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ENGINEERING AND CONSTRUCTION BULLETIN

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SUBJECT: Advanced Modeling Requirements on USACE Projects

APPLICABILITY: Directive and Policy

1. References:

a. Engineering and Construction Bulletin (ECB) 2013-18, Building Information Modeling (BIM) Requirements on USACE Projects, Archived

b. H.R. 3080, “Water Resources Reform and Development Act of 2014,” Section 1034. Advanced Modeling Technologies, 10 June 2014

c. Engineer Regulation (ER) 1110-1-8156, Engineering and Design: Policies, Guidance, and Requirements for Geospatial Data and Systems, 1 September 2012

d. Engineer Manual (EM) 1110-1-2909, Engineering and Design: Geospatial Data and Systems, 1 September 2012

e. CAD-BIM Technology Center Website, “Advanced Modeling Requirements,” <https://cadbim.usace.army.mil/default.aspx?p=a&t=1&i=14>

f. Procurement Instruction Letter (PIL) 2013-01, “Enhanced Authority to Acquire Products and Services Produced in Iraq and Afghanistan,” 16 October 2012

2. **Definitions.** For the purposes of this criterion, “Advanced Modeling” (ref 1.b) refers to the use of Building Information Modeling (BIM) and Civil Information Modeling (CIM) with embedded information for the development of design and construction deliverables.

3. **Purpose.** This directive renews and updates the requirements set forth in ECB 2013-18, “Building Information Modeling (BIM) Requirements on USACE Projects.” The use of advanced modeling processes and related technologies for design and construction are required as described herein.

4. Background.

a. The advanced modeling process supports collaboration amongst all project delivery team (PDT) members and stakeholders. A design generated through the use of BIM and/or Civil Information Modeling (CIM) virtually represents the physical and functional features of the project, as well as embedding important life-cycle information and data specific to the design.

b. Information modeling enables the sharing of data to make more informed decisions during the complete life-cycle of a project from inception through decommissioning. Proper utilization of advanced modeling improves design and construction processes, reduces errors and

omissions, generates more complete information-loaded deliverables, and ensures higher design and construction quality.

5. Applicability.

a. The requirements set forth in this ECB are effective immediately and apply to all USACE Commands (i.e. all Districts, MSCs, and Centers) with a mission to support CONUS and OCONUS Military Programs (e.g. Military Construction (MILCON), Sustainment, Restoration, and Modernization (SRM)), and Civil Works projects.

b. Military Programs projects executed by USACE in all locations that include more than 5000 GSF of project scope and a programmed amount that exceeds \$2.5 million must adhere to this ECB.

(1) Military Programs projects that do not exceed these thresholds are not precluded from using advanced modeling.

(2) Projects in Iraq or Afghanistan that utilize simplified acquisition strategy (ref 1.f) are exempt from this policy.

c. Civil Works projects executed by USACE in all locations with a programmed amount that exceeds \$2.5 million must adhere to this ECB.

6. Policy and Implementation.

a. All Army design and/or construction projects, regardless of funding source or acquisition method, must utilize advanced modeling to generate design and construction deliverables.

(1) The design and construction deliverables produced include, but are not limited to: Advanced Modeling Project Execution Plan (PxP) and Minimum Modeling Matrix (M3) documents; BIM and/or CIM files and construction drawings those files; as-built drawings, and; record drawings and BIM and/or CIM files through construction completion.

(2) For in-house designed projects, Project Delivery Teams (PDT) must adhere to the same guidance as contracted designs. This includes the generation of design deliverables indicated above.

(3) Projects must be designed and constructed utilizing BIM tools (e.g. Autodesk Revit, Bentley Systems AECOsims) and CIM tools (e.g. Autodesk Civil 3D, Bentley Systems InRoads) in coordination with each other as required.

b. All other construction projects completed on behalf of other stakeholders (i.e. non-DoD) will include the use of advanced modeling to generate, at a minimum, design and solicitation documents (as applicable). The final deliverable of record drawings and BIM and/or CIM files will be coordinated with the stakeholder and include their end-use requirements.

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c. The USACE CAD-BIM Technology Center website hosts the USACE contract language, USACE Advanced Modeling PxP template, and USACE M3 requirements (ref 1.e) that must be incorporated into all projects that meet the minimum thresholds for the use of advanced modeling described above.

(1) For in-house design projects, the Advanced Modeling PxP must be included in the Design Analysis (DA).

(2) For projects designed by AEs (e.g. D-B, contracted D-B-B), the Advanced Modeling PxP is a required submittal.

d. Projects utilizing advanced modeling must also conform to BIM and/or CIM deliverable requirements described in ER 1110-1-8156 and EM 1110-1-2909 as applicable.

7. **Update.** All new requirements will be included in the next appropriate policy document update prior the expiration of this ECB.

8. **Point of Contact.** HQUSACE point of contact for this ECB is Jason Fairchild, CECW-CE, (202) 761-1898.

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