

National Aeronautics and Space Administration



Ames Research Center
Moffett Field, California 94035

July 14, 2020

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks & Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Mark A. Beason
State Historian II
Office of Historic Preservation
Department of Parks & Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Subject: Response to Request for Information Dated June 10, 2020 - Continuing Section 106 Consultation for the Moffett Federal Airfield (MFA) Hangar 3 Hazard Remediation Project at NASA Ames Research Center, Moffett Field, Santa Clara County, CA (NASA_2019_1216_001)

Dear Ms. Polanco,

We have received your request for information dated June 10, 2020, in response to the Section 106 Technical Report for the Hangar 3 Hazard Remediation Project (formerly referred to as the Hangar 3 Demolition Project) at NASA Ames Research Center, Moffett Field, Santa Clara County, California. The following provides responses to these comments and outlines supplemental information, where necessary:

Comment #1: *Please clarify how NASA has demonstrated the need to demolish the building rather than repair and rehabilitate it, and provide the documentation and analysis to support that need.*

As outlined in Section 2.1 "Repairs & Existing Conditions" (pp. 2.6-2.10) of the MFA Hangar 3 Demolition Section 106 Technical Report (Technical Report) prepared by Stantec that NASA ARC provided to your office for review on May 11, 2020, a previous undertaking – the Hangars 2 and 3 Core and Shell Rehabilitation Project (OHP Reference NASA_2015_0605_001) – was implemented in 2015 by Planetary Ventures, LLC (PV). Extensive structural investigations and monitoring were performed by the engineering firm KPFF Consulting Engineers (KPFF) prior to and during implementation of the 2015 rehabilitation project. As the rehabilitation project progressed, KPFF discovered the underlying and hazardous extent of Hangar 3's structural deterioration. The rehabilitation project was unsuccessful; installation of repairs to damaged trusses repeatedly resulted in damage progression to previously undamaged portions of the structure. Based on the severity and nature of the structural damages, KPFF

deemed further rehabilitation infeasible and the repair plans were abandoned. Emergency shoring and bracing was installed in 2016 to temporarily reduce the chance of further collapse under normal conditions.

The building is currently unsafe for occupancy and vulnerable to further damage and collapse, especially from seismic or high wind load events. This unsafe and noncompliant condition creates a hazard that NASA ARC needs to remediate. California Building Code [A] 116.1 states that unsafe structures should be taken down and removed or made safe. A long-term solution that eliminates the potential for continued degradation or collapse under normal or adverse conditions is necessary.

Because the large-scale structural repairs implemented under the 2015 undertaking were unsuccessful and further rehabilitation efforts have been deemed infeasible, NASA ARC is considering three alternatives to meet its need for hazard remediation as part of its review under the National Environmental Policy Act (NEPA), including a no action alternative, a partial preservation alternative, and a demolition alternative. The no action alternative would basically leave the structure as it is, unsafe for occupancy and vulnerable to further damage and collapse. The partial preservation alternative would preserve semi-independent character-defining features of Hangar 3 in place, including the north and south concrete towers with box beams and hangar doors, remove the unstable main volume of Hangar 3 to remove the safety hazard of partial collapse, and design and build a new stabilizing structure to support the salvaged elements. The draft NEPA alternatives analysis indicates that the no action alternative would not remediate hazards associated with collapse and, therefore, would not meet the project need, and that the partial preservation and demolition plans would both result in a significant impact (adverse effect) on a historic property. The Draft NEPA document is scheduled to be published for public comment in December 2020. NASA anticipates incorporating the results of this Section 106 Consultation into the NEPA document.

As indicated by the unsuccessful attempt to rehabilitate Hangar 3, the opinions of the qualified structural engineers, the cost prohibitive nature of partial preservation, which would also result in a significant impact/adverse effect, NASA ARC has determined that demolition is the preferred alternative.

Comment #2: Provide structural analysis documents that support NASA's conclusion that demolition is necessary.

Included in Appendix A of the Technical Report are four documents prepared by KPFF that capture the sequence of events and corresponding structural analysis related to the Hangar 3 rehabilitation efforts, the emergency repair program to stabilize the structure, and the current condition. These documents include:

- "Building 46 (Hangar 2) & Building 47 (Hangar 3) Due Diligence Phase 1 Report" (August 9, 2013) – Appendix A.1
- "Hangar 3 Emergency Truss Repairs Narrative" (May 26, 2016) – Appendix A.2
- "Hangar 3 Damage Progression & Repairs Timeline" (July 6, 2017) – Appendix A.3
- "Moffett Federal Airfield, Hangar 3 – Mountain View, California Structural Site Observations" (August 21, 2019) – Appendix A.4

These documents outline rehabilitation efforts, why they were unsuccessful, and why repairing the structure is infeasible. The "Hangar 3 Damage Progression & Repairs Timeline" (Appendix A.3) particularly illustrates the degradation of the Hangar 3's structural integrity and damage progression during the 2015 rehabilitation project and the extensive 2016 emergency repair methods. The "Moffett Federal Airfield, Hangar 3 – Mountain View, California Structural Site Observations" (Appendix A.4) includes the most recent structural observations dated August 16, 2019, including the project structural engineer's statement on page 2 that concludes: "the work required to return the hangar to a limited Occupiable use level, is extensive and undefinable and further, the necessary work required would be cost-prohibitive and is therefore not salvageable."

Comment #3: Clarify if the State Historic Building Code could be helpful in repairing and rehabilitating the building rather than demolishing it?

The California Historical Building Code (CHBC) provides alternative building regulations for qualified historical buildings, including the provision to allow remediation work for unsafe historical properties to only address the correction of the unsafe conditions and not require bringing the entire property into compliance with regular code. While a helpful tool in allowing historical buildings to be occupiable without excessive alteration, the distinction under the CHBC does not materially help the efforts to rehabilitate Hangar 3. Full rehabilitation of Hangar 3 would require redesigning and effectively replacing the entirety of Hangar 3's massive structural system and materials to meet safety requirements, although the structural engineers have concluded that these even greater repair efforts would not guarantee structural stability of Hangar 3, if executed. The repairs necessary to correct the unsafe conditions and to remediate the unsafe historical property have been deemed infeasible by the structural engineers. Application of the CHBC provisions would only be helpful if unsafe conditions could be remediated.

Comment #4: As requested in the SHPO's January 23, 2020 letter, clarify if NASA used a structural engineer with experience assessing historic building while preparing the technical report.

KPFF prepared all of the supporting structural documentation and reporting included in the Technical Report. KPFF has been the project structural engineer since 2013. In addition to its work on Hangars 1, 2 and 3 at MFA, KPFF has extensive experience with historic properties. The firm and several of the key engineering staff working on Hangar 3 meet the Secretary of the Interior's Professional Qualification Standards for Engineering. To demonstrate this, KPFF has provided additional information on its qualifications for your review (Attachment A). This qualifications package includes resumes of key structural engineering staff involved in Hangar 3 and a robust list of project examples that involve structural analysis on existing and historic properties.

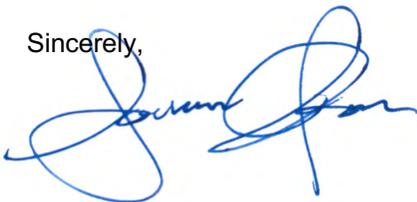
Conclusion

NASA ARC has provided these responses in support of its continued determination that rehabilitation and continued use of Hangar 3 is infeasible, and that a long-term solution that eliminates the potential for continued degradation or collapse under normal or adverse conditions is necessary. NASA ARC has investigated potential alternatives to avoid or minimize the loss of Hangar 3, which is significant individually and as a contributor to the Naval Air Station Sunnyvale Historic District; however, given the severity of its structural deterioration and the hazard it poses, demolition remains the preferred alternative to meet the project need.

NASA ARC requests the SHPO's concurrence with its Finding of Adverse Effect related to this Undertaking, pursuant to 36 Code of Federal Regulations (CFR) 800.5(b). NASA ARC also requests to commence dialog on potential mitigation measures to resolve the adverse effect, as outlined in Section 7.2: "Preliminary Mitigation Measures" (pp. 7.40-9.44) in the Technical Report. NASA ARC has identified other Consulting Parties, including the City of Mountain View, the Mountain View Historical Association, and the Moffett Field Historical Society, that will participate in the Section 106 process for this undertaking. NASA ARC requests your response within 30 days of receipt of this letter, as specified in 36 CFR 800.5(c).

Please contact me at jonathan.d.ikan@nasa.gov or at (650) 604-6859 with your comments or questions.

Sincerely,

A handwritten signature in blue ink, appearing to be "Jonathan D. Ikan", written in a cursive style.

Jonathan Ikan
Cultural Resource Manager, Facilities Engineering Branch
NASA Ames Research Center, Mail Stop 213-8
Moffett Field, CA 94035
(605) 604-6859
Jonathan.d.ikan@nasa.gov

Cc:

Ms. Rebecca Klein, NASA FPO
Environmental Management Division
NASA Headquarters
300 E Street, SW
Washington, DC 20546-0001

Lease Administration Team
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Legal Department/Legal Matters
Planetary Ventures
1600 Amphitheater Pkwy
Mountain View, CA 94043

Enclosures: Attachment A – KPFF Historic Property Qualifications