

**Design Phase Review Plan
U.S. Army Corps of Engineers
Baltimore District**

**MOSCOW SEWER AUTHORITY
CHURCH STREET SANITARY
SEWER EXTENSION
SECTION 219 ENVIRONMENTAL
INFRASTRUCTURE PROJECT
Design Phase Review Plan**

Submission Date: 21 September 2020

MSC Approval Date: 05 November 2020



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1. PURPOSE AND REQUIREMENTS

a. Purpose. This review plan defines the scope and level of review for implementation documents. Implementation documents include design documentation reports (DDRs) and Construction Plans & Specifications. This review plan defines the scope and level of review for the DDR and Plans and Specifications associated with the design phase of the Moscow Sewer Authority Project.

b. References.

- (1) EC 1165-2-217 Civil Works Review, February 2018.
- (2) ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999.
- (3) ER 1110-1-12, Engineering and Design Quality Management, 31 July 2006, as revised through 31 March 2011.
- (4) ER 415-1-11 – Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January 2013.
- (5) Resolution by the Senate Committee on Environment and Public Works, 5 June 1997.
- (6) Water Resources Reform and Development Act of 2014 (WRRDA 2014), Public Law 113-121, 10 June 2014.
- (7) ECB 2018-14, Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects.

c. Requirements. This review plan was developed in accordance with EC 1165-2-217 which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC) and BCOES (Biddability, Constructability, Operability, Environmental and Sustainability) review, Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, the cost estimate may be subject to cost engineering review and certification (per EC 1165-2-217).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall review effort described in this Review Plan. The RMO for implementation documents is the Major Subordinate Command (MSC), (per EC 1165-2-217). Therefore, the RMO for the review effort described in this review plan is the North Atlantic Division (NAD) Engineering & Construction (E&C).

3. PROJECT INFORMATION

a. Implementation Documents

This review plan has been prepared for the Design Document Reports and the Construction Documents (Plans and Specifications) for the Moscow Sewer Authority Project. The DDR will serve as the record of the design of the project. The Plans and Specifications will serve as the bid documents for the construction of the Moscow Sewer Authority Project. The proposed project will extend the existing Moscow Borough Central Sanitary Sewer System westward from the termination manhole in Church Street near the Moscow Elementary School to the Moscow Borough line, for a distance of approximately 6000-feet. The project will also extend northward along Gardner Road for approximately 2300-feet.

b. Background

Section 219 of the Water Resources Development Act (WRDA) of 1992 (Public Law 102-580), as amended, authorizes USACE to provide assistance to non-federal interests for carrying out water-related environmental infrastructure and resource protection projects. Section 219 projects in Lackawanna County, PA were specifically authorized in Section 502(f)(11) of WRDA 1999 (Public Law 106-53).

The Moscow Sewer Authority requested design and construction assistance from USACE under the Section 219 program for the Church Street Sanitary Sewer Extension Project by letter in May 2019. The Baltimore District completed a letter report detailing the proposed project, which was submitted to North Atlantic Division (NAD) for approval in October 2019. The district received approval from NAD to proceed with this project in June 2020.

The overall objective of this project is the design and construction of an operational extension of the existing Moscow Borough Central Sanitary Sewer System to service residents and commercial properties of the borough. Specific objectives include designing a system that meets all customer requirements and is compliant with all applicable local, state, and federal guidelines. The construction of the sewer extension shall limit impacts to residents and business owners who are currently connected to the borough's system, as well as impacts to those who are being connected to the system. Additionally, it is the goal to have the project constructed in a timely manner so that the borough can utilize the grant funding that has been provided for construction.

c. Project Description

The proposed Moscow Sewer Authority Church Street Sanitary Sewer would connect to the existing Moscow Borough Central Sanitary Sewer System at its current terminus, which is a sanitary sewer manhole near the Moscow Elementary School on Church Street (S.R. 690). The proposed sanitary sewer would be approximately 6,000 feet from the manhole connection west to the Moscow Borough line. The service area would include Church Street and Gardner Road where the sanitary sewer would also be extended. There are no proposed developments in the project area. The project is being constructed to supplant existing, malfunctioning on-lot sewage

disposal systems (See Plot Plan in Section Q). The conceptual design submitted by MSA consists of 1-1/2" to 4" diameter low pressure mains located along existing State and Borough Road right-of-ways. Low pressure sanitary sewer laterals would be constructed and a grinder pump installed at each residential or commercial structure. The proposed extension would service existing residents and commercial properties of Moscow Borough, totaling approximately 46.5 Equivalent Dwelling Units.

4. DISTRICT QUALITY CONTROL (DQC) AND BCOES REVIEW

All implementation documents will undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project requirements defined in the design phase project management plan (PMP). The Baltimore District will manage the DQC. The DQC process will be performed in two phases. The initial phase will be the day-to-day production reviews performed by the designers' supervisor, team leader, or senior engineer as the product is being developed. For the second phase, qualified engineers/scientists not affiliated with the development of the product will be selected commensurate with the complexity of the product to be reviewed. Branch and Section Chiefs will sign-off to complete the review for the plans and specifications. The Engineering Chief will sign-off when the plans and specifications are ready to advertise thus completing the DQC review process. These reviews will be documented in Dr. Checks (PROJNET).

For Civil Works projects, the BCOES review will include evaluation of Plans and Specifications, Engineering Considerations and Instruction for Field Personnel (ECIFP) reports, the operations, maintenance, repair, replacement, and rehabilitation (OMRR&R) plan for the project and other required documents as mentioned in ER 415-1-11. The Baltimore District will manage the BCOES review.

a. Documentation of DQC and BCOES. DQC and BCOES will be documented through the use of DrChecks and DQC/BCOES certifications.

b. Products to Undergo DQC and BCOES. The P&S packages will undergo DQC and BCOES reviews.

c. Required DQC and BCOES Expertise. DQC and BCOES will be performed by staff in the home district that are not involved in preparing the implementation documents. The required disciplines for review are similar to the PDT disciplines listed in Attachment 1. The DQC supplements the reviews provided by the Project Delivery Team during the course of completing the design.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all implementation documents. The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess

whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. Products to Undergo ATR. The Design Documentation Report and Plans & Specifications will undergo ATR.
- b. Required ATR Team Expertise.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works implementation documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as civil engineering).
Environmental Resources	Team member will have independently completed EA/EIS's and be well versed in the NEPA process, completed all environmental compliance and permits, will have participated in partnerships with other environmental resource agencies, will have experience with identifying and resolving environmental issues in horizontal infrastructure projects.
Civil Engineering	Team member shall have expertise in civil engineering design and review of site/civil layout, grading, utilities and shall be a registered professional engineer.
Geotechnical Engineer	Team member shall have expertise in geotechnical engineering design and review of utilities and shall be a registered professional engineer.
Construction Manager	Team member shall have experience in the management of stream restoration construction projects. Team member shall have experience as an Administrative Contracting Officer of projects involving construction of public utilities. Team member shall be a registered professional engineer.

Electrical Engineer	Team member shall have expertise in electrical engineering design and review of electrical components of grinder pumps, and shall be a registered professional engineer.
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c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO/ MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in ER 1110-1-12. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

d. Review Report. At the conclusion of the ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- (1) Identify the document(s) reviewed and the purpose of the review;
- (2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- (3) Include the charge to the reviewers;

- (4) Describe the nature of their review and their findings and conclusions;
- (5) Identify and summarize each unresolved issue (if any); and
- (6) Include a copy of each ATR comment, the PDT response, a brief summary of the pertinent points in the follow on discussion, including any vertical coordination, and the agreed upon resolution.

6. ATR Certification. ATR will be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed for all the implementation document

7. **INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**: An IEPR may be required for implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-217, is made as to whether an IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

a. Type I IEPR. Type I IEPRs are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-217.

b. Type II IEPR. Type II IEPRs, or Safety Assurance Reviews (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

c. Decision on IEPR.

- (1) Type I IEPR's are conducted on project studies and reports. Since this review plan deals with implementation documents, a Type I IEPR is not applicable.
- (2) Type II Independent External Peer Review, Safety Assurance Review, is required by EC 1165-2-217 for hurricane and storm risk management and flood risk management projects, as well as other projects where potential hazards pose a significant threat to human life.
- (3) Based on the risk informed assessment there has been a determination that the Type II IEPR is not required for this project. The Baltimore District Chief, Engineering Division has determined that the Moscow Sewer Extension (Section 219) is not a threat to human life. All conclusions and decisions have been updated and provided as Attachment 5 – Risk Informed Assessment.

d. Products to Undergo IEPR. Not applicable at this time.

e. Required IEPR Panel Expertise. Not applicable at this time.

f. Documentation of IEPR. Not applicable at this time.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All implementation documents will be reviewed for their compliance with law and policy. The DQC will facilitate the policy and legal compliance review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of results in implementation documents.

8. COST ENGINEERING DIRECTORATE OF EXPERTISE (DX) REVIEW AND CERTIFICATION

This is not applicable since this review plan is for implementation documents associated with the design phase of the Moscow Sewer Authority Project.

9. MODEL CERTIFICATION AND APPROVAL

This is not applicable since this project is in the Preconstruction Engineering and Design (PED) phase and this relates to the use of certified or approved models for planning activities.

10. REVIEW SCHEDULES AND COSTS

ATR Schedule and Cost. The schedule and cost budgeted for ATR is \$10,000 and is scheduled for [September 2021] for the Moscow Sewer Authority Church Street Sanitary Sewer Extension Section 219 Environmental Infrastructure Project. The District will advise E&C of any changes to the ATR schedule and advise E&C when an ATR team should be assembled.

11. PUBLIC PARTICIPATION

Public participation is not required for this review plan.

12. REVIEW PLAN APPROVAL AND UPDATES

The North Atlantic Division Commander is responsible for approving this review plan. The Commander's approval reflects vertical team input (involving district, MSC (RMO), and HQUSACE members) as to the appropriate scope and level of review for the implementation documents. Like the PMP, the review plan is a living document and may change as the engineering and design progresses. The home district is responsible for keeping the review plan up to date. Significant changes to the review plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the review plan, along with the Commander's approval memorandum, will be posted on the District and MSC's webpage.

13. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact:

Kameel Hall, CENAB, EN Design Manager, 410-962-5667

Justin Callahan, PMP, Project Manager, 410-962-6693

ATTACHMENT 1 - TEAM ROSTER

Project Delivery Team

NAME	ORGANIZATION	EMAIL PHONE
James Kanavy	Moscow Sewer Authority	
Justin Callahan	CENAB-PPC	
Vanessa Campbell	CENAB-PLP	
La-Wanda Carter	CENAB-REC	
Brittany Crissman	CENAB-CC	
Sean Dawson	CENAB-EN	
Kameel Hall	CENAB-ENC-M	
Ronnie Harris	CENAB-END-T	
Michael Martyn	CENAB-ENC-E	
Ben Wible	CENAB-END-D	
Mugurel Giurgiu	CENAB-END-E	
Marybeth Ulsaker	CENAB-END-T	
TBD	CENAB-ENG-F	
Brian Walton	CENAB-CDV-NA	

DISTRICT QUALITY CONTROL (DQC) TEAM

NAME	ROLE	PHONE	EMAIL
Andy Orlovsky, PE	Civil Engineering		Andrew.J.Orlovsky@usace.army.mil
TBD	Electrical Engineering		
Parris McGhee-Bey	Cost Engineering		Parris.J.McGhee-Bey@usace.army.mil
TBD	Site Development		
TBD	Geotechnical Engineering		
	Office of Counsel		

BCOES Team

NAME	ROLE	PHONE	EMAIL

Agency Technical Review (ATR) Team

NAME	ROLE	REVIEW DISTRICT
TBD	ATR Lead	
TBD	Civil Engineer	
TBD	Electrical Engineer	
TBD		

Vertical Team

NAME	ROLE	PHONE	EMAIL
Ben Fedor, PE	Chief, Civil Works Branch	410-962-4280	Benjamin.A.Fedor@usace.army.mil
Charles Frey, PE	Chief Geotechnical Branch	410-962-5663	Charles.E.Frey@usace.army.mil
Gerald Placek, PE	Chief, Military Design Branch		

ATTACHMENT 3: COMPLETION OF AGENCY TECHNICAL REVIEW [SAMPLE]

COMPLETION OF AGENCY TECHNICAL REVIEW

This Statement of Technical Review has been completed by the ATR Team for the Moscow Sewer Authority Section 219 Environmental Infrastructure Project located in Borough of Moscow, Lackawanna County, PA, see attached summary of unresolved issues and future commitments, the Charge questions, a brief resume of ATR reviewers, and a printout of all DrCheckssm comments with resolution. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing USACE policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have either been resolved or have been elevated and are attached. All comments in DrCheckssm are closed.

Alan Huntley
Chief, Engineering & Construction Division
CENAD-RB-T

Date

Kameel Hall
Design Manager
CENAB-EN-WC

Date

Justin Callahan
Project Manager
CENAB-PP-C

Date

ATTACHMENT 4: CERTIFICATION OF AGENCY TECHNICAL REVIEW [SAMPLE]

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

[Describe the major technical concerns and their resolution and specifically list any agreed-upon deferrals to be completed in the next phase of work or state "There are no significant concerns or any unresolved comments".]

As noted above, all concerns resulting from the ATR of the project have been fully resolved or have been elevated and documented with this certification.

Mary P. Foutz, PE
Chief, Engineering Division
CENAB-EN

Date