

DEPARTMENT OF THE ARMY SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS 1455 MARKET STREET SAN FRANCISCO, CALIFORNIA 94103-1399

May 8,2013

CESPD-RBT

MEMORANDUM FOR Commander, Los Angeles District, ATTN: CESPL-ED-DB, Mr. Olufunke (Funke) Ojuri

Subject: Mount Charleston PL 84-99 Advance Measures Project, Nevada, Review Plan Approval

1. Mount Charleston PL 84-99 Advance Measures Project, Nevada, Review Plan that is enclosed is in accordance with Engineering Circular (EC) 1165-2-214, Review of Decision Documents, dated 15 Dec 2012. The South Pacific Division, Planning and Policy Division, Regional Business Technical Division, and Los Angeles District Support Team have reviewed the Review Plan that has been submitted. The South Pacific Division approves the Mount Charleston PL 84-99 Advance Measures Project, Nevada, Review Plan.

2. With MSC approval the Review Plan will be made available for public comment via the internet and the comments received will be incorporated into future revisions of the Review Plans. The Review Plan includes Independent External Peer Review Type II Safety Assurance Review (SAR).

3. I hereby approve the Review Plan which is subject to change as study circumstances require. This is consistent with study development under the Project Management Business Process. Subsequent revisions to the Review Plan after public comment or during project execution will require new written approval from this office.

4. Points of contact for this action are Mr. Marc Goodhue, CESPD-RBT, 415-503-6568, <u>marc.j.goodhue@usace.army.mil</u>, and Mr. Paul Bowers, CESPD-PDC, 415-503-6556, <u>paul.w.bowers@usace.army.mil</u>.

Building Strong From New Mexico All The Way To The Pacific!

C. DAVID TURNER BG. EN Commanding

Encl

REVIEW PLAN

Mount Charleston PL 84-99 Advance Measures Project, Nevada Design Documentation Report (DDR), Plans and Specifications

U.S.Army Corps of Engineers, Los Angeles District



MSC Approval Date: May 8, 2014 Last Revision Date: May 1, 2014



US Army Corps of Engineers ®

REVIEW PLAN

Mount Charleston PL 84-99 Advance Measures Project, Nevada Design Documentation Report (DDR), Plans and Specifications

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Mount Charleston, Nevada

1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Mount Charleston Advance Measures Diversion Structures, Mount Charleston, Nevada, Design Documentation Report (DDR), Plans and Specifications (P&S) package. This project needs to be constructed before the start of the monsoon season which begins June 1, 2014.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) Mount Charleston Project InformationReport (PIR) Report
- c. Requirements. This review plan was developed in accordance with EC 1165-2-214, 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), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for implementation documents is typically either the home MSC or the Risk Management Center (RMC), depending on the primary purpose of the implementation document. The RMO for the peer review effort described in this Review Plan is the USACE Risk Management Center (RMC).

The RMO will coordinate to ensure the appropriate expertise is included on the review teams to assess the adequacy of the implementation documents.

3. STUDY INFORMATION

a. Decision Document. A letter from the Nevada Governor's Office was received on 27 February 2014, requesting direct and technical advanced measures assistance from the Corps of Engineers for the Clark County Flood Events in Kyle Canyon and Rainbow Subdivision. Advance Measures Funds were approved and the Corps of Engineers team made a site visit with help from the Nevada Division of Emergency Management, Clark County, and USFS. A technical solution was recommended in the Project Information Report (PIR). On 1 Apr 2014, additional Advance Measures Funds were approved by HQUSACE for the design and construction of a diversion structure. The Rainbow Subdivision is located in the town of Mt. Charleston in Clark County, Nevada approximately 40 miles northwest of the Las Vegas Strip in township 19 S, range 57 E. DDR, Plans and specifications are being developed for the proposed diversion structure. The diversion structure will provide relief to

property owners by directing debris flows of certain magnitude away from the homes. An EA is being developed to document the proposed construction.

b. Study/Project Description. The project consists of a riprap armored channel and berm that will direct the debris flow away from the residences downstream in the Rainbow Subdivision. The Rainbow Subdivision is located downstream of the Carpenter 1 wildfire that started on July 1, 2013. The Carpenter 1 wildfire was a reported lightning-caused ignition in steep terrain that burned 27,881 acres in the Kyle, Harris Springs, Lovell, and Trout Canyons. The majority of the burn area (26,939 acres) is in the Springs Mountains National Recreation Area (SMNRA) of the Humboldt-Toiyabe National Forest. The results of this fire have changed the hydrology of the watershed significantly. On September 1, 2013, a typical monsoon season storm occurred in Rainbow Canyon. This storm event caused severe debris flows and erosion that damaged dozens of residences and public infrastructure including Rainbow Canyon Road. To prevent future flood damage to the Rainbow Subdivision, a preliminary engineering estimate for a diversion of the hydrologic output of Rainbow Canyon has been determined to be feasible. The diversion could direct runoff from 92% of Rainbow Canyon catchment area into a drainage east of the subdivision, resulting in a drainage configuration that would substantially reduce the risk to human life and private/public property. The construction project must be completed before the summer monsoon season begins. Construction cost is estimated at \$700,000. The proposed project will be built by the US Forest Service on Forest service owned land. The non-Federal Sponsor who will take ownership and O&M responsibility is the Clark County.



c. Factors Affecting the Scope and Level of Review. The objective of this project is to provide a shortterm solution for controlling runoff from relatively minor storm events that could occur over the

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recently burned watershed. Controlling the runoff will help to minimize potential damage to the Rainbow subdivision due to debris flows and erosion directly attributed to the effects of the July 2013 fires, similar to the storm event of Sep 2013. Due to the expeditious nature for completing the construction project before this summer's monsoon season, this Advanced Measures Emergency project is limited in scope and scale to meet the time constraints. However, safety concerns must be addressed despite time constraints. The PDT determined that, even though this is a small project, life safety issues do exist, and the SPL Chief of Engineering concurred with this determination. In teleconference discussions with the RMC and the MSC, the concensus was that both an ATR and a type II IEPR would be prudent for this project and would comply with the requirements of EC 1165-2-214. Additionally, recommendations provided were for the ATR to be performed by a member of the RMC and the type II IEPR by the US Bureau of Reclamation. Other factors, that are not included in this review, include an Evacuation Plan and an Operations & Maintenance Manual. The Local Sponsor will be tasked to prepare and implement an Evacuation Plan, recognizing that the Advanced Measures construction is not intended to be a permanent fix. This project is only intended as a temporary measure while the watershed recovers from the fire. The estimated recovery time is 5 - 7 years. This risk needs to be communicated to the Rainbow Subdivision community. The Operation & Maintenance responsibility will also be performed by the Local Sponsor using their current guidance and procedures.

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. There are no in-kind contributions on this project.

4. DISTRICT QUALITY CONTROL (DQC)

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements. SPL shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of SPD and SPL.

- a. Documentation of DQC. The DQC review will include supervisory reviews, Project Delivery team reviews and input from the Forest Service and the local sponsor. DrChecks will be used to document all DQC comments, responses and associated resolutions accomplished throughout the review process.
- b. Products to Undergo DQC. The following products will be subject to DQC
 - (1) Plans and Specifications
 - (2) Design Documentation Report
- c. Required DQC Expertise. The following disciplines will perform DQC: Civil Engineer, Geotechnical Engineer, Hydrologic and Hydraulic Engineer, Environmental Specialist.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). 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

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correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. 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 following products will undergo ATR:
 - (1) Plans and Specifications
 - (2) Design Documentation Report
- **b. Required ATR Team Expertise.** Based on discussions with the RMC on 11 April 2014, ATR will be performed by Mr. James Wright of the RMC, who is an engineering geologist with over thirty years experience in design and construction.
- 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 be properly followed;
 - (3) The significance of the concern indicate the importance of the concern with regard to its potential impact on the plan selection, recommended 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 either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each 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:

Identify the document(s) reviewed and the purpose of the review;

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- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may 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, based on work reviewed to date, for the P&S, draft report, and final report.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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 1165-2-214, is made as to whether 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. An IEPR Type II will be performed for this project.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (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.
- a. Decision on Type II IEPR. Since there are life safety issues, a Type II IEPR will be conducted on the design documents during the design phase and of construction activities during the construction phase.
- b. Products to Undergo Type II IEPR. The following products will undergo Type II IEPR:
 - (1) Plans and Specifications
 - (2) Design Documentation Report
- c. Required Type II IEPR Panel Expertise. As recommended by the RMC, the USBR will be conducting the SAR. The SAR review member should have the following experience: Geotechnical Engineer (Level 3) The Geotechnical Engineering Panel Member should be a registered professional from a public agency or an Architect-Engineer or consulting firm with 20 years or more experience in geotechnical engineering for critical flood risk management infrastructure. The panel member

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should be a recognized expert in the analysis, design, construction and safety evaluation of earthen flood/debris control structures. Level 2 reviewer may be acceptable upon review of qualifications

- d. Documentation of Type II IEPR. The IEPR panel comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 5.c above. The IEPR panel will prepare a final Review Report that will accompany the publication of the final implementation document and shall:
 - Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
 - Include the charge to the reviewers;
 - Describe the nature of their review and their findings and conclusions; and
 - Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted; to be approved by the MSC. The final implementation document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents. This is not applicable since this is not a decision document.

8. COST ENGINEERING MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

Based on discussions with Joseph Yee of NWW, ATR and IEPR of the cost estimate is not needed. SPL will conduct a DQC of the cost estimate for quantity and cost of materials. Construction will be done by the US Forest Service.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the

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opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. 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, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. 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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. 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, and IEPR (if required).

- a. Planning Models. The following planning models are anticipated to be used in the development of the decision document: N/A
- **b.** Engineering Models. The following engineering models are anticipated to be used in the development of the design document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS versio 2.4	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program version 4.2 provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the proposed floodplain for with- project conditions.	HH&C CoP certified
ChanlPro version 2.0	ChanlPro version 2.0 is a numerical modeling program used for design placement of riprap subjected to velocity forces. This program will be used to determine the appropriate stone size for armoring of the channel and levee.	HH&C CoP certified
HEC-GeoRAS	HEC-Geospatial River Analysis System (HEC-GeoRAS) within ESRI's ArcGIS version 10.1 is used to develop and perform hydraulic computations. HEC-GeoRAS will be used to process geospatial data for use with HEC-RAS and the floodplain extent for with-project conditions within the study area.	HH&C CoP certified

10. REVIEW SCHEDULES AND COSTS

- a. DQC Schedule. The DQC will be inititated at the 90% phase.
- **b.** ATR Schedule and Cost. The estimated costs for the ATR is \$5,000. ATR will be initiated at the 90% phase. Design documents should be ready in April 2014.
- c. Type II IEPR Schedule and Cost. The estimated costs for the Type II IEPR is \$25,000. The SAR will be concurrent with the ATR.

d. Milestones Schedule

Review Plan Approved by RMO	6 May 14	
DQC of DDR and P&S	23 Apr 14 – 25 Apr 14	
ATR Review	25 Apr 14 – 2 May 14	
ATR Backcheck	5 May 14	
ATR certification	6 May 14	
Type II IEPR Review	7 May 14 – 13 May 14	
Type II IEPR back check	14 May 14 – 16 May 14	
SPD Approval of SAR responses	20 May 14	
Construction Award	8 May 14	
Midpoint Construction	4 Jun 14	
Construction Complete	1 Jul 14	
IEPR Final Report	15 Jul 14	

e. Model Certification/Approval Schedule and Cost. N/A.

11. PUBLIC PARTICIPATION

To ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the Federal Government, this Review Plan will be published on the district's public internet site following approval by SPD at

http://www.spl.usace.army.mil/Missions/CivilWorks/ReviewPlans.aspx. 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 review plan are necessary. The public is invited to review and submit comments on the plan as described on the web site.

There is no planned public review of the design documents. However, the draft plans will be reviewed by Clark County & the Forest Service. In addition, there will be at least 1 public meeting with the residents of the Rainbow Subdivision.

Public Notice was posted in the Federal Register on 11 April 2014. Comments received from homeowners as a result of the public notice will be addressed.

12. REVIEW PLAN APPROVAL AND UPDATES

The SPD 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 document. The Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. 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 Commanders' approval

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memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- Funke Ojuri, Project Engineer, Los Angeles District, (213) 452-3658
- Paul Bowers, South Pacific Division (415) 503-6556

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team

Discipline	Name	

DQC

Discipline	Name

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ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR IMPLEMENTATION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Plans and Specifications and DDR for the Mount Charleston Advance Measures Project, Nevada. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. 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 US Army Corps of Engineers 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 been resolved and the comments have been closed in DrCheckssm.

SIGNATURE	
James Wright	Date
ATR Team Leader	
RMC	
SIGNATURE	
Liz Miller	Date
Project Manager	
CESPL-EM	
SIGNATURE	
Nathan Snorteland	Date
Director, RMC	

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: <u>Describe the major technical concerns and</u> <u>their resolution</u>.

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

SIGNATURE

Richard Leifield, P.E. Chief, Engineering Division CESPL-ED Date

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ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

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