort is required due to multiple backcheck reviews.

Attachment 1

PLAN-IN-HAND REVIEW

1. Assure that health and safety requirements for site entry to make a field verification are met, e.g., personal protective equipment required/emission of radiation from electrical transmission.
2. Assure that project site conditions depicted on the drawings are reasonably accurate.
 - a. Verify location, capacity and availability of existing utilities, e.g., gas lines, water lines, sanitary sewer lines, process piping, underground communications.
 - b. Verify general topography.
 - c. Verify building siting/control points, e.g., coordinates, dimensions from reference points, bench marks, other known elevation or reference points.
 - d. Verify accuracy of existing features and check suitability of finish floor elevations on civil, architectural and structural sheets.
3. Assure that general area has been considered.
 - a. Verify if borrow/spoil areas are needed and if they are available and adequately identified.
 - b. Verify suitability of haul roads and adequacy of project limits.
 - c. Verify suitability, availability and adequacy of Contractor's storage and operation area.
 - c. Verify if special outages would be required to support construction, e.g., electrical, access.
4. Make a general comment if other existing or known future projects or special conditions such as a school or hospitals close to the proposed project could have an impact on the project being reviewed.
5. Comment on outage requirements.

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Attachment 2

CONSTRUCTIBILITY COMMENTS AND CHECKLIST

1. Constructibility Comments "Do's and Don'ts".
 - a. Be positive with statements "Provide ----." Not "Suggest that ----."
 - b. Do not use broad vague comments such as "It appears that the dimensions on the structural steel are incorrect." Give a few examples.
 - c. Avoid criteria and design comments except on constructibility of design features and details.
 - d. Comment on known site conditions such as expansive clays, water shortages, etc., where known problems exist or have happened.
 - e. Skip over minor specification and grammatical errors unless language or sentence structure is unclear--don't waste time re-editing.
 - f. Comment on constructibility of design features, details and appropriateness to local construction methods and materials.
 - g. Do not attempt to redesign the job except where an equal, but more economical method/material is available. It should then be clearly marked Value Engineering Comment. During review, looking for a more economical, cost effective solution should be made an automatic process.
2. Suggested Checklist for Constructibility Reviewers.
 - a. Examine bid and payment schedule to determine if the descriptions are clear and definable from the plans and specifications and the unit quantities are readily determinable.
 - b. Answer the following:
 - (1) Are as-built conditions shown in the design drawings accurate?
 - (2) Are any as-built conditions omitted from the design drawings?
 - (3) Do the design drawings indicate the contractor's work and storage area? Is the area large enough?
 - (4) Do the design drawings indicate a contractor's travel and haul route? If not, should there be one?
 - (5) If the specifications indicate disposal of material on-base, do the design drawings indicate a disposal area?

(6) If phasing is required, do the design drawings/specs address this? If addressed, is it clearly defined and logical?

(7) Are notes in the design drawings understandable?

(8) Do any features of work pose a problem due to limited available skills?

(9) Are "as shown" references in the specifications "shown" on the design drawings?

(10) Do horizontal/vertical survey benchmarks indicated in the drawings still exist?

(11) Can landscaping/turfing be accomplished during the estimated performance period? (Indicate NTP date assumptions, if necessary). Is adequate time provided for maintenance of restoration work?

(12) Are adequate directions given in the design drawings/specs regarding utility outages?

(13) Are any features of work shown which should be deleted or a substitute inserted due to past bad experiences?

(14) Are there any discrepancies or conflicts between drawings and specifications?

(15) Are there any discrepancies or conflicts between different plan sheets?

(16) Did the review package include those non-standard Special Contract Requirements (SCR) that are proposed for this project? Are the SCR's adequate?

(17) Do the specifications include the list of submittals as required by ER 415-1-10 and has a submittal register been provided? Does it include only those which are required to effectively administer the contract?

(18) Are permits or clearances required? Have issuing or approving jurisdictions given necessary approvals to plans and specifications?

(19) Are associate contracts required?

(20) Are provisions on how to access work areas included and coordinated with user?

(21) Do the specifications address the impact of the construction on the environment? Is the contractor required to submit an environmental plan addressing how he will mitigate water, air, soil and noise pollution?

(22) Do the drawings adequately depict the site environment? Will the project encroach upon wetlands or endangered species habitat? Is erosion control adequately addressed?

(23) Are there any items that possibly contain asbestos or lead based paint?

(24) Do drawings and specifications reflect proper disposal procedures of contaminated soil?

Attachment 3

BIDDABILITY, CONSTRUCTIBILITY, OPERABILITY, AND ENVIRONMENTAL
CERTIFICATION

PROJECT:

I certify that all appropriate biddability, constructibility, operability and environmental comments received and reviewed by this office by _____ (DATE) _____ have been incorporated into the bid package. Feedback has been provided to reviewers for all comments.

Date

Director, Engineering

Date

Director, Construction-Operations

ESTIMATED REVIEW COSTS FOR BCOEs

<u>ECC</u>	O&M PROJECTS
25,000 - 100,000	475 <x< 750
100,000 - 1,000,000	800 <x< 1,900
1,000,000 + 2,000,000	1,900 - 3,500

MILCON/CIVIL WORKS/SUPPORT FOR OTHERS PROJECTS

500,000 - 1,000,000	2,100 <x< 3,600
1,000,000 - 5,000,000	3,600 <x< 5,200
5,000,000 +	5,500