



US Army Corps
of Engineers®

Prepared by:
MVK District
MVD Division

Review Plan: Río Nigua at Salinas Supplemental Project

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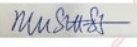
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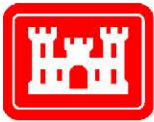
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Section 1

Introduction

1.1 Purpose

This Review Plan (RP) for Río Nigua Salinas Supplemental Project (P2# 477679) will help ensure a quality engineering project is developed by the Corps of Engineers in accordance with EC 1165-2-217, "Review Policy for Civil Works" and ER 1110-1-12 "Quality Management". As part of the Project Management Plan this RP establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products and lays out a value-added process and describes the scope of review for the current phase of work. The EC outlines five general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Biddability, Constructability, Operability, and Sustainability (BCOES) Review, Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. Additionally, the ER outlines procedures for quality checks and reviews, Project Delivery Team (PDT) reviews; Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) review; and quality control certification. Further, additional requirement of the BCOES review will be per ER 415-1-11 This RP will be provided to the PDT, DQC, ATR, BCOES, and IEPR Teams. The technical review efforts addressed in this RP, DQC and ATR, are to augment and complement the policy review processes. The Jacksonville District Levee Safety Officer (LSO) will be part of the district Quality Control team as this levee will be part of the SAJ levee safety program portfolio. The Vicksburg District Chief of Engineering and Construction has responsibility for the quality of design products as the majority of the design is being developed out of this district. The Jacksonville District LSO and Vicksburg District Chief of Engineering and Construction have collaborated and assessed that the life safety risk of this project is significant; therefore, a Type II IEPR/Safety Assurance Review (SAR) will be required, see Paragraph 7.1. This project is also being coordinated to be consistent in application of design processes and features with the MVS and MVM design teams with the Guanajibo and Arecibo projects.

1.2 References

- EC 1165-2-217, Review Policy for Civil Works, 20 February 2018
- ER 1110-1-12, Quality Management, 31 Mar 2011
- ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January 2013
- Project Management Plan (PMP) for study
- MVD Quality Management Plan (QMS100.1-MVD)
- ECB 2019-15: Interim Approach for Risk-Informed Designs for Dam and Levee Projects
- ER 1110-1-8159, Dr. Checks
- ER 11-1-321, Army Programs - Value Engineering
- Interim Guidance on Streamlining Independent External Review (IEPR) for Improved Civil Works Product Delivery; 05 April 2019

1.3 Review Management Organization

The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for this project. This RP will be updated for additional project phases and for the construction phase.

Section 2

Project Description

2.1 Project Description

The Río Nigua basin is located on the southern coast of Puerto Rico approximately 25 miles east of Ponce. Floods from this river affect a significant portion of the town of Salinas and the communities of El Coco, and Playa de Salinas. Portions of Camp Santiago, a military installation used for PR National Guard training and U.S. Navy communications facilities, are also located within this floodplain. Over 3,000 families and numerous public buildings and facilities are subject to flooding by the 100-year event. The current estimate of the population at risk estimate during the 1/100 ACE event is 25,679. The recommended plan from feasibility includes a new 5.0-kilometer levee to protect El Coco community and a new 3.1-kilometer levee/floodwall system to protect the town of Salinas and Playa de Salinas area. Culverts and other drainage features would be incorporated as needed. Demolition of the old PR 1 Bridge is also included in order to increase conveyance. The Design Documentation Report (DDR) for Río Nigua at Salinas Flood Control Project was completed in 2001. The DDR includes plates, Geotechnical Analysis, bridge data, and floodwall data.



Figure 1- Río Nigua Salinas Levee Project Area

El Coco Levee (considered a separable element of the project) begins just north of the highway interchange of PR-1 and PR-52, and continues in a northeast direction along the north side of Highway 1 (Río Nigua left bank is farther to the north) to an eastern project terminus (tie-in to high ground) near a propane tank farm area on opposite side of the road. The El Coco Levee is located entirely on PR National Guard lands; a communication/power relay center is sited on elevated ground (height estimated at 6 feet). The power lines within the reach should be easily avoidable with no required relocations. The reach's high ground western tie-in will likely be a ramp for the interchange. This reach of the levee serves as flood protection for the community of El Coco located between PR-1 and PR-52. On the south side of the PR-1 and PR-52 interchange, the Salinas Levee is located closely between the river and the Town of Salinas, running along the edge of development to the west. The eastern portion of this levee is more forested and undeveloped and will tie-in to a ramp of the PR-52 interchange. At the center portion of the Salinas Levee reach, a small concrete paved, sandy soil core levee was constructed by PRDPW (USACE survey marker on levee from feasibility study); that according to residents was just overtopped during Hurricane Maria. The concrete levee appears to be in fair condition with residents having patched a few holes to keep iguanas from burrowing into it. This part of the Salinas Levee reach serves as the only access to three houses. The western portion is on higher ground along the left bank of the river (likely artificially raised ground). The existing concrete paved levee would be replaced with a concrete floodwall. This reach includes the "Old PR-1 Bridge" that is no longer in use and is to be demolished. Infrastructure on the bridge such as pipelines and electrical lines need to be verified to have been relocated or will need to be. This portion of the reach also includes radio towers (anchor cables) and assorted power lines/poles that will need to be considered in efficient alignment of the levee. The "New PR1 Bridge" has a high abutment providing a western terminus tie-in for this reach. On the south side of PR-1 Bridge the remainder of the Salinas Levee runs southward with a bridge abutment tie-in at the northern point and a project terminus tie-in at the coastline (Playa de Salinas). This reach of the levee was to serve as flood protection for the community of Hacienda Margarita (Maria caused a flood depth of 4 feet in the community). However, since the original plan was approved, a significantly sized "squatter" based community has developed (no permits, over a 100 structures, municipality reps informed the investigation team that many are "second" homes). A few houses were constructed on piles or stilts. The only vehicle access to the community is from the south, by the beach, to separate the community from the neighborhoods to the east. The community has operating infrastructure including electrical poles and water supply (provided via wells).

A PL 115-123 Supplemental Program was developed in April 2018 for three SAJ levee projects (Arecibo, Guanajibo, and Nigua Salinas) in Puerto Rico. An MOA between SAD and MVD was signed on 24 January 2019 for MVS to perform the Engineering Design (Attachment 5). A Brokering agreement between MVS and MVK was signed on 20 September 2019 for MVK to perform the Engineering Design on the Nigua Salinas Levee Project. Since SAJ developed the original Feasibility Report in Sept. 1996, a subsequent DDR was performed on 05 November 2001 by SAJ. The Project Costs were updated by SAJ on 08May19 to determine the Current Working Estimate. A Validation Report was initiated by SAJ in December 2019 to further update the costs and BCR.

A Semi Quantitative Risk Assessment (SQRA) will be performed as part the review effort on the design as required by ECB 2019-15 on Risk Informed Design.

2.2 Project Sponsor

Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, policy and legal compliance, BCOES, and SAR reviews. However, there will not be in-kind contributions for this effort. The non-Federal sponsor for this project is the Puerto Rico Department of Natural and Environmental Resources (DNER).

Section 3

Project Delivery Team

3.1 Requirements

The PDT will be led by an experienced Project Manager (PM) who has led PDTs in successful completion of similar work. Other PDT members assigned will have extensive professional and technical experience in their assigned areas of responsibility. PDTs will include the use of Regional Technical Specialists (RTSs) when appropriate based on the visibility and/or complexity of the design products. Should future requirements require the application of different skills or experience than initially planned, appropriate additional personnel will be added to the PDT. Individual PDT members will be listed in the PMP for the project as it is developed and will be restated in this plan via the individual project PDT table to enhance execution of project planning.

See Attachment 1, Table 6 for the PDT member list.

Section 4

Customer Involvement

4.1 Requirements

The Program Team and the PDTs will engage and involve other appropriate USACE organizations, Federal agencies, state and local governments, local utility and infrastructure agencies, and local citizens groups and associations, to keep them informed and to solicit their feedback and assistance. This involvement includes formal meetings and presentations, formal reviews, informal meetings and discussions, teleconferences, emails and telephone conversations. Customer involvement at all levels is vital to instill confidence that the customers' needs are being addressed and the flood risk reduction design efforts are of high quality. The PDT is strongly encouraged to include personnel from the local sponsor's staff and from other Federal agencies. Partnering with the local sponsor is a key element during the design of a project. Our customers are key members of the PDT. Partnering shall occur during all phases of project development. At minimum, discussions will be held with the customers during the onsite PDT meetings and at the reviews. Other meetings with the customers will be held as necessary, to ensure complete engagement and resolution of issues or concerns.

See Attachment 1, Table 7 for the list of project customers.

Section 5

District Quality Control

5.1 Requirements

All project documents including the Plans, Specifications, DDR, Hydraulics Report, Geotechnical Report, and risk assessment reports shall undergo DQC in accordance with EC 1165-2-217 and ER 1110-1-12. The District

shall perform these minimum required reviews in accordance with the MVD Quality Management Plan (QMS100.1-MVD). These documents are stored on the USACE Quality Management System (QMS) Portal. In addition to this, red dot checking or equivalent method will be used to check all documents per guidance EC 1165-2-217. DQC will be performed on all early release decision information (i.e., loading conditions, geotechnical parameters, hydraulic conditions, etc.) and certified complete prior to incorporation into the design.

See Attachment 1, Table 8 for the DQC Lead, reviewers, and reviewer's disciplines. The review plan will be revisited by the district, MSC and RMC after the design risk assessment is completed to assess if the reviewers are appropriate.

5.2 Documentation

Documentation of DQC activities is required and will be implemented by utilizing Dr. Checks in addition to the processes referenced in paragraph 5.1. At the conclusion of the DQC effort, Technical Lead will prepare a certification memo. In addition, a separate Quality Certification document will be developed for early release decision information. The final quality report will be prepared in accordance with EC 1165-2-217 and included in the DDR. The certificate templates for project DQC and early release certificates are located in Attachment 3.

5.3 DQC Schedule and Estimated Cost

Although DQC is always seamless, the following milestone reviews are scheduled in Table 1. The cost for the DQC is approximately \$70,000.

Project Phase/Submittal	Review Start Date	Review End Date
Hydrology & Hydraulics 50% DQC Review	9/22/20	10/05/20
H&H 95% DQC Review	2/02/21	2/16/21
DQC 35% Geotech Report/P&S/DDR Review	8/09/21	8/24/21
DQC 65% Geotech Report/P&S/DDR/SQRA Review	12/30/21	2/14/21
DQC Final Geotech Report/P&S/DDR/SQRA Review	8/05/22	9/26/22

Table 1 DQC Schedule

Section 6

Agency Technical Review

6.1 Requirements

All project documents including the Plans, Specifications, DDR, Hydraulics Report, Geotechnical Report, and risk assessment reports shall undergo ATR in accordance EC 1165-2-217. ATR reviews will occur seamlessly, including early involvement of the ATR team for validation of key design decisions, and at the scheduled milestones as shown in Section 6.6. An ATR team site visit will only be scheduled as deemed necessary and be evaluated for each discipline to determine if an in-person review of current site conditions, features, and assessment of life safety is required to ensure the quality and credibility of the government's scientific

information. Additional data required by the ATR team will be gathered by PDT members during plan in hand visits, by USACE personnel stationed in Puerto Rico, or by non-federal team members. The information will be reviewed and disseminated to the ATR team by the PDT. If a reviewer requires a site visit for their review, one may be allowed upon coordination and approval by the PM.

See Attachment 1, Table 9 for the list of ATR reviewers. The review plan will be revisited by the district, MSC and RMC after the design risk assessment is completed to assess if the reviewers are appropriate.

6.2 Documentation of ATR

Documentation of ATR will occur using the requirements of EC 1165-2-217. This includes the four part comment structure and the use of DrChecksSM.

6.3 Products to Undergo ATR

Products that will undergo ATR include the Plans, Specifications, DDR, Hydraulics Report, Geotechnical Report, and risk assessment reports. The ATR for the cost was completed during cost certification. The certified project cost will not need further update or review unless significant scope changes occur. Additional cost estimate DQC reviews will be performed during product reviews as it is refined during each design phase.

6.4 Required Team Expertise and Requirements

ATR teams will be established utilizing senior highly experienced experts in accordance with EC 1165-2-217. All ATR members shall be registered with CERCAP as a reviewer, unless approved separately, with qualifications matching the project requirements and their perspective roles. Risk experience is needed with at least one of the review team members. The following disciplines will be required for ATR of this project:

ATR Lead: The ATR team lead shall be a senior professional outside both responsible MSCs (SAD and MVD) with extensive experience in preparing Civil Works documents and conducting ATRs. The lead shall 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. This individual shall have a strong levee safety background, as the project involves life safety and requires a SAR.

Geotechnical Engineer – The Geotechnical Engineer shall be a senior level, professionally registered engineer with experience with design of levees and floodwalls within populated areas. The team member shall be familiar with dealing with poor soil conditions in both riverine and coastal environments and the development of pile capacities. The team member shall have an understanding of graduate level soil mechanics, to include: soil shear strength, soil-structure interaction, deep foundations, slope stability, in addition to other methodologies required by the project.

Civil Engineer – The Civil Engineer shall be a senior level, professionally registered engineer with experience designing levees, floodwalls, channels, drainage structures, and closure structures within populated areas. Additionally, the team member shall have experience with utility relocations and real estate drawings.

Structural Engineer – The Structural Engineer shall be a senior level, professionally registered engineer with experience in pile-founded floodwall design, with poor soil conditions in both riverine and coastal environments and in seismic zones. The team member shall also have experience with design of culverts.

Geologist – The Geologist shall be a senior level, and professionally registered with extensive experience in developing sampling procedures for efforts pertaining to levee safety projects, specifically with the construction of levees and pile founded floodwalls.

Hydraulic Engineer – The Hydraulic Engineer shall be a senior level, and professionally registered with experience with engineering analysis related to flood risk management and levee safety projects. The team member shall demonstrate knowledge and experience with the routing of inflow hydrographs.

Hydrologic Engineer – The Hydrologic Engineer shall have experience in in RMC-RFA, HEC-SSP, HEC-HMS, and HEC-RAS successfully using those methods and tools in Flood Risk Management Studies and Semi-Qualitative Risk Assessments. The hydrologic engineer shall also have experience in hydrologic design considerations for tropical environments and small basin design storms.

Risk Reviewer – The team member shall have experience performing consistency reviews of SQRA's on levee safety projects.

Consequence Reviewer – The team member shall have experience performing consistency reviews of consequence modeling that support SQRA's on levee safety projects.

6.5 Statement of Technical Review Report

At the conclusion of the ATR effort, the ATR team will prepare a review report with a completion and certification memo. The report will be prepared in accordance with EC 1165-2-217. The RMC's Statement of Technical Review Report template shall be used with the ATR Completion of Agency Technical Review showing the Chief of Eastern Division and CEIWR-RMC-E signing for the RMO. See latest template here: [Pre-Construction Engineering and Design](#)

6.6 ATR Schedule and Estimated Cost

Although ATR is always seamless, the preliminary ATR milestone schedule is listed in Table 2. The cost for the ATR is approximately \$100,000.

Project Phase/Submittal	Review Start Date	Review End Date	Site Visit
H&H 50% ATR	TBD	TBD	NA
H&H 95% ATR Review	3/3/21	4/13/21	NA
ATR 35% Geotech Report/P&S/DDR Review	8/31/21	9/24/21	NA
ATR 65% Geotech Report/P&S/DDR/SQRA Review	2/14/22	3/22/22	NA
ATR Final Geotech Report/P&S/DDR/SQRA Review	9/26/22	11/08/22	NA

Table 2 ATR Schedule

Section 7

Safety Assurance Review

7.1 Decision on SAR

The following evaluations indicate whether or not a Type II IEPR (SAR) is recommended for the features within this project currently entering the PED Phase. The SAJ Levee Safety Officer and MVK Chief of Engineering and Construction have made a risk-informed-decision that certain features associated with this work pose a significant threat to human life (public safety). Therefore, a SAR will be performed for the work included in this effort.

Project features include:

The scope for this phase of the project includes the construction of levees and floodwalls for the Salinas and Coco communities.

Decision on Type II IEPR: In consideration of the factors described in Paragraph 15 of EC 1165-2-217, Risk Informed Decisions, as they relate to Type II IEPR, it is the determination of the SAJ Levee Safety Officer and MVK Chief of Engineering and Construction that a Type II IEPR for this work is required based on the following information:

(1) Does failure of the project pose a significant threat to human life?

This work involves the design and construction of a system of floodwalls and levees. Flood risk reduction will be provided to an estimated population at risk of 25,679. Sudden failure of the risk reduction features would endanger the lives and property of those in the path of the resulting inundation.

(2) Does the project involve the use of innovative materials or techniques?

Construction of this contract will utilize standard methods and procedures used by the Corps of Engineers on other similar work.

(3) Does the project design require redundancy, resiliency, or robustness?

The project design does not require the addition of redundant project features, however, specific features along the project may need further consideration. Resiliency or robustness incorporated into design features are a function of normal civil works design criteria and are not in excess of customary practice.

(4) Does the project have a unique construction sequencing or a reduced or overlapping design construction schedule?

The design is not innovative and is not using design or construction techniques that are precedent setting; nor is the project using unique construction scheduling or ECI delivery systems.

7.2 Products to Undergo SAR

Products that will undergo SAR include the Plans, Specifications, DDR, Hydraulics Report, Geotechnical Report and construction documents during the construction phase of the SAR.

7.3 Required SAR Panel Expertise

SAR panels will be established utilizing senior highly experienced experts in accordance with EC 1165-2-217. The following disciplines will be required for SAR of this project:

Geotechnical Engineer – The Panel Member shall be a senior level, professionally registered engineer with experience with design of levees and floodwalls within populated areas. The team member shall be familiar with dealing with poor soil conditions in both riverine and coastal environments and the development of pile capacities. An understanding of graduate level soil mechanics, to include: soil shear strength, soil-structure interaction, deep foundations, slope stability, in addition to other methodologies, is required. The Panel Member shall have experience in failure mode analysis, risk assessment of embankment dams, and evaluating risk reduction measures for dam safety assurance projects.

Structural Engineer – The Panel Member shall be a senior level, professionally registered engineer with experience in pile founded floodwall design, with poor soil conditions in both riverine and coastal environments and in seismic zones. The team member shall also have experience with design of culverts.

Hydraulic Engineer – The Panel Member shall be a senior level, professionally registered engineer with experience with engineering analysis related to flood risk management and levee safety projects. The Panel Member shall demonstrate knowledge and experience with the routing of inflow hydrographs.

See Attachment 1, Table 10 for the list of SAR reviewers.

7.4 Documentation of SAR

Documentation of SAR will be prepared in accordance with EC 1165-2-217. See RMC SAR Report template.

7.5 Scope, Schedule, and Estimated Cost of SAR's

The SAR's will be performed in accordance with EC 1165-2-217. SAR reviews will occur at the milestones shown in Table 3. The estimated cost for the SAR's of this project are in the range of \$75,000 to \$200,000. This estimate will be refined when the Scope of Work for the SAR task order is completed. Milestones to consider for a SAR are at the midpoint and final design in the Design Documentation Report; at the completion of the plans, specifications, and cost estimate; at the midpoint of construction for a particular contract, prior to final inspection, or at any critical design or construction decision milestones.

Based on project need, selected review periods are as shown in the schedule below. One review during design was determined to be sufficient based on a combination of factors. It is noted that the project has a high Population at Risk and, as a result, likely at least a moderate consequence potential. However, those risks are anticipated to mostly be due to the overtopping failure mode. This project is limited in authorization to a 1/100 ACE, therefore overtopping risk will not change through design. As stated in Section 7.1, it is anticipated that there are no complex or innovative features needed to be implemented for the flood protection system. All flood protection features, utilities crossings, and transitions can be accommodated by applying by established USACE criteria.

As discussed in Section 8 and Attachment 2, the design SQRA review to be performed after the 35% product submittal will identify features contributing to project risk. Details on mitigating these identified risks will be incorporated into the project by the design team and will generally be presented with the 65% submission. A review of the 65% product submittal will allow SAR reviewers to evaluate a fully developed picture of the project and better identify items not addressed through the design and SQRA process.

If unexpected critical risks are noted through the design SQRA or at the 65% product SAR review, consideration will be made to add an additional SAR review at the 95% product submission.

Milestone Reviews	Geotech	H&H	Structural	Site Visit Duration (days)	Review Start Date	Review End Date
65% P&S/DDR	X	X	X	1	12/30/21	2/14/22
Midpoint of Levee Construction	X			1	TBD	TBD
Midpoint of Wall Construction			X	1	TBD	TBD
End of Construction	X		X	1	TBD	TBD

Table 3 Scheduled Milestone Reviews with Required Reviewers and Site Visit Duration

Section 8

Design SQRA and Risk Characterization

8.1 Requirements

Risk-informed design decisions and supporting information, such as risk assessments, will be documented and incorporated into the Design Documentation Report (DDR). An abbreviated Semi Quantitative Risk Assessment (SQRA) will be performed at the onset of the 35%-65% design phase as part the review effort on the design as required by ECB 2019-15 on Risk Informed Design. The SQRA will be performed on the entire Río Nigua Flood Control Project, assuming all of the Supplemental Contract features are constructed per the design plans and specifications. See Attachment 2 for additional details and schedule. Due to the required timeline of these design products, a standalone ATR will be performed on the SQRA report. The SQRA ATR team will be comprised of a member of the Design ATR team that has risk based experience. If deemed necessary, additional SQRA ATR team members will be identified and assigned by the RMC to fit into the scheduled review period of the project and may include members of the Levee Senior Oversight Group (LSOG). The interim SQRA Document, along with documentation of the SQRA review, will be included with the project's DDR for reference throughout the remainder of the project. This review of the design SQRA report will be considered the final review during design phase unless an issue warrants further oversight, in which case a review by the entire LSOG may be recommended.

Near the end of the construction phase an initial risk characterization assessment will be performed. The team will update the abbreviated SQRA performed during the design to incorporate any changes or issues identified of the nearly complete construction project. The RMO will coordinate with the appropriate Planning Center of Expertise and LSOG as needed for decisions, when appropriate. LSOG members from the relevant disciplines

will participate as members of the vertical team, technical review or policy review teams, as appropriate. The final risk assessment products and decision documents will be reviewed by the LSOG.

Section 9

BCOES Review

9.1 Requirements

The Technical Lead is the review leader for all BCOES reviews and, as such, is responsible for managing all BCOES reviews and assuring all DrChecks comments are resolved and closed. BCOES reviews are done during design for a project using design-bid-build (D-B-B) method. The BCOES review will be performed in accordance with ER 415-1-11 and ER 1110-1-12 on all implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) to ensure:

- (1) Clarity of the acquisition documents, the soundness of the government's evaluation and selection criteria for negotiated acquisitions, and the ease of bidders or proposers to understand the government's requirements, allowing the submission of a competitive bid or proposal that is responsive to the government's requirements.
- (2) Ease of constructing a specified or designed project according to the government's requirements, including the proposed construction duration, and the ease of understanding and administering the contract documents during their execution.
- (3) Ability to efficiently operate and maintain a facility or facilities over their life cycle when the facility or facilities are built according to the project's plans and specifications.
- (4) Ability to best achieve stewardship of air, water, land, animals, plants, and other natural resources when constructing and operating the project, and complying with the Environmental Impact Statement or Assessment or other environmental related project requirements. The USACE Environmental Operating Principles (EOPs) in ER 200-1-5 provide direction on achieving synergy between the environment and the execution of projects. The Environmental part of a BCOES review shall address all EOPs including compliance with all applicable local, state, and Federal environmental requirements.
- (5) The design is using methods, systems, and materials that optimize incorporation of a site's natural land, water, and energy resources as integral aspects of the development and minimize or avoid harm to the air, water, land, energy, human ecology and nonrenewable resources on- and off-site of the project.

See Attachment 1, Table 11 for the list of BCOES reviewers.

9.2 Documentation

Engineering Considerations and Instructions (ECIs) will be included with the documents reviewed during BCOES. The designer will resolve comments from the BCOES review. All comments and comment resolutions will be performed and documented in DrChecks as per ER 1110-1-8159.

A BCOES review focusing on Construction, Environmental, and Contracting will be performed during the 65% design review period. The final BCOES review, incorporating all required facets, will occur at the 95% P&S submittal level after all ATR comments are resolved and the ATR is completed and certified. The start of the final BCOES review is currently scheduled for June of 2023. Upon completion of a BCOES review and prior to final approval of the P&S, the Technical Lead will document all comments, resolutions and identify the actual personnel who performed the BCOES review. A BCOES certification will be completed in accordance with ER 415-1-11. The certificate template is located in Attachment 3.

Section 10

Public Posting of Review Plan

As required by EC 1165-2-217, the approved RP will be posted on the District public website (<https://mvk.usace.afpims.mil/Missions/Programs-and-Project-Management/Project-Management/FileId/285236/>). This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the RP are necessary.

Section 11

Review Plan Approval and Updates

The MSC Commander, or delegated official, is responsible for approving this RP. The Commander's approval reflects vertical team input (involving the District, MSC, and RMC) as to the appropriate scope, level of review, and endorsement by the RMC. The RP is a living document and will be updated in accordance with EC1165-2-217 and ER 1110-1-12. All changes made to the approved RP will be documented in Attachment 4, Table 12 RP Revision. Addition of project phases, including the future construction phase, will require re-approval. The latest version of the RP, along with the Commander's approval memorandum, will be posted on the District's webpage and linked to the HQUSACE webpage. The approved RP will be provided to the RMO.

Section 12

Engineering Models

The use of certified, validated, or agency approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, BCOES, policy and legal review, and SAR (if required). Where such approvals have not been completed, appropriate independent checks of critical calculations will be performed and documented. The following engineering models, software, and tools are anticipated to be used:

Model Name	Version	Validation Date
Microstation	V8i SS4	
STAAD	Pro SS6	
MathCad	Prime 3.1	
Ensoft Group	2016	
CASE CPGA	2011	
Geostudio	2019	
Open Roads Designer	2018 release 2	
Ensoft Lpile	2016	
SMS	12.3 and higher	
ArcPro	2.2 or Higher	
SMS	13.0	
HEC-RAS	5.0.7	
HEC-HMS	4.5	
HEC-SSP	2.2	
FDA	1.4.2	
AdH	Version 4.6	
HEC-LifeSim	2.0	

Table 4 Models and Status

Section 13

Review Plan Points of Contact

Title	Organization	Phone
Review Manager/Lead Engineer	CEMVK-EC-PCG	601-631-5917
Senior Reviewer	CEIWR-RMC	304-399-5217

Table 5 RP POC's

Table 6 PDT Members

Name	Agency	Role	Email
Edgardo Contreras, PE	Puerto Rico Department of Natural and Environmental Resources	Local Sponsor	econtreras@drna.pr.gov

Table 7 Customers

DQC Discipline	Name	Description of Credentials
Geotechnical/DQC Lead	Chris Redell	PE that has 9 years' experience in the field of geotechnical engineering, analysis, design, subsurface investigations, rock and soil mechanics, internal erosion (seepage and piping), slope stability evaluations, erosion protection design, and construction of earthen levees. Is currently serving as Geotechnical RTS within MVD.
Civil	Mike Hanks	PE that has 15 years of USACE experience in the field of civil engineering in support of a large variety of civil works projects, including: flood risk management, navigation, environmental restoration, recreation, work for others, and emergency response. Civil design services performed throughout all phases of the project, including study, design, and construction. Also has 8 additional years as a transportation engineer in the private sector.
Structural	Jeff Dinkelmann	PE that has 6 years' experience in the field of structural engineering. Experience in design of various types of steel and concrete bridges as well as multiple load rating analyses for all bridge types. Also has experience in design and analysis of hydraulic steel structures, concrete dam structures, culverts, retaining walls, buildings and foundations.
Construction	Mark Games	Geologist/Construction Manager that has 20 years of private sector experience as a principal of a heavy civil construction company performing contracts for USACE along with various Federal and State agencies. Project experience to include roads, bridges, levees, floodwalls, pump stations, gravity drains, box culverts, hydraulic dredging, deep soil mixing and pile driving. Extensive experience in estimating, project management, contract administration and cost accounting. Government experience includes the last two years as a Senior Construction Manager/Geologist with USACE supporting construction branch to include DQC and BCOES reviews, contract administration, problem solving, estimating for contract modifications, mentoring of COR staff, support of emergency management and various other duties.
Cost	Michelle Puzach	PE that has 6.5 years of experience in the field of cost engineering

		of navigation and civil works projects and 2 years of experience in construction management in the private sector.
Hydraulic Engineer	Zach Ryals	Registered professional engineer in the State of Illinois with approximately 10 years of civil engineering (hydraulics and hydrology) experience. Experience includes 10 years with the U.S. Army Corps of Engineers, St. Louis District as a hydraulic engineer, with 6 of those years serving as a hydraulic engineer on a Dam and Levee Safety Cadre as the H&H engineer. Mr. Ryals holds a Master of Science in Engineering in Civil Engineering with a specialty in Hydraulic Engineering, from the Missouri University of Science and Technology.
NEPA	Angela Dunn	Environmental Branch Chief, Jacksonville District Ms. Dunn is a biologist with over 12 years of experience working in Planning for Jacksonville District, Nashville District, and as a Planner for the NWD/POD RIT at Headquarters. Graduated from East Carolina University with a B.S. in Biology in 1997, an M.S. in Biology from the University of North Florida in 2004, and an M.S. in Risk Management from Notre Dame of Maryland University in 2019. Her accomplishments include completion of EA's and EIS's documents for Everglades Ecosystem Restoration projects, Flood Risk Management projects, Coastal Storm Damage Reduction projects, and a Dam Safety Modification Study. Ms. Dunn has completed DQC and policy reviews on multiple planning studies (including associated NEPA) within the Nashville District including J. Percy Priest Water Supply Reallocation Study, Duck River Watershed Study, and numerous Section 206 studies. Ms. Dunn has completed DQC with a focus on NEPA most recently in Jacksonville District for the Loxahatchee River Ecosystem Restoration Project EIS/Feasibility Report, Lake Okeechobee Watershed Restoration Project EIS/FR, Manatee Harbor O&M EA, Miami Harbor O&M EA, and Port Everglades O&M EA among others.
Cultural Resources	Christopher Altes	Archaeologist in the Jacksonville District in the Restoration and Resources Section of the Environmental Branch. Mr. Altes is responsible for ensuring compliance with cultural resource laws across USACE budget lines across the Southeast and Caribbean. He has served as the cultural resources specialist on environmental restoration, military construction, navigation, shore protection, disposition, and water operations projects with the Jacksonville and Savannah Districts. He has worked with USACE for 1.5 years, after spending 13 years in as a cultural resources contractor primarily in the Southeast and Caribbean. He holds a Bachelor of Arts and Master of Arts in Anthropology, with a focus on Caribbean archaeology.
Real Estate	Hansler Bealyer	Chief, Acquisition Branch, Real Estate Division in the Jacksonville District, U.S. Army Corps of Engineers (Corps). Mr. Bealyer has been with the Jacksonville District since beginning with the Corps in February 1991, starting as new hire intern to his present position. Mr. Bealyer started off working in the In-Leasing Section

		and progressed to his current position as Chief, Acquisition Branch. Mr. Bealyer has extensive Civil Works experience, working on numerous projects that span the entire study process, from RECON to an approved Feasibility Report. Mr. Bealyer has prepared numerous real estate plans during his career and in his current position oversees a staff who works as the Real Estate Technical Leads for civil works, support for others, and emergency operations projects in the Jacksonville District. As a supervisor, I oversee the preparation of real estate plans and review/recommend to Chief, Real Estate Division for final approval.
Economist, SQRA Consequences Only	TBD	TBD

Table 8 DQC Reviewers

ATR Discipline	Name	Task	Description of Credentials
ATR Lead	Matt Sheskier	P&S, DDR	Registered Professional Civil Engineer currently working as a Construction Liaison Engineer for USACE's Risk Management Center. Mr. Sheskier has 30 + years of experience working on design and construction of Safety of Dams and Levee remediation projects with the Corps of Engineers and the Bureau of Reclamation. He has a Bachelor of Civil Engineering from University of Colorado-Boulder (with emphasis in Geotechnical Engineering). As a designer, Mr. Sheskier has been involved in the design of a multitude of Safety of Dam projects including Jackson Lake Dam, Black Lake Dam, Buffalo Bill Dam, New Waddell Dam, Oneill Dam, and Twin Buttes Dam. As a Resident Engineer and COR, Mr. Sheskier oversaw field engineering and personnel for Safety of Dams modifications at Twin Buttes Dam, Casitas Dam, Horsetooth Dam, Soldier Canyon Dam, Dixon Dam, Spring Canyon Dam, Wickiup Dam, Mormon Island Aux Dam, and Folsom Dam and Dikes. As a Construction Liaison Engineer, Mr. Sheskier has been involved in assisting USACE PDTs on development of P&S and QA for Safety of Dams and Levee modifications. The dams include Howard Hansen Dam, Addicks and Barker Dams, Isabella Dam, Rough River Dam, Bolivar Dam, and East Branch Dam to name a few. The levee projects I've assisted with are Natomas Levee, Marysville Ring Levee, Zoar Levee, Magnolia Levee, Caruthersville Floodwall, Helena Floodwall, Carrollton District Floodwall, Lower Wood River Levees, Princeville Levee, and Dallas Floodway levees to name a few. He has served on Source Selection Boards for several major dam rehabs. He has served as the Team Leader for constructability reviews and served on numerous Agency Technical Review teams for the Bureau of Reclamation and USACE's Tulsa, Sacramento, Pittsburgh, Louisville, Alaska, Galveston, and Huntington Districts. He has served as ATR Team Leader of many multi-disciplinary teams for both dam and

			levee safety and flood protection projects for Galveston, Louisville, Memphis, New Orleans, St. Louis, Sacramento, Vicksburg, and Wilmington. I worked on Team revising the guide specifications for Levee construction.
Structural	Kent Hokens	P&S, DDR	<p>Bachelors of Science degree in Civil Engineering, 1985, and a Master's Degree in Civil Engineering, 1989, from the University of Nebraska. Mr. Hokens is a registered engineer with over 35 years of structural and geotechnical engineering experience in USACE with flood risk reduction projects, dams, and navigation projects. For the last 14 years has served as a structural Regional Technical Specialist for MVD. Experience in the analysis and design of many civil works structural types including: locks and dams, concrete dam spillways, flood walls of all types, retaining walls, sheet pile walls, anchored walls, pile foundations, road and railroad closures, tainter gates, miter gates, bulkheads, pipes and culverts, and service bridges.</p> <p>Experience in design shallow founded, pile founded and anchored structures. Served as the structural lead for the design of pile founded floodwalls for a number of projects in New Orleans after Hurricane Katrina. As part of that effort helped to develop guidance for several unique pile foundation conditions related to design of coastal walls in very soft foundations. Experience with design of box culverts and bridge and application of the AASHTO bridge design manual. Significant experience with structural and geotechnical risk and reliability analysis and with risk assessments of levee and dam projects. Lead or participant in revision of numerous USACE engineer manuals including: EM 1110-2-2502, ETL 1110-2-575, EM 1110-2-2104, EM 1110-2-2107, EM 1110-2-2906, EM 1110-2-2504, EM 1110-2-2902 (ATR), EC 1110-2-6066, ER 1110-2-1806. Member of the USACE seismic committee.</p>
Civil	Jennifer Savitz	P&S, DDR	<p>Registered Professional Civil Engineer currently working as the Deputy Chief of the Eastern Division for the U.S. Army Corps of Engineers (Corps) Risk Management Center. Ms. Savitz has 15+ years of experience working on the design, development, oversight, management, and review of levee safety, dam safety, flood risk management, aquatic ecosystem restoration, land use development, recreation, and municipal engineering programs and projects with the Corps of Engineers and private consulting firms. With regards to levee safety, she has been involved with the design, management, oversight, and review of a multitude of levee, floodwall, channel improvement, drainage structure, and closure structure projects. With regards to land use development, Ms. Savitz has been involved with project site planning, site and utility layout, sewage facilities planning, drainage and stormwater management facilities design, erosion and sedimentation control plan preparation, permitting, and real estate documentation/certification. She has a Bachelor of Science degree in Civil Engineering from the Pennsylvania State University and a Master of Science degree in Civil Engineering from the University of Pittsburgh. Ms. Savitz has served in a variety of roles with the Pittsburgh District, including Chief of the Dam and Levee Safety Section, Levee Safety Program Manager, and Project</p>

			Engineer. She has performed numerous technical and quality control reviews for both design and feasibility level projects, including leading an ATR effort for the design of a levee system for Kansas City District and serving as the ATR civil team member for levee safety projects for Omaha, Fort Worth, New York, and Jacksonville Districts.
Risk Reviewer/ Geotech/ Geologist	Tom Terry	P&S, DDR, Geotech Report, SQRA Consequence Model, Design SQRA	Licensed Professional Engineer and Professional Geologist with over 33 years of experience in geotechnical engineering and engineering geology, with Bachelors of Science degrees in Engineering and Geological Engineering, and a Master of Science in Civil Engineering with a geotechnical emphasis. Facilitated and advisor on 40 risk assessments including 15 levee risk assessments, and performed Agency Technical Review (ATR) of over 50 USACE dam and levee projects including 17 as the lead. Have performed dam and levee inspections, over a dozen dam investigations, over a dozen design and modifications for dams, and construction observation of dams, modifications to dams, and water supply projects. Reviewed and managed reviews of 84 Interim Risk Reduction Measures Plans (IRRMPs) for USACE and over 100 dam and 80 levee Drilling Development Plans (DDPs) from USACE and non-USACE organizations for dam and levee investigations. Performed rock and soil slope stability evaluations, and slope stabilization design for dams, levees, and other projects. Have developed, managed and performed hundreds of geotechnical and geological investigations including laboratory, multiple types of non-destructive and in-situ testing, geologic hazards, foundation analysis and design, geophysics, and environmental site investigations for dams, levees, floodwalls, and thousands of other structures. Organized, presented, and led multiple training workshops for USACE, private and professional organizations including the Levee Screening Tool (LST) training, site Investigation workshops, led Potential Failure Modes Analysis (PFMA) exercises at multiple training events, in-situ testing (CPT, SCPT, Vane Shear, and instrumented SPT) and have given presentations on specific projects at multiple professional meetings, and governmental public meetings. Worked on updates to the ER1110-1-1807 Drilling in Earth Embankments for Dams and Levees, EM1110-2-1908 Instrumentation, and Best Practices in Dam and Levee Safety.
Hydraulic Engineer	Kari Hauck	P&S, DDR, H&H Report	Graduated from Valparaiso University in 1997 with a Bachelor of Science degree in Civil Engineering and the University of Minnesota in 2001 with a Master of Science degree in Civil Engineering. She is a registered engineer in the State of Minnesota with over 20 years of experience in hydraulics analysis and design. Ms. Hauck has experience with the evaluation and design of embankment dams and levees to include the routing of inflow hydrographs. She has designed and provided HH construction support for multiple habitat restoration projects and dam embankment repairs on the Mississippi River. She assisted in the development and implementation of dam safety design guidance for the Devils Lake and Fargo-Moorhead Metropolitan Area Flood Risk Management projects. She has participated in numerous dam safety periodic inspections and

			<p>assisted with St. Paul District's dam safety training. Since 2006 Ms. Hauck has been involved with efforts to evaluate dams and levees on a risk basis, participating in screening level and higher level risk assessments. Ms. Hauck served as cadre lead for the St. Paul Risk Cadre which undertook risk assessments for the St. Paul, North Kansas City, Sutter Basin, and Freeport levees. Additionally, she has facilitated and reviewed numerous periodic assessments and semi-quantitative risk assessments for the USACE Risk Management Center. Ms. Hauck is currently the Chief of Hydraulics Section in the St. Paul District.</p>
Hydrologic Engineer	Reuben Sasaki	P&S, DDR, H&H Report	<p>Registered Professional Civil Engineer currently working in the Los Angeles District. He has been with the Los Angeles District for over 11 years and is currently a Regional Technical Specialist in the South Pacific Division. Reuben has a Bachelor's degree in Civil Engineering and Master of Science degree in Civil Engineering from the University of Southern California. He was an ATR reviewer for Stillhouse Dam IES, Grand River Feasibility Study, and American River Common Features, and Lower Cache Creek Feasibility Study. He currently serves as the SPD representative on USACE's Committee on Hydrology and H&H member on the NWD Risk cadre.</p> <p>He has conducted hydraulic and hydrologic analysis as well as quality checks and DQC reviews for civil and military projects such as Corte Madera, Little Colorado Winslow, Ala Wai and Fort Huachuca Hydrology Study. He has conducted numerous DQCs and Consistency Reviews for the Dam Safety Program's PAs, SQRA's, IESSs. He was the lead district hydrologic engineer for the Whittier Narrows Dam Safety Modification Study. He is currently the hydrologic engineer for the Prado Dam Spillway Modification.</p> <p>He is proficient in HEC-HMS, HEC-SSP, HEC-RAS, and RMC-RFA modeling software to support flood risk management analysis and risk assessments.</p> <p>He has experience in hydrologic and hydraulic analysis of small urbanized and non-urbanized watersheds with intense precipitation, short flow durations, and quick response times. These projects include but not limited to Fort Irwin Stormwater Management Plan, Fort Irwin 2013 Flooding, White Mountain Apache Tribe Project Emergency Repairs and Mount Charleston Project. Also he has supported the National Levee Safety Program and the Corps Water Management System.</p>
Economist	Susannah Byrd	SQRA Consequence Model	<p>Five years of experience as a member of the Modeling, Mapping and Consequences Mandatory Center of Expertise (MMC-MCX) Consequences Team, two years of experiences as the consequences member/economist for the New England Risk Cadre, and three years of experience as the consequences member/economist for the Pittsburgh District Periodic Assessment Team. Completed an RMC Developmental Assignment in 2018 with both of the current RMC Consequences Specialists. Instructor at the</p>

			2018 RMC sponsored HEC-LifeSim training course. Participated on eight other dam and levee safety ATR teams. Participated as a consistency reviewer on over 20 dam and levee projects, including both PAs and SQRAs, over the past four years. Participated as the lead consequence specialist on quantitative risk assessments for Libby Dam and Wister Dam. ATR certified in dam and levee safety for three years.
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Table 9 ATR Team

SAR Discipline	Name	Description of Credentials
Geotechnical	TBD	TBD
Structural	TBD	TBD
Hydraulic	TBD	TBD

Table 10 SAR Panel

BCOES Name	Professional Registration (EI, PE, Etc.)	PDT Area of Responsibility	Years of Experience	District
TBD		Project Management		MVK
TBD		Value Engineering		MVK
TBD		Engineering		MVK
TBD		Engineering		SAJ
TBD		Construction		MVK
TBD		Real Estate		SAJ
TBD		Planning		MVK
TBD		Planning		SAJ
TBD		Operations		MVK
TBD		Operations		SAJ
TBD		Contracting		MVS

Table 11 BCOES Members

ATTACHMENT 2

Project Risk Information (FOUO)

(To be Removed Prior to Posting on District Website)

Currently, no formal risk evaluation of this project has been performed. A risk-informed design SQRA will be performed as part of this design effort.

The risk-informed design abbreviated SQRA will be performed at the onset of the 35%-65% phase of the design. Tasks to be performed are as follows (per requirements of the ECB 2019-15: Interim Approach for Risk-Informed Designs for Dam and Levee Projects):

SQRA Task	Start Date	End Date
MMC Modeling (H&H and Consequence)	4/14/21	5/13/21
MMC Modeling Review and Finalize	3/03/21	4/13/21
35%-65% Design	9/24/21	3/22/22
Facilitator Data Review	9/24/21	10/08/21
PFMA Session	10/11/21	10/18/21
SQRA Session	10/19/21	10/25/21
Draft SQRA Report	10/26/21	11/08/21
PDT Review SQRA Report	11/09/21	11/16/21
Draft Final SQRA Report	11/17/21	11/23/21
SQRA ATR	11/24/21	12/15/21
Evaluate and Back Check	12/16/21	12/22/21
Finalize SQRA Report	12/23/21	12/30/21

The final document will be filed as part of the project DDR. Beyond the SQRA ATR to be performed by RMC and LSC personnel, reference to the document will be reviewed along with the DDR and P&S at the 65% and Final review stages.

ATTACHMENT 3
Sample Certifications (FOUO)
**(To be Removed Prior to Posting on
District Website)**

COMPLETION OF DISTRICT QUALITY CONTROL REVIEW

(ER 1110-1-12 & EC 1165-2-217)

MVK has completed the [Plans & Specifications and Design Documentation Report of Río Nigua Salinas Supplemental Project, Salinas, PR](#). Notice is hereby given that a District Quality Control (DQC) Review appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the approved Quality Control Plan for this project. During the review, compliance with established policy, principles and procedures, utilizing justified and valid assumptions, were verified. This included review of: assumptions; methods, procedures, and materials used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs and consistency with law and existing Corps' policy. The DQC review was accomplished by a review team independent of the PDT. All comments resulting from this DQC review have been resolved.

[Chris Redell, PE](#)
DQC Review Team Leader

Date

[Tom Shaw, PE](#)
Project Manager

Date

CERTIFICATION OF DISTRICT QUALITY CONTROL REVIEW

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

[\(Describe the major technical concerns, possible impact, and resolution\)](#)

As noted above, all concerns resulting from independent technical review of the project have been fully resolved.

[Henry A. Dulaney, PE](#)
Chief, Engineering and Construction Division

Date

BIDDABILITY/CONSTRUCTIBILITY/OPERABILITY/ENVIRONMENTAL/SUSTAINABILITY (BCOES) AND
VALUE ENGINEERING CERTIFICATION

PROJECT TITLE: Río Nigua Supplemental Project P2 PROJECT #: 477679
(PM fill out name, check appropriate statement below, provide P2 Project # above, and sign):

I, Tom Shaw, the Project Manager (PM), certify one of the following statements applies to the above project.

____ 1. The Value Engineering (VE) process as required by ER 11-1-321, Army Programs Value Engineering has been completed for this procurement action. I certify compliance with Public Law 99-662 (33 USC 2288) and OMB Circular A-131. A VE workshop study, a VE Low Opportunity study, or other approved VE action was completed on (date) by the appropriate authority. All rejected VE proposals indicating potential savings of over \$1,000,000 have been resolved with approval of the MSC Commander.

____ 2. The total estimated cost of this procurement is less than the \$2.0M VE threshold. I understand that the total estimated cost includes all costs associated with this procurement, including but not limited to costs related to site investigations and surveys, testing, engineering and design, real estate, construction, engineering during construction, supervision and administration, and contract closeout.

____ 3. The project design agency is USACE. This procurement is entirely funded by non-federal funds agency (state or local).

____ 4. Other (explain) _____.

____ Project Manager, MVK (date) _____ Project Manager, SAJ (date) _____ VE Officer, TBD (date)

The Bid or RFP Package has been reviewed for Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES) requirements in accordance with ER 415-1-11. The undersigned certify that all appropriate BCOES review comments have either been incorporated into the Bid or RFP Package or otherwise satisfactorily resolved. Comments, evaluations, and back checks are documented in DrChecks.

____ Henry A. Dulaney, P.E. (date)
Chief, Engineering & Construction Division,
MVK

____ LAUREEN BOROCHANER, P.E. (date)
Chief, Engineering Division,
SAJ

____ TBD (date)
Chief, Environmental Compliance Section, SAJ

____ TBD (date)
Chief, Operations, Readiness and Regulatory Division, SAJ

EARLY RELEASE DOCUMENT PRODUCT QUALITY REVIEW CERTIFICATE
of the [*Geotechnical Report, H&H Report, etc.*]
for the [*project name*] Project

The MVK [*insert branch name*] Branch has completed the [*product name*], for the [*project name*] Project. Notice is hereby given that a Final Product Quality Review has been conducted for this Early Release Document as defined in the approved Review Plan for the project. The final product quality review verified that 1) quality control activities were accomplished in accordance with the approved Review Plan and 2) those quality control activities were effective in producing a quality product or service. All comments resulting from the Final Product Quality Review have been resolved.

[*discipline lead*]
Lead Engineer, MVK

Date

[*engineering technical lead*], PE
Engineering Technical Lead, MVK

Date

[*branch chief*], PE
[*branch name*] Branch Chief, MVK

Date

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

None

As noted above, all concerns resulting from a quality review of the project have been fully resolved.

[*E&C chief*], PE
Chief, Engineering and Construction
Division

Date

ATTACHMENT 4

Review Plan Revisions

Revision Date	Description of Change	Page/Paragraph Number

Table 12 RP Revision

ATTACHMENT 5

MVD/SAD MOA

MEMORANDUM OF AGREEMENT
BETWEEN
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION
AND
U.S. ARMY CORPS OF ENGINEERS, MISSISSIPPI VALLEY DIVISION
FOR
EXECUTION OF EMERGENCY SUPPLEMENTAL CONSTRUCTION PROJECTS

ARTICLE I – PURPOSE

This Memorandum of Agreement ("MOA") is entered into by and between the South Atlantic Division (SAD, "Supported Division") and the Mississippi Valley Division (MVD, "Supporting Division") for the purpose of establishing roles and responsibilities for the execution of designated projects included in the 2018 Emergency Supplemental Long-term Disaster Recovery Investment Plan (LDRIP) for Construction.

ARTICLE II – BACKGROUND AND REFERENCES

A. The Bipartisan Budget Act of 2018 (Public Law 115-123), enacted 9 February 2018, provided funding in support of recovery efforts following Hurricanes Harvey, Irma and Maria. This includes funds for USACE to construct, rehabilitate, and repair damages to projects listed in Reference B.4. In consideration of the extensive workload within SAD's area of responsibility and the requirement to develop a regional acquisition strategy for LDRIP work (Reference B.3.), SAD determined that additional capacity, beyond that currently available within SAD, is needed to successfully execute this work.

B. References.

1. Engineer Regulation 5-1-9, Assignment and Transfer of Project Responsibilities, 15 March 1996 (establishes project brokering policy, guidance, and procedures for all projects assigned to USACE).
2. Memorandum, CECW-ZB, subject: Further Advancing Project Delivery Efficiency and Effectiveness of USACE Civil Works, 21 June 2017.
3. Director's Policy Memorandum Civil Works (DPM CW 2018-09), subject: Principles of Delivery for the 2018 Emergency Supplemental, 16 July 2018.
4. Memorandum, Department of the Army, Office of the Assistant Secretary, Civil Works, subject: Policy Guidance on Implementation of Supplemental Appropriations in the Bipartisan Budget Act of 2018, 9 August 2018.

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ARTICLE III – PROJECT ROLES AND RESPONSIBILITIES

Roles and responsibilities indicated here for four projects in Puerto Rico are generalized. Unique, project specific roles and responsibility agreements should be mutually established as required. The mutually established roles and responsibilities for each project will be identified and detailed in the PMP via documentation of statements of work and include establishment of a roles and responsibilities change control process. The brokered projects are the Rio Grande de Arecibo FRM project, Rio Grande de Loiza FRM project, Rio Guanajibo at Mayaguez FRM project, and Rio Nigua at Salinas FRM project.

Activity / Work Product	Rio Grande de Arecibo, PR FRM	Rio Grande de Loiza, PR FRM	Rio Guanajibo at Mayaguez, PR FRM	Rio Nigua at Salinas, PR FRM
PPA or Amendment	SAD	SAD	SAD	SAD
Validation Report	SAD	SAD	SAD (1)	SAD (1)
Financial Ownership	SAD	MVD	MVD	MVD
Lead for Congressional/Sponsor Coordination	SAD	SAD	SAD	SAD
Project Management (PMP w/ budget, P2 schedule; Earned Value Reporting)	SAD	MVD	MVD	MVD
Topographic, Property Boundary Surveys / Real Estate Maps	SAD	MVD	MVD	MVD
Geotechnical Investigations	MVD	MVD	MVD	MVD
Engineering Analysis and Design (DDR, Construction Plans and Specifications)	MVD (2)	MVD (2)	MVD	MVD
Cost Engineering	SAD	MVD	MVD	MVD
Engineering Quality Management (Review Plan)	MVD	MVD	MVD	MVD
Value Engineering (Value Management Plan)	MVD	MVD	MVD	MVD
Lands, Easements, Rights-Of-Way, Relocations, and Disposal Areas	SAD	SAD	SAD	SAD
Environmental Permitting / NEPA	SAD	MVD	MVD	MVD
Cultural Resource Mapping / Mitigation	SAD	SAD	SAD	SAD
BCOES Review	SAD	MVD	MVD	MVD
Construction Acquisition / Contracting	SAD	MVD	MVD	MVD
Construction Management	SAD	MVD	MVD	MVD
Engineering During Construction	MVD	MVD	MVD	MVD

Notes:

1. MVD to perform hydrologic analysis.
2. SAD to perform hydrologic analysis.

ARTICLE IV – DISPUTE RESOLUTION

The Parties agree that, in the event of a dispute, the Parties shall use their best efforts to resolve that dispute in an informal fashion through consultation and

communication. In the event the Parties are unable to reach agreement at the district level, the issue will be elevated to their respective MSC Principal points-of-contact. In the event agreement cannot be reached at the MSC level, they will consult the HQ Director of Civil Works for assistance.

ARTICLE V - PRINCIPAL POINTS OF CONTACT

SAD – Lisa Grande, Chief, Hurricane Emergency Restoration Division
MVD – Renee Turner, Chief, Civil Works Integration Division

ARTICLE VI - AMENDMENT, MODIFICATION AND TERMINATION

This MOA may be modified or amended by written, mutual agreement of the Parties. In the event of termination, the Supporting Division shall provide a list of costs incurred for which funding was not yet provided.

ARTICLE VII - EFFECTIVE DATE AND EXPIRATION DATE


This MOA takes effect upon the date it is signed by both Parties. This MOA expires at the completion of construction of all brokered projects and their transfer to the Non-Federal Sponsor for Operation and Maintenance.

SOUTH ATLANTIC DIVISION

HOLLAND, DIANA
MAUREEN.116875
BY: 9696
DIANA M. HOLLAND
Brigadier General, USA
Commanding

DATE: 24 Jan 2019

MISSISSIPPI VALLEY DIVISION

BY: 
RICHARD G. KAISER
Major General, USA
Commanding

DATE: 30 January 2019

Figure 2- Memorandum of Agreement between SAD and MVD- January 2019