National Aeronautics and Space Administration

Ames Research Center
Moffett Field, California 94035

March 3, 2016

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

Attn: Mr. Mark Beason

Subject: Section 106 Consultation for the High Speed Computer Container (HSCC) Module Pilot Facility Project at Ames Research Center, Moffett Field, California

Dear Ms. Polanco:

In support of its responsibilities under Section 106 of the National Historic Preservation Act (NHPA), the National Aeronautics and Space Administration (NASA) requests initiation of Section 106 consultation for the High Speed Computer Container (HSCC) Module Pilot Facility Project (project or undertaking) located at Ames Research Center (ARC) at Moffett Field, California (Attachment A, Figure 1). NASA determined that this project constitutes an undertaking under the NHPA. NASA requests your review and consultation concerning the following project description, the delineation of the Area of Potential Effects (APE), identification efforts, and effects analysis for the project. NASA requests the State Historic Preservation Officer's (SHPO) concurrence on NASA's finding of No Historic Properties Affected related to this project, pursuant to 36 Code of Federal Regulations (CFR) 800.5(b). This computer module facility will provide the computational capacity to meet demand in the NASA Advanced Supercomputing Division at ARC in an environmentally conscious way that provides flexibility and power efficiency. Due to the urgent need for this facility related to research capabilities at ARC, NASA requests expedited review and concurrence on its finding of No Historic Properties Affected.

Description of the Undertaking

NASA has developed a concept for containerized supercomputing facilities to supplement the NASA Advanced Supercomputing Facility (Building N258) at ARC. To improve on the current space, cooling, and power limitations in Building N258's existing computer rooms, NASA is developing external, expandable, and parallel containerized facilities. This project proposes to construct the HSCC Module, a pilot facility to test the viability of the containerized facilities concept. The project site is located at the northeast corner of Parsons Avenue and Allen Road, across Parsons Avenue from Building N258 and adjacent to Building N255 (Attachment A, Figure 1) (Plate 1).

Plate 1. Project site, view facing east (Building N255 in background).

The proposed HSCC Module facility will consist of two modular containers placed on a reinforced concrete pad. The module and the project footprint are illustrated in the elevation drawing and the site plan provided in Attachment B. The site is approximately 74 ft. x 59 ft. The height of the facility will be approximately 12 ft., with an additional 5-ft. exhaust stack at the roof. The prefabricated containers will be painted aluminum and painted or galvanized steel. The concrete pad will be a completely level platform with construction tolerance of 0.03 in./ft. Each container will be anchored by 12 sets of embedded plate with welded stud footings. A 9-ft. post fence will be constructed around the perimeter of the facility.

The HSCC Module facility will be connected to electrical power and communications switchboards, and water cooling and waste systems. Construction of the proposed facility will include limited grading for drainage improvements, erosion control, water service and utilities connection, relocation of existing storm drainage, and modification of existing retention facilities

within the project site. The depth of excavation for construction will range in areas from 16 in. for the concrete pad, 30 in. for the electrical system, and 50 in. for the drainage system. The staging area will be limited to the adjacent parking lot (Plate 2).

Plate 2. Adjacent parking lot and staging area, view facing south.

Area of Potential Effects

For archaeological resources, the APE is defined as the limits of disturbance, including areas of temporary staging and construction ground disturbance. The APE boundary also includes adjacent areas where potential historic properties could be indirectly affected by the project. The APE is delineated to encompass the first tier of buildings adjacent to the project's footprint, as shown in Attachment A, Figure 3. Taking into consideration the height of the proposed HSCC Module facility and the height and nature of buildings in the immediate vicinity of the project site, NASA has determined that this is an adequate APE to address any potential effects on historic properties.

Identification of Historic Properties

The project area that will contain ground disturbance is primarily an open dirt lot. The area is disturbed with previous grading for drainage associated with Building N255 and the parking lot, and and no new archaeological survey was performed. No archaeological resources or areas of high archaeological sensitivity have been previously identified in or around the APE. The area

was not identified in the 2014 *Draft Integrated Cultural Resources Management Plan for Ames Research Center* (AECOM 2014) as having high archaeological sensitivity.

An intensive survey of the APE was conducted on February 24, 2016, for built environment resources. Four buildings are located within the APE (Table 1), none of which are over 50 years old or exhibit the potential for exceptional significance to be eligible under National Register of Historic Places (NRHP) Criteria Consideration G. Therefore, these buildings were not evaluated further and are not considered eligible for listing in the NRHP.

Table 1. Architectural Resources in the APE

Building No.	Name	Year Built
N255	Supply Support Facility	1978
N258	NASA Advanced Supercomputing Facility	1986
N262	Human Performance Research Lab	1990
N269	Automation Sciences Research Facility	1990

Affected Historic Properties

There are no historic properties that are eligible for listing in the NRHP within the APE.

Assessment of Effects

The Criteria of Adverse Effect pursuant to 36 CFR 800.5(a)(1) are applied to assess effects of the undertaking on historic properties within the APE:

> (1) Criteria of adverse effect. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

The project does not propose to alter any historic properties and is not anticipated to have any effects on historic properties, with the exception of the potential to affect unknown subsurface archaeological resources. To address that potential, NASA will follow its standing operating procedures for unanticipated discoveries as outlined in the 2014 Draft Integrated Cultural Resources Management Plan (AECOM 2014). In such cases, implementation of the established procedures for unanticipated discoveries would result in no adverse effect to historic properties.

Public Participation

Pursuant to 36 CFR 800.5(c), NASA will make its finding of No Historic Properties Affected for this undertaking available to the public and any consulting parties, as specified in 36 CFR 800.11(e). Currently, no federally recognized Native American Tribes are associated with the location of the APE.

Conclusions

NASA has determined that a finding of No Historic Properties Affected is appropriate for the HSCC Module facility project. NASA is seeking the SHPO's concurrence with this determination. NASA is in immediate need of the additional computational capacity for the NASA Advanced Supercomputing Division, and NASA requests expedited review to assist its mission. NASA requests the SHPO's concurrence within 10 days of receipt of this letter, if possible, rather than the full 30 days specified in 36 CFR 800.5(c).

Please contact me at keith.venter@nasa.gov or at (650) 604-6408 with your comments or questions.

Sincerely,

Keith Venter
Historic Preservation Officer

Ames Research Center
Ames Research Center, MS 213-8
Moffett Field, California 94035

cc:
HQ/EMD/Ms. Klein, Ph.D., RPA

Attachments

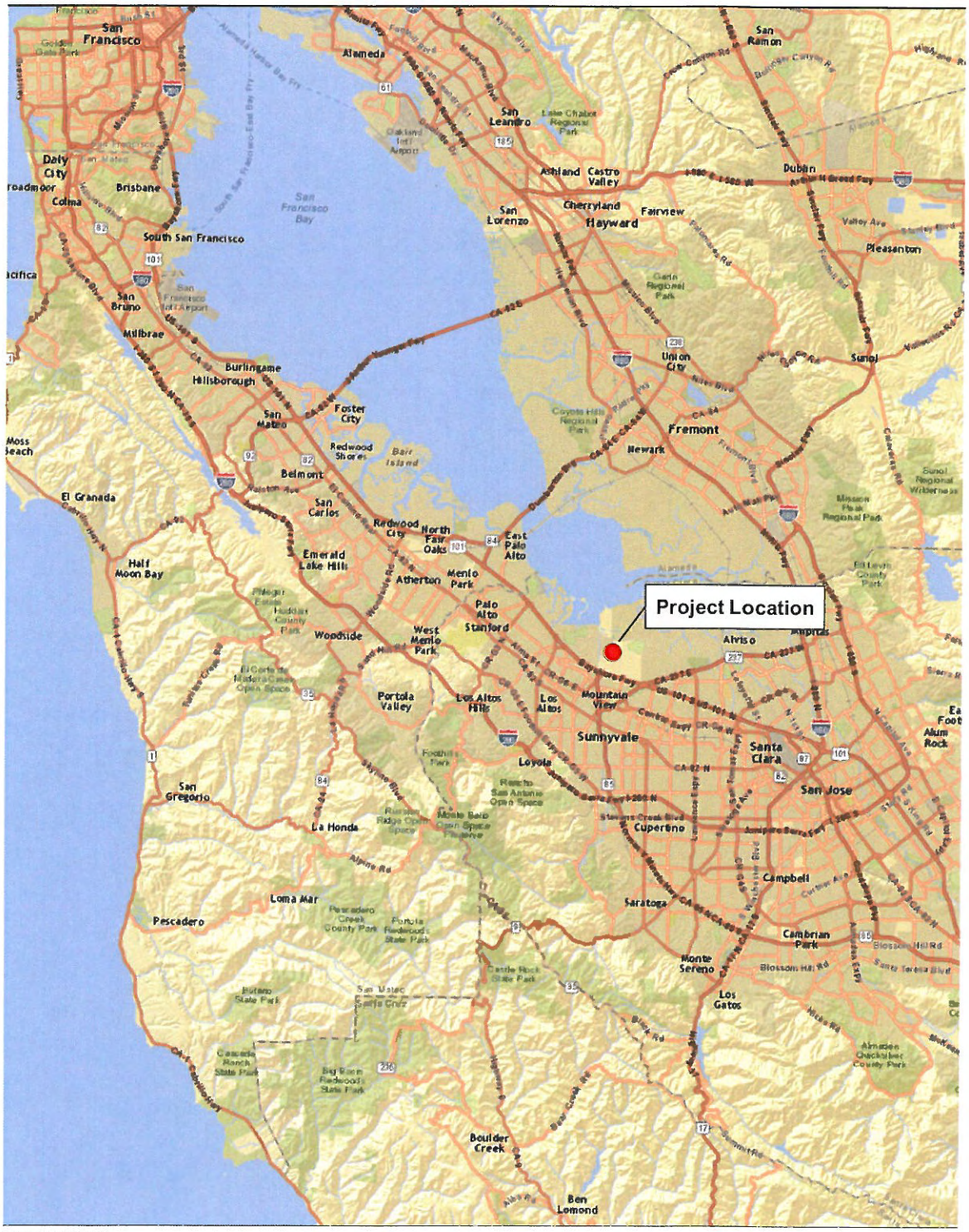
A. Maps
B. Site Plan

References

AECOM Technical Services, Inc.
2014 *Draft Integrated Cultural Resources Management Plan for Ames Research Center.* On file at ARC (in progress).

ATTACHMENT A

MAPS

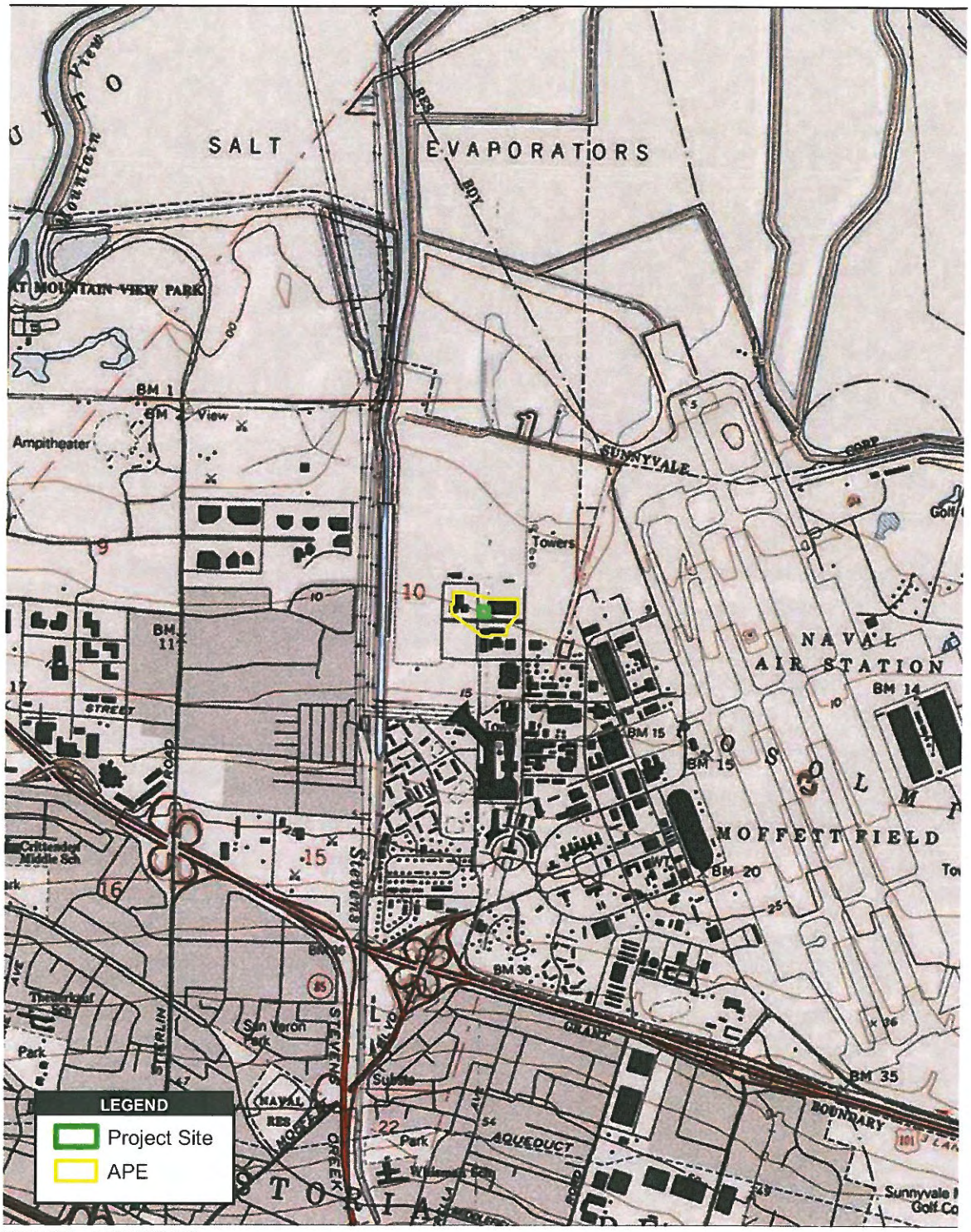


Source: ESRI 2015

6 3 0 6 Miles

Scale: 1:380,160; 1 inch = 6 miles

Figure 1
Regional Map

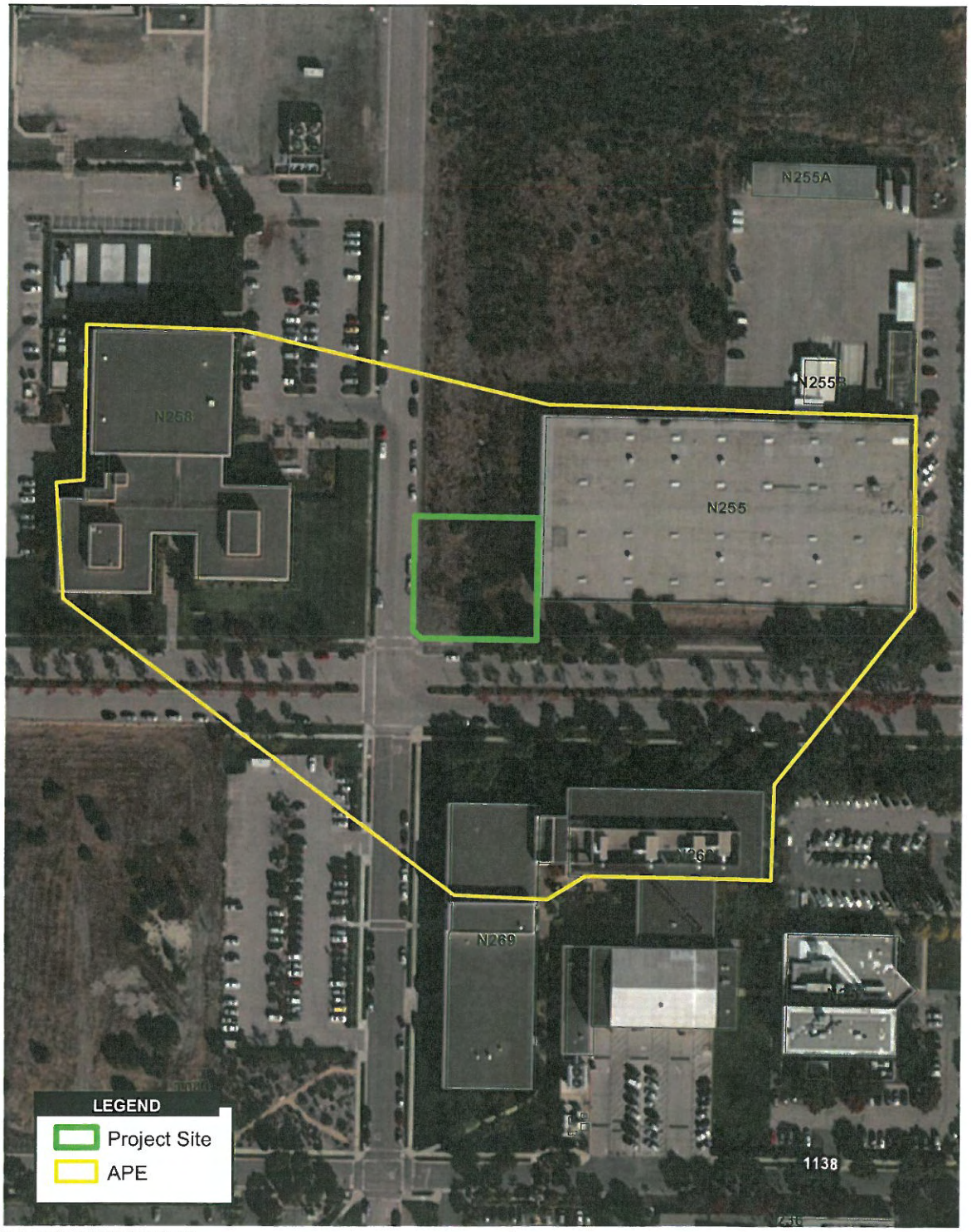


Source: Microsoft 2015; ESRI 2015

2,000 1,000 0 2,000 Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Figure 2
Project Site



Source: Microsoft 2015; ESRI 2015

200 100 0 200 Feet

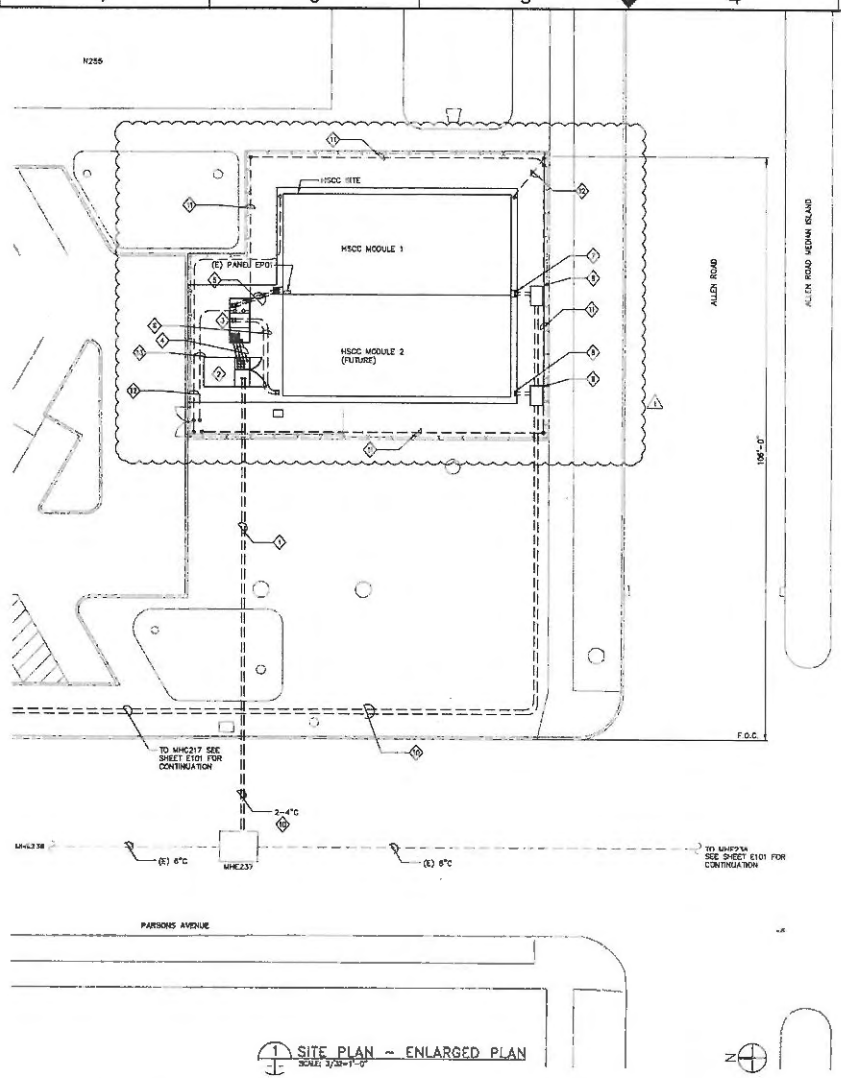
Scale: 1:4,800; 1 inch = 400 feet

Figure 3
Area of Potential Effects

NASA HSCC Module Pilot Facility Project at ARC

ATTACHMENT B

DRAWINGS



1 SITE PLAN ~ ENLARGED PLAN
SCALE: 3/32"=1'-0"

DWG NO. A258-1502-E102 | Sht. | REV 1

SHEET NOTES

1. THESE DRAWINGS WERE DEVELOPED FROM ORIGINAL DESIGN DRAWINGS. THE DEPICT CONDITIONS THAT MAY HAVE CHANGED. THESE DRAWINGS WERE DEVELOPED TO IDENTIFY THE MAJOR ITEMS WITHIN THE SCOPE OF THIS CONTRACT. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS BEFORE THE START OF WORK.
2. HATCH LINES INDICATE (E) ELECTRICAL ITEMS TO BE DISCONNECTED AND REMOVED, UNLESS OTHERWISE NOTED.
3. LIGHT LINES REPRESENT EXISTING EQUIPMENT. BOLD LINES REPRESENT NEW WORK.
4. FOR ELECTRICAL SYMBOLS SEE DRAWING E002. FOR NOTES AND ABBREVIATIONS SEE DRAWING E001.

KEY NOTES

1. PROVIDE 1X2 (2-4") CONCRETE ENCASED DUCT BANK. INSTALL 3-1/C 4/0 CU EPR GFE. SEE DUCT BANK SECTION SHEET E501.
2. 7.2x13.8KV-415/240V, 2500KVA TRANSFORMER T129.
3. 4000A BUS SWITCHBOARD, 415/240, 3ø, 4W.
4. 10[(4-750KCMIL & 1-2/0 GRD)4" RMC]
5. 4[(4-500KCMIL & 1-4/0 GRD)3 1/2" RMC]. SEE CONDUIT ROUTING DETAILS, SHEET E503.
6. 4-3 1/2" RMC. STUB UP AND CAP AT CORNER OF FUTURE MODULE. SEE CONDUIT ROUTING DETAILS, SHEET E503.
7. 2-4" RMC. SEE CONDUIT ROUTING DETAILS, SHEET E503.
8. 2-4" RMC. STUB UP AND CAP AT CORNER OF FUTURE MODULE SEE CONDUIT ROUTING DETAILS, SHEET E503.
9. PROVIDE 30"X48"X34"D COMMUNICATION PULL BOX.
10. PROVIDE 1X2 (2-4") CONCRETE ENCASED DUCT BANK FROM MHC217 TO COMMUNICATION PULL BOXES. MINIMUM 36" RADIUS ELBOWS.
11. (2#12 & 1#12 GRD) 3/4" RGS BELOW SIDEWALK FOR POWER TO FLOODLIGHTS. CIRCUIT FROM 20A/1P IN SWITCHBOARD TO STUB-UPS AT 4 CORNER POSTS.
12. 3/4" RGS BELOW SIDEWALK FOR RS232 CONNECTION TO CCTV CAMERAS AND GATE LOCK. RS232 BY OTHERS.
13. (2#12 & 1#12 GRD) 3/4" RGS BELOW SIDEWALK FOR POWER TO GATE ACCESS. CIRCUIT FROM 20A/1P IN SWITCHBOARD TO STUB-UP AT GATE.

ZONE	LETTER	DESCRIPTION	DRAWN	DATE	APPRVD
	1	ADD POWER AND COMMUNICATION CONNECTIONS	F.B.	11/6/15	

REVISIONS

DRAWN F.BONALDI	DATE	
DESIGNED F.JONES	DATE	
CHECKED J.CHOI	DATE	
PROJMGR F.JONES	DATE	
REGISTER W.THIPPEN	DATE	
N&OA	DATE	
SAFETY	DATE	
SUPERVISOR T.WORKS	DATE	

Ames Research Center
Moffett Field, California

HIGH SPEED COMPUTER MODULE PILOT FACILITY
ELECTRICAL

SITE PLAN – ENLARGED PLAN

SIZE	CAGE CODE		REV
D	25307	A 258-1502-E102	1
SCALE AS NOTED		INDEX	SHEET OF

FILE NAME:

REGISTERED PROFESSIONAL ENGINEER
No. 914616
ELECTRICAL
STATE OF CALIFORNIA

60426127.0001

NOTES:

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

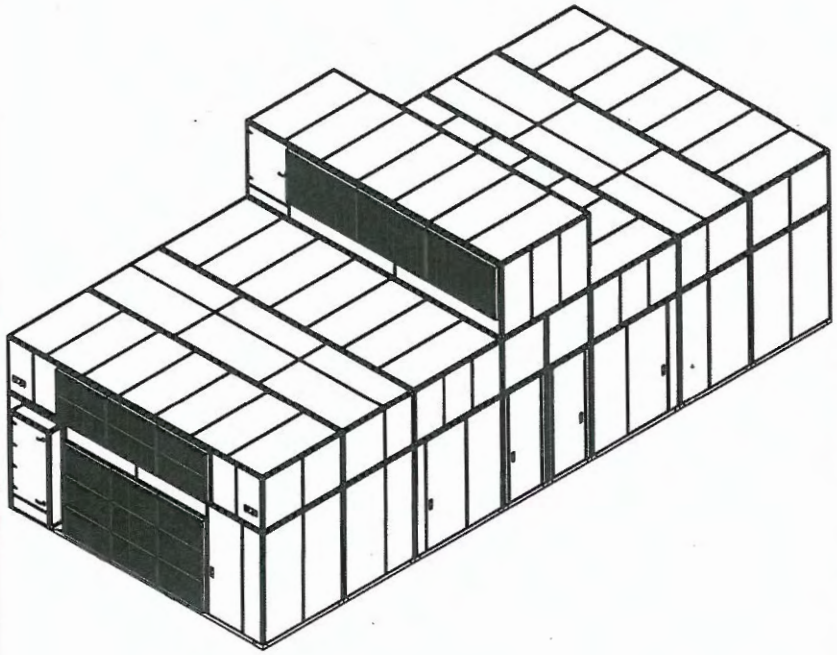


TABLE I				
WALL MATERIAL	FINISH	INSULATION	THICKNESS	INSULATION RESISTANCE
ALUMINUM 5052 H34	PAINT	POLYURETHANE	60	R14
		ROCK WOOL	60	R12
		POLYURETHANE	90	R21
		ROCK WOOL	90	R18
STEEL-A60	GALVANNEAL AND PAINTED	POLYURETHANE	60	R14
		ROCK WOOL	60	R12
		POLYURETHANE	90	R21
		ROCK WOOL	90	R18

COMMSCOPE, INC. OF NORTH CAROLINA

DENSITY:
MASS:
VOLUME:
SURFACE AREA:

TOLERANCES
0 PLACE X ±
1 PLACE .X ±
2 PLACE .XX ±
ANGLES ±

SAP MATERIAL MASTER

FINISH

MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS INTERPRET PER SO STANDARDS HANDBOOK, TECHNICAL DRAWINGS, VOLUMES 1 & 2 THIRD EDITION (2002)

	NAME	DATE
CE	GCM	03/4/15
RW		
RV		
AD		
RE		
ECN		

TITLE
DCoD, 20 RACK SYSTEM
DIMENSIONS AND WEIGHT

SIZE B | SCALE 1:256 | DOCUMENT NO. 860600220

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HEIGHT		ALL SURFACES	WORK AREA	MODEL			DRAWING			SHEET
LENGTH				VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	1 OF 4
WIDTH		✓								